Education, Urban Poverty and Migration

Evidence from Bangladesh and Vietnam

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EDUCATION, URBAN POVERTY AND MIGRATION: EVIDENCE FROM BANGLADESH AND VIETNAM

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Abstract. Despite the acknowledged importance and large scale of rural-urban migration in many developing countries, few studies have compared education outcomes of migrants to those for people born in the city. This paper uses recent data from Dhaka, Bangladesh, and Ho Chi Minh City and Hanoi, Vietnam, to examine educational expenditure and children's grade attainment, with a focus on poor households. It finds that rural-urban migrant households have fewer assets, live in worse housing conditions and in areas less well served by public schools, have fewer social connections in the area where they live, and contain adults with lower educational levels than for urban native households. Even conditional on these household characteristics, educational expenditure and grade attainment were both lower for children from migrant households than urban natives. The findings are consistent with migrant children's education being impeded by bureaucratic obstacles such as the household registration system in Vietnam. The paper concludes by noting that expansion of urban school systems sometimes fails to keep pace with population movements. While the barriers to education of recent migrants in these two contexts are in many ways similar to those of other poor urban households, they are among the most severely disadvantaged but do not always benefit from existing programmes such as school fee waivers. Specific policies may be needed to address the multiple causes of educational deprivation for this group.

Keywords: rural-urban migration, poverty, education, Vietnam, Bangladesh

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1. INTRODUCTION

While global poverty fell during the 1990s, the numbers of urban poor people rose (Ravallion, Chen and Sangraula 2007). In many developing countries more than half the urban population lives below the national poverty line (World Bank, 2003; UN Millennium Project, 2005). Recent economic crisis has made their situation worse (Jones and Corbridge 2010), causing many urban families to cut expenditure on food and children's education (Horn 2011). Many of the urban poor live in extremely poor conditions, in informal settlements with limited access to services (Baker 2008). Both government-run services and non-governmental organizations tend to neglect the urban poor. Poverty reduction strategies and national education plans rarely mention slums or urban poverty. Particularly in the least developed countries, the focus is still largely on rural poverty (Mitlin 2004; UNESCO-IIEP 2009), and few international agencies make specific provision for children in urban areas (Bartlett 2009).

A small but growing literature has documented the extent of educational disadvantage for children from poor urban households in developing countries (e.g. Mugisha 2006; Ejakait et al. 2011; Cameron 2011; Tsujita 2011). What is less clear from the existing literature is the interrelationship among rural-urban migration, urban poverty and education. There are studies (e.g. Afsar 2004) comparing migrants to those who stay in their place of origin, but few that compare rural-urban migrants to urban natives or recent migrants to longer-settled migrants, in terms of educational outcomes or poverty. In some countries, rural-urban migrants have been specifically excluded from some forms of public education provision, notably through the household registration systems operating in China and Vietnam (Liang et al. 2008; Waibel 2007). But worse educational outcomes for rural-urban migrants can also happen because they are poorer, live in worse-served areas, have lower social status or are stigmatised, have less well-educated parents, or because the act of migrating itself disrupts schooling. Schools and school systems may be poorly equipped to deal with mobile populations, and may depend for planning on population data and surveys that fail properly to cover marginalised urban groups (see Bartlett 2010).

Some recent surveys have sought to redress the neglect of the urban poor in large-scale household surveys, by specifically sampling poor and marginalized urban populations. This paper analyses two such surveys, in Dhaka, Bangladesh, and Ho Chi Minh City and Hanoi, Vietnam. It seeks to identify differences in educational expenditure and education outcomes between migrant and non-migrant households, with a focus on the poorest. It then tries to explain those differences, including in terms of length of migration, wealth, social connections and human capital built up by non-migrants, and in terms of the types of school and private tuition that migrants and non-migrants use.

The following two sections provide context for the three cities under study. Section 4 briefly reviews the literature and theory on links between urban poverty, migration and education. Section 5 describes the data and methods. Sections 6 and 7 present the results for Bangladesh and then Vietnam. Section 8 draws together and compares the results of these two studies, while section 9 concludes with policy implications and directions for future research.

2. CONTEXT: DHAKA

Some 12 million people lived in Dhaka in 2005, a number projected to grow to 17 million by 2015 (World Bank 2007; UN-DESA 2011). Depending on the poverty line and data set used, between around a third and a half of Dhaka's residents can be characterised as poor. This is a lower ratio than in Bangladesh's other large cities and lower than in rural areas (Murgai & Zaidi 2005). But inequality is higher in Dhaka than elsewhere; per capita expenditure amongst the richest quintile is estimated to be more than 6 times that of the poorest quintile (Baker 2007).[1]

Bangladesh is no exception to global urbanisation trends, although a large majority of people continue to live in rural areas. Its urban population was 5% of the total in 1960, 15% in 1980, and 28% today. The number of urban people below the national urban poverty line stayed around 10 million between 1992 and 2005, while the number of rural people below the rural poverty line dropped from 51 to 46 million during the same period. The urban poor, these figures suggest, make up a substantial and growing part of the country's total number of poor people.[2]

A slum survey led by the Centre for Urban Studies (CUS et al. 2006) finds that between 1996 and 2005, the slum population doubled, the number of slum communities increased by 70%, and the estimated proportion of the city's population living in slums increased from 20% to 37%. Although many of the slums in existence today must therefore be new, there is also a long history of slums in Dhaka. 12.5% of Dhaka's slums were established before 1971, according to the CUS et al. study, and a further 24% during the 1970s. Many are likely to have been created during the huge migration towards Dhaka just after the 1971 war and during the 1974 famine (Mahmud & Duyar-Kienast 2001; Ullah 2004). Up until the 1990s, slums tended to be set up in central Dhaka where work opportunities, especially in construction and in the rapidly-growing garment industry, were most available. More recently, new slum building has moved towards peripheral areas, and inhabitants of some older slums have also been forcibly resettled to the edges of the city (ibid.).

Rural-urban migration is thought to underlie much of Dhaka's growth, and of the growth of slums in particular. Between 1995 and 2000, the city grew at a rate of over 4% per year, and in 1991 46% of its population was born outside the metropolitan area (Baker 2007). According to UN-HABITAT (2008), 60% of Dhaka's population increase is due to in-migration (the period for this figure is not stated). In one study of people living in slums (Hossain 2006) only 11% of respondents were born in Dhaka district. However many had been there for a long time: around a fifth had lived there for more than 31 years. 88% were residing permanently in the city. A study of four Dhaka slums in 2002-04 found that around 25% had migrated in or before 1980, and a further 34% during 1981-1990 (Aparajeyo 2005: 41). Thus it has to be remembered that people living in poor urban areas are not all recent migrants; they are a mixture of new arrivals, long-term migrants, and people who have always lived there.

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[1] Moreover, it is doubtful whether the Household Income and Expenditure Survey (HIES), from which this figure was calculated, includes slum dwellers in its sample. For instance, the poorest quintile in the HIES lived in houses of, on average, 200 square feet – much larger than a typical slum household. Yet slum dwellers would be expected to dominate the poorest quintile (and possibly, the second poorest too) in any survey that adequately covered them.
[2] Figures in this paragraph are based on my analysis of data from the World Bank (n.d.). The poverty rates are also derived from the HIES and so likely underestimate urban poverty.

Migration is commonly attributed to extreme rural poverty, landlessness, land erosion, and large wage differentials between the city and the countryside. According to the surveys cited by Baker (2007), the main reason that people gave for having migrated was to find a job. Job prospects in the village were seen as insufficient, and they perceived that there would be a high probability of finding a job and earning a higher income in the city. Smaller numbers of migrants cited a perception of better education and other services as their reasons for migration (Baker 2007; Bhuyan et al. 2001).

It is not always the poorest who migrate, however (Bhuyan et al. 2001). Wealthier and better-educated people migrate from rural areas to take advantage of educational and career opportunities available in the cities. There may also be costs of migrating – and of finding a job in urban areas – that stop the poorest from following this route. One study (Afsar 1999) found that 90% of the migrants in Dhaka came from only four districts, districts that were not necessarily among the poorest districts in the country but had a strong history of out-migration.

Migrants may be better off post-migration compared to pre-migration, in terms of income and access to jobs. Studies of migrant employment suggest that migrants are right to expect better job opportunities in the city. Afsar's study found that "three out of five slum dwellers and squatters found work within a week of their migrating to Dhaka city" (Afsar 2005: 11-12). However some migrants cite "lack of jobs" as a drawback to their new locations (Bhuyan et al. 2001), suggesting that not all find the abundance of jobs they were expecting. Most heads of household who migrated in Afsar's study eventually acquired "skills and support from social networks allowing them to enter the skilled construction and manufacturing sectors, run small businesses and rent shops, own rickshaws and other assets, and build houses" (Afsar 1999: 244-5). Migrants who had stayed for longer tended to invest more than recent migrants in nutritious food and children's education (ibid).

It is not clear from the literature, however, whether migration tends to affect children's educational outcomes positively or negatively.[3] Public primary schools are free in Bangladesh, although there are sometimes unofficial fees, and private tuition is common (World Bank 2001; Ahmed et al. 2005). Both private and public secondary schools charge fees. Education indicators are usually substantially higher for urban areas than for rural areas in Bangladesh, and Dhaka has among the best in the country. For instance UNICEF (2010) reports that primary net attendance rates were 83.9% in urban areas compared to 80.8% in rural areas, and 84.1% in (mostly urban) Dhaka district. However, for urban slums the rate falls dramatically, to 65.1%. At secondary level the attendance rates were 53% for urban areas, 48% for rural, 49% for Dhaka district, and only 18% in slums. Consequently, it is not clear from the previous research what education outcomes are likely to be for rural-urban migrants compared to urban averages, which may conceal the large inequalities within urban areas.

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[3] See Giani (2006) for a discussion. Education would be disrupted both by the act of migrating, and by the poor availability of schools to migrants who end up in urban slums. On the other hand, access to decent-quality schools is often also poor in rural villages, and some families may have better educational options after migrating.

3. CONTEXT: HO CHI MINH CITY AND HANOI

The urban population of Ho Chi Minh City grew from 4.2 million in 1999 to 5.9 million in 2009; that of Hanoi grew from 1.6 to 2.6 million in the same period (GSO 2011). Ho Chi Minh City has the highest per capita income levels in Vietnam (Hartley & Toan 2008). Inequality in Vietnam has been low by international standards, but is greatest in the large cities (Minot & Baulch 2003). While the proportion in poverty remains higher in rural areas, the absolute number of poor people is greater in cities, and is reportedly increasing; urban slums are "extensive and growing" (Hartley & Toan 2008: 7).

Rural-urban migration has increased in both relative and absolute terms over the last two decades. Around 2.1 million people were added to the urban population between 2004 and 2009 (GSO, 2011). In 2009, 9% of the urban population had migrated from a rural area in the past five years. However GSO (2011) also records some migration in the opposite direction: 0.5 million had migrated from urban to rural areas during 2004-2009, perhaps reflecting temporary or cyclical migration. The urban population almost doubled between 1999 and 2009 while the rural population increased by around 60%. In 2009 around 30% of the total population lived in cities, bringing Vietnam to a similar level of urbanization as Bangladesh, although with a much smaller population overall (ibid).

A household registration system called *hokhau* (with resemblances to the Chinese *hukou* system; see section 4 below) governs the rights that can be accessed by internal migrants. Households that have official registration in their places of residence have full access to public facilities and social services within that district. Other households are classified as 'temporary residents' or 'floating migrants' and are only allowed to access public schools that are not already used to full capacity (Waibel 2007). Some migrants choose not to seek permanent residence registration, because they want to keep their residence in the rural area, in order to keep their land there and send their children to rural schools (Oxfam & ActionAid 2010). The Oxfam/ActionAid study suggests that schools and local government sometimes bend rules to allow migrant children to enter, even without the expected certification (for instance, a kindergarten completion certificate is usually required to enter primary school). This sometimes resulted in large class sizes. Public kindergartens were over-subscribed and migrant parents had to send their children to private day care centres instead. There were tuition discounts and exemptions for poor children, but they only applied to permanent residents.

Some studies also find that migrants are disadvantaged economically, compounding the problems caused by their limited access to public services. Many cannot afford to buy formal housing and instead rent space in "boarding houses" (Hartley & Toan 2008; Waibel 2007). Oxfam and ActionAid (2010) finds that poor migrants who are temporary residents struggle because of high living costs in the city and because they send remittances to their rural homes. The high cost of education was a constant concern for poor parents.

Dapice et al. (2010) claim that official statistics seriously underestimate the urban population and urban growth. The commonly used Vietnam Household Living Standards Survey (VHLSS) excludes urban migrants who do not have residential status in the city where they are living, and so are likely to underestimate the real level of urban poverty (Hartley & Toan 2008). Although sampling design was improved for the 2010 round of the VHLSS, it still is not able to cover all groups of

people, and in particular included very few migrants who were living in cities without a regular residence permit (Haughton et al. 2010).

Using results from the 2009 Urban Poverty Survey in Ho Chi Minh City and Hanoi, upon which the current study is also based (see section 5 below), Haughton and Loan (2011) find that almost every child aged 6-10 was in school. For 11-14 year-olds, 93% of children were attending school, and even among 15-17-year-olds 70% were still in school. Among unregistered migrants, however, only 69% of 11-14-year-olds and 17% of 15-17-year-olds were in school. The study also reveals that migrants are more likely to use private or semi-private schools than registered residents. Public schools, at both primary and secondary levels, charge fees with a system of fee exemptions, but migrants do not particularly seem to benefit from the exemptions: 4.5% of 11-14 year-old migrants in school got full or partial tuition remission, compared to 9.1% of all 11-14-year-olds in school. Most exemptions were for younger, primary school age children. Despite being both less likely to get fee exemptions and more likely to use private schools, migrants spend less on education, and this remains the case even when controlling for age, sex, parents' education, income per capita, and the number of siblings.

The Haughton et al. (2010) study, also using the Urban Poverty Survey, finds surprisingly low rates of poverty despite the survey's over-sampling of parts of the city believed to be poor and with large numbers of unregistered migrants. Poverty rates also did not seem to vary between non-registered migrants and registered residents. Using a $2 a day poverty line, only 3.0% of migrants and 2.6% of residents were poor, and the difference was not statistically significant. Using city-specific higher poverty lines set by local government, the rates of poverty were 9.6% for migrants and 9.7% for residents, and again not significantly different. However, using a multi-dimensional poverty approach that includes income, education, health, social security, housing quality, housing services, social inclusion and physical safety, they found high rates of deprivation, with migrants much worse off than residents, in all areas except physical safety and income. I return to these issues in section 7, finding that poverty classification differs greatly depending on whether the poverty line is based on gross income, income net of remittances, or an assets index. First, however, I briefly examine what the broader research literature and theory has to say about the interconnections between rural-urban migration and education.

4. RURAL-URBAN MIGRATION AND EDUCATION: LITERATURE AND THEORY

There is a substantial research literature relating to links between education and migration. Much of it has focused on the question of whether people with higher levels of education are more likely to migrate (within a country or internationally), as predicted by economic models such as that of Harris and Todaro (1970). Empirical studies have supported this prediction in many but not all contexts (see Williams 2009). Other studies have focused on the availability of schools or universities as a pull factor attracting migrants to the city (Giani 2006) or, almost equivalently, the absence of good quality education in rural areas as a push factor (World Development Report 2009, cited in Schapiro 2009). There is some research on the effects of both international and internal migration on children left behind (Siddiqui 2003; Antman 2012; Schapiro 2009), who may suffer from the absence of the migrated family member but benefit economically from remittances. There are studies on the education of international migrants in richer destination countries (e.g. Schaafsma & Sweetman 2001; van Ours & Veenman 2006), and examining the effects of both internal and international immigration on the educational outcomes of native populations (e.g. Berker 2009; Gould et al. 2004; Brunello & Rocco 2012).

Perhaps surprisingly given the recognised importance and large scale of rural-urban migration, I have found very few studies that examine education outcomes for children of rural-urban migrants in their destination cities. One exception is Harttgen and Klasen (2009), which combines data from Demographic and Health Surveys (DHS) and other household surveys for 16 countries to calculate disaggregated Human Development Indices[4] for migrants and non-migrants. In almost all of the countries studied, urban migrants were richer than rural non-migrants, and in all of them, urban migrants had better education indicators than rural non-migrants. In nine of the countries, urban migrants had better education indicators than urban non-migrants.

The finding that migrants in urban areas in some countries have higher incomes and better education indicators than urban non-migrants is somewhat surprising given the common association that is made between rural-urban migration, urban poverty and informal settlements. But it has been argued elsewhere that migrants are not always the poorest in either their origin or destination communities, and initial differences in income after migrating may be made up over time (de Haan, 2000). Stereotypes of migrants becoming "rickshawpullers, garbage pickers and prostitutes" (de Haan, 2000: 9) can be misleading. On the other hand, the Harttgen and Klasen study does not distinguish urban-urban from rural-urban migrants, and the surveys they use probably do not adequately cover marginalized urban groups such as people who live in slums or in the street, and so may omit the most disadvantaged migrants.

At least in some contexts, there are likely to be significant gaps in income and wealth between migrants and natives of urban areas, with implications for private educational expenditure, child labour, and consequently, educational outcomes. International migrants do not always have worse educational outcomes than natives, but where they do, differences in socio-economic status have been shown to play a large role in explaining immigrants' disadvantage (Schnepf, 2007). As

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[4] A combined index based on life expectancy, educational attainment and income, used by the United Nations Development Programme in its annual Human Development Reports. Originally used only at the national level, Harttgen and Klasen (2009) use a method developed by Grimm et al. (2008) to disaggregate it by migration status and rural/urban location, for Bolivia, Cameroon, Colombia, Cote d'Ivoire, Ghana, Guatemala, Guinea, Indonesia, the Kyrgyz Republic, Madagascar, Nicaragua, Paraguay, Peru, Uganda, Vietnam and Zambia. For the education component, Harttgen and Klasen use adult literacy and school enrolment of 5-23-year-olds.

mentioned in the preceding sections, there is some evidence for similar processes of migration status, low incomes (compared to urban prices), and costs associated with schooling, combining to make access to education difficult for poor rural-urban migrants in Vietnam and Bangladesh.

Several studies have examined education of rural-urban migrants in China, where a household registration system (*hukou,* with similar origins to the *hokhau* system in Vietnam) has limited access to urban schools for non-registered migrants. Rural or urban hukou is inherited from parents regardless of place of birth, and children with rural hukou could not access urban schools unless the school had a 'guest' student quota, in which case guest students were usually charged higher fees. Wu (2011) uses national representative data from 2005 to examine the effects of the hukou system, using an endogenous switching model to control for the selection bias that might arise because people of rural origin can sometimes attain urban hukou through enrolling in education. Wu finds that the hukou system enlarges educational inequalities beyond those that would exist due to differences in wealth, parental education, and so on. People of rural hukou are substantially disadvantaged in terms of years of schooling, and the disadvantage was consistent over time.

Despite the obstacles, many migrant children do enrol in urban schools in China. In a study of Guangdong province (Liang & Chen 2007) 60% of temporary migrant children, but 90% of permanent migrant children, were enrolled in school within the first year of migrating. Newly arrived temporary migrant children were worse off educationally than rural children in the same province, and able to reach parity with local (urban) children only five years after migrating, whereas permanent migrant children did not face any disparity.

A lack of social connections and power are often given as arguments for why newly arrived migrants would tend to be disadvantaged in education. Liang and Chen (2007) emphasise the role of social networks that migrant households have to build up over time and draw on in order to find and access education. This type of argument has some parallels with the "acculturation" theory of international immigration, which predicts that immigrants' educational outcomes are poor during a period of adaptation to their destination culture, language and society, before eventually catching up (e.g. Perlmann, 1988, cited in Chiswick & DebBurman, 2004). However de Haan (2000) disputes the idea that social capital is always lost when people migrate, arguing that social networks and contacts in the city often exist and are used in the process of migrating, links between the origin and destination community are maintained after migration, and migration can improve one's social relations, honour and status. Nevertheless, newly arrived migrant households may be relatively lacking in the specific social connections and information sources needed for education. If this is likely to be the case then it becomes important for studies to take into account how recently people migrated and/or their age at migration, as in the Liang and Chen (2007) study.

Migrants may meet with more or less overt forms of stigma and discrimination, especially where it coincides with residence in a slum area, minority ethnicity or language, or belonging to an "institutionally created underclass" (as Afridi et al. 2012 term the hukou system). In an experimental study in Beijing, Afridi et al. find that making students' hukou status salient and public (by asking them about it) reduced the performance of rural migrant students in a cognitive task. They interpret this as evidence that the hukou system reduces their incentives for learning, possibly because they expect to be discriminated against and do not expect to be rewarded fairly

for effect. While potentially important in itself, it should perhaps be emphasised that any such stigma or incentive impediments to learning come *in addition* to more explicit discrimination in the distribution of state resources; as explanations for worse learning outcomes they are not mutually exclusive.

The process of migration can disrupt children's education directly (Schapiro 2009), especially given that migration is often cyclical, involving repeated journeys between the rural origin and urban destination (de Haan 2000). Studies from developed countries have found negative effects of residential mobility on learning achievement (e.g. Voight et al. 2012). But a study in South Africa (Ginsburg et al. 2011) finds that residential mobility did not appear to have an adverse effect on educational outcomes; there was some evidence, to the contrary, that educational outcomes improved, possibly as a result of improved living circumstances in the destination area. Several different factors may affect what happens when children of school age migrate. On one hand the process of migration may disrupt schooling; on the other, if rural schools have lower quality, then children may benefit from passing into a higher quality urban school. In either case, age or grade at migration is likely to be important, because disruption to education may matter more at some school grades than others (for instance, before major exams), and because it affects the relative amounts of time spent in schools of varying quality.

Rural-urban migrants may have different labour market opportunities to urban natives, affecting their returns to education. In China, migrants enter a segmented labour market and often plan to return to their area of origin, and so have low incentives to achieve a high level of education (Ping & Pieke 2003, cited in Schapiro 2009).

A final potential source of disadvantage for rural-urban migrants is their location of residence. They tend to live in informal settlements (although sometimes at close quarter to wealthy neighbourhoods), in order to avoid paying high rents, to make sure they are close to employment opportunities, and in some cases because they are not legally entitled to buy property (e.g. Haughton et al. 2010). Provision of services such as education is poor (Cameron 2010; Schapiro 2009), and the lack of infrastructure and services can also have indirect effects on education, for instance through sanitation, poor health, and time needed to collect water (e.g. Subbaraman et al. 2012). Service provision is not uniform in such cases but depends on one's legal status: for instance, whether one has local registration in China and Vietnam (Waibel 2007; Liang et al. 2008), or whether one lives in a 'notified' (legally recognized) slum in India (Subbaraman et al. 2012).

In summary, there is evidence from some contexts, but not universally, that rural-urban migrants have worse educational outcomes than urban non-migrants. Where this disadvantage exists, possible explanations of it include differences in wealth or income, a lack of social connections particularly for newly arrived migrants, stigma and discrimination, disruption to children's education during the migration process, differences in school quality between rural and urban areas, different returns to education, and residence in areas with poor supply of school places. In the following sections, I describe the survey data and methods used in the present study, then present evidence that this disadvantage does exist in Dhaka, Ho Chi Minh City and Hanoi, and consider which of these explanations are most likely to apply.

5. DATA AND METHODS

The data for Dhaka is from a household survey conducted in 2008 as part of the Consortium for Research on Educational Access, Transitions and Equity (CREATE),[5] a survey which also covered several poor rural areas (see Cameron 2010, 2011). 1,600 households were interviewed in four slums. Some households (all those containing at least one 11- to 15-year-old) were selected for a longer interview including migration data, yielding a total of 920 6-15-year-olds within households for which migration data is available. More in-depth semi-structured interviews were also conducted with 30 of these households.

The data from Vietnam is from the Urban Poverty Survey conducted in 2009 by the Ha Noi and Ho Chi Minh City People's Committees and the General Statistics Office, with support from the United Nations Development Programme.[6] It deliberately over-samples "wards/communes believed to have a high poverty rate, a large non-registered (KT4) population, high population growth, and many large enterprises" in Ho Chi Minh City and Hanoi, using enumeration areas from the 2009 census, and the data set includes sample weights so that representative statistics can be estimated (Haughton et al. 2010, p. 9).

There are some important differences between the two data sets. In particular, the Vietnamese data aims to be representative of the total population of the two cities, while the Bangladesh data samples only the population of four slums. The Bangladesh data allows one to examine within-group inequalities for poor urban households, but with the Vietnam data one can examine both between-group and within-group inequalities for poor and non-poor households. The Vietnam data is not only education-focused and so I am able to include a wider range of variables. In Vietnam, I am only able to identify those migrants who are not officially registered in the city where they are living; those who are registered are treated as non-migrants even though they may be migrants who later gained local registration. Educational expenditures in the Vietnam data are measured at the household level, whereas for Dhaka they are available for each individual child. Consequently, results from the two data sets cannot be directly compared and highlight slightly different sets of issues. I therefore report the results separately and then compare the two cases in the concluding section of this paper.

I use two educational outcome measures. The first is educational expenditure, defined as the total annual costs of education for a school-going child, and set to zero for children who are not in school. The second is educational attainment, defined as the highest grade studied (for Bangladesh) or the highest level of education reached (for Vietnam), and set to zero for children who have never been to school. Both expenditure and attainment are modelled as functions of the household's economic, human and social resources, on the grounds that in a credit-constrained environment where education has significant costs but high returns, demand for schooling depends to a large extent on the household's initial resource endowment (see Cameron 2012). The household's current income is also included on the basis that shocks to income can cause students to drop out from school (Grimm 2011), and the number of children in the household is included because a household's full resources have to be split between its members. I also include the

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5 See www.create-rpc.org
6 See bit.ly/ups_vietnam

child's age, age squared, and sex in case these confound the relationships between educational expenditure and household characteristics (although there is no significant relationship between any of the household characteristics and child's sex or age).

I use a Tobit model for a censored dependent variable (Tobin 1958) to examine the differences in educational expenditure between non-migrants and migrants, conditional on household characteristics and the age and sex of the child. The Tobit model is appropriate because educational expenditure cannot fall below zero, but is at zero for many children (mostly those who are not in school),[7] and is often applied to educational expenditures (e.g. Huy (2012) for Vietnam, Tansel and Bircan (2006) for Turkey, and Qian and Smyth (2010) for China).

For education attainment, both samples consist of a mixture of children who are still in school, who never entered school, and who entered but dropped out. The measure of educational attainment is the highest grade they reached for Bangladesh, or the highest level of school reached for Vietnam. For children still in school, this variable is censored in that they could still reach a higher grade. Children who have never entered school can be seen as cases of a corner solution where grade attainment is zero. Furthermore, grade attainment is measured in discrete intervals, and there are "spikes" around the end of primary school, as many children are unable to make the transition to secondary. A model that deals with all these aspects of the data is the censored ordered logit or probit model proposed by King and Lillard (1983, 1987) and used in several subsequent studies (e.g. Al-Samarrai 2007; Glick & Sahn 2000; Holmes 2003).

Subsequently, I use counterfactual analysis of predictions from these models to examine the extent to which differences in expenditure and attainment between migrants and non-migrants can be explained by differences in household characteristics such as assets, social connections, parents' education and income. More details on the covariates used are reported in the results sections (6 and 7), and in the appendix.

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[7] Strictly speaking the dependent variable is not modelled as censored in the sense that the observed variable reflects some underlying unobserved variable (say, demand for education or propensity for education spending) that can take on negative values. Rather, the model used here should be seen as a corner solution model (Wooldridge 2002), where for some agents the optimal choice is the corner solution (zero expenditure) but for others, expenditure is a continuous random variable over strictly positive values. The same Tobit estimation technique still applies.

6. RESULTS: DHAKA

In the following sections, I first present differences in household characteristics, education grade attainment and educational expenditure by migration status, using both descriptive statistics and regression analysis controlling for household characteristics. I then use analysis of counterfactuals to examine the contribution of various household characteristics to the disparity in educational outcomes. Finally, I focus on the issue of how recently the household migrated, examining various hypotheses that might explain why more recently-arrived migrants are worse off than longer-settled ones.

6.1. Differences by migration status

Table 1 presents descriptive statistics on wealth, household income, demographics, education, and social connections broken down by migrant status. It is first worth observing that over half the migrant households in the sample had been in Dhaka for more than 10 years and 18% of the total were non-migrants, casting doubt on the connection that is commonly drawn between recently high levels of rural-urban migration and the existence of slums. Nevertheless, a quarter had been there less than five years.

There was a strong correlation between migration status and wealth: more recently arrived migrants are poorer than longer established migrants, and non-migrants are the richest group of all, making up over half of the richest wealth quintile. Recent migrants are also poorer in income terms, although the relationship is weaker, with no significant differences among migrants who have lived in the city less than 20 years. Recently migrated households are on average smaller, yet have more children, than longer-term and non-migrant households. Non-migrants are much more likely than migrants to have been to secondary school. The trend is less clear among shorter- and longer-term migrants. Again, differences in age may affect educational levels due to cohort effects; I explore these below. There were three children in the sample in child-headed households; they had all dropped out of school and were in migrant households, but the number of cases is not sufficient to draw further conclusions about this group. Finally, non-migrants and longer-term migrants generally have more social connections than shorter-term migrants.

These results are not very surprising. Assets and social connections in the city, which take longer to build up, are the resources where there is most disparity among recent migrants, long-term migrants, and non-migrants. Recent migrants may continue to hold most of their wealth as land or assets in their village of origin. Despite the importance of social connections for the likelihood of migrating in the first place (Afsar 1999), recent migrants do not have as many friends or relatives in the city as those who have been there longer. Education, mostly gained as a child, does not vary as much among the migration categories, except that household heads of non-migrant households are strikingly more likely to have been to secondary school, probably reflecting a historically higher supply of secondary education in the city. Income levels are not significantly different among migrants of 0-19 years' standing, suggesting that there may be limited wage returns to building up wealth, social connections and experience in the city, at least for the first 20 years.

Table 1. Household-level descriptive statistics by migration categories, Bangladesh

Years since migration	0-4	5-9	10-19	20+	non-migrant
proportion in sample (%)	27	14	23	18	18
breakdown by wealth quintiles (%)					
poorest (Q1)	33	32	23	7	0
middle (Q3)	14	16	29	28	11
richest (Q5)	9	5	5	23	54
household income (taka)	6036	5934	6036	7157	7647
per capita household income (taka)	1272	1234	1193	1289	1431
household size	5.13	5.28	5.33	5.61	5.47
number of children (age 0-15)	2.46	2.52	2.34	2.30	2.38
educational level of household head (% of households)					
never went to school	47	53	51	47	26
primary	43	33	35	37	36
secondary or higher	10	14	14	16	38
indicators of social connections (% of households)					
a lot of friends	11	16	35	46	39
some friends	63	67	42	35	46
few or no friends	26	17	23	19	15
have relatives in this area	68	57	74	88	99
have relatives elsewhere in Dhaka	68	71	74	81	86
belong to an organization	16	16	26	24	24

Note: 'Years since migration' is the length of time since the primary caregiver of children in the household came to Dhaka. Educational level is the maximum level reached (whether completed or not.)

Table 2 presents educational indicators by migrant categories. In each case, educational indicators steadily improve by length of migration and are best for non-migrants, except that educational expenditure and average grade attainment do not differ significantly between very recent (0-4 years) and less recent (5-9 years) migrant households.

Table 2. Educational indicators for children aged 6-15 by migration category (Bangladesh)

Years since migration	0-4	5-9	10-19	20+	non-migrant
annual educational expenditure for this child	1348	1083	2400	4659	9307
school-going (%)	45.1	51.4	62.0	79.6	94.1
– 6-10 year-olds	58.4	63.8	74.0	86.0	93.3
– 11-15 year-olds	37.0	42.2	53.6	75.9	94.4
grade attainment	2.5	2.6	3.1	3.7	4.8
grade attainment (standardised by age)	-0.442	-0.362	-0.088	0.146	0.492

Note: Indicators are at the child level; years since migration refers to the migration to Dhaka of the child's primary caregiver. Annual educational expenditure excludes food and is set to 0 for non-schoolgoing children. Grade attainment is the highest grade reached, or zero for children who have never been to school. Grade attainment standardised by age is the z-score of grade attainment within each age group (6-year-olds, 7-year-olds, etc.).

Previous research on the same study areas (Cameron 2010, 2011) has established that, as expected, education indicators improve with the wealth, income, parental education and social connections of the household. Here, I use Tobit and censored ordered logit analysis to compare educational expenditure and grade attainment between migrant and non-migrant households, controlling for these other household characteristics.

Table 3 shows the coefficients estimated by the Tobit model for educational expenditure, the marginal effects of the explanatory variables on the probability of non-zero expenditure according to the model, and the marginal effects on expenditure conditional on expenditure being uncensored (i.e. non-zero). Expenditure is not significantly different between male and female children. The (significant) coefficients on age and age-squared indicate an inverted-U pattern, where expenditure first increases, peaks around age 9, then decreases. This is likely to reflect enrolment patterns: late enrolment means many 6- and 7-year-olds are not in school, and drop-out means many children older than 10 are not in school either. Although expenditure typically increases with school grade, over-age enrolment and grade repetition are common, especially among poorer and less educated households (see Cameron 2011), and consequently the relationship between age and educational expenditure conditional on household characteristics is dominated by the tendency for enrolment rates to peak around age 9, rather than the countervailing tendency for expenditure to increase with school grade.

The household's wealth, parents' education, and location are all significant. The wealthiest quintile spend four times as much as the poorest. Income is also separately significant, suggesting that the household's current income as well as its longer-term economic status (as proxied by the wealth index) affects educational spending. Social connections are not significant individually or jointly.

Migration variables are significant, and the estimated effects are substantial in size. Having migrated twenty years ago or more, or being a non-migrant, is associated with expenditure several times higher than having migrated in the past five years.

Table 3. Tobit model for educational expenditure (Bangladesh)

	coefficient			marginal effects: probability expenditure > 0			marginal effects conditional on expenditure > 0		
female	0.260	(0.74)		0.015	(0.74)		0.196	(0.74)	
age	2.997	(5.40)	***	0.168	(5.45)	***	2.264	(5.46)	***
age squared	-0.162	(6.14)	***	-0.009	(6.23)	***	-0.122	(6.24)	***
children aged 0-15	-0.339	(1.94)		-0.019	(1.95)		-0.256	(1.94)	
wealth quintile (baseline = poorest)									
2	-0.364	(0.63)		-0.025	(0.63)		-0.246	(0.63)	
3	1.609	(2.35)	*	0.100	(2.31)	*	1.191	(2.37)	*
4	2.677	(3.59)	***	0.154	(3.51)	***	2.064	(3.62)	***
5 (richest)	4.152	(4.57)	***	0.213	(4.72)	***	3.353	(4.51)	***
ln(income)	0.834	(2.07)	*	0.047	(2.07)	*	0.630	(2.07)	*
parents' education	0.188	(3.32)	**	0.011	(3.31)	**	0.142	(3.33)	**
belong to an organisation	0.516	(1.20)		0.029	(1.20)		0.390	(1.20)	
relatives in area	0.206	(0.41)		0.012	(0.41)		0.155	(0.41)	
relatives in Dhaka	-0.199	(0.43)		-0.011	(0.43)		-0.150	(0.43)	
know a leader	-0.540	(1.23)		-0.030	(1.24)		-0.408	(1.23)	
friends (baseline = a few/none)									
some	-0.176	(0.40)		-0.010	(0.40)		-0.134	(0.40)	
many	-0.254	(0.44)		-0.014	(0.43)		-0.192	(0.44)	
location (baseline = area A)									
B	-1.482	(2.75)	**	-0.081	(2.74)	**	-1.163	(2.76)	**
C	-0.044	(0.06)		-0.002	(0.06)		-0.037	(0.06)	
D	-3.008	(4.60)	***	-0.179	(4.72)	***	-2.223	(4.66)	***
years since migration (baseline = 0-4)									
5-9 years	0.573	(0.95)		0.037	(0.96)		0.402	(0.94)	
10-19 years	1.743	(3.26)	**	0.106	(3.23)	**	1.285	(3.27)	**
20+ years	2.701	(4.41)	***	0.154	(4.44)	***	2.064	(4.35)	***
non-migrant	2.298	(3.31)	**	0.135	(3.41)	**	1.731	(3.21)	**

Note: N = 751. The unit of analysis is the individual child and the dependent variable is the natural logarithm of annual educational expenditure for that child, excluding food. Numbers in parentheses are absolute values of t-scores (for Tobit coefficients) or z-scores (for marginal effects). Statistical significance: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 4. Censored ordered logit on educational attainment

	Model 1			Model 2 (with child characteristics)		
female	0.618	(3.43)	**	0.597	(3.14)	**
age	1.613	(5.78)	***	1.603	(5.47)	***
age squared	-0.069	(5.31)	***	-0.068	(5.00)	***
children aged 0-15	-0.120	(1.47)		-0.068	(0.81)	
Wealth (baseline = poorest)						
2	-0.001	(0.00)		-0.063	(0.25)	
3	0.568	(1.79)		0.693	(2.07)	*
4	1.013	(2.74)	**	0.893	(2.31)	*
5 (richest)	2.384	(4.06)	***	2.204	(3.66)	***
ln(income)	0.215	(0.97)		0.167	(0.73)	
parents' education	0.134	(4.19)	***	0.124	(3.71)	***
belong to an organisation	0.198	(0.83)		0.244	(0.97)	
relatives in area	0.136	(0.61)		0.122	(0.52)	
relatives in Dhaka	-0.023	(0.10)		-0.144	(0.61)	
know a leader	0.045	(0.22)		-0.134	(0.61)	
friends (baseline = none/few)						
some	-0.041	(0.17)		-0.090	(0.37)	
many	-0.291	(0.96)		-0.486	(1.57)	
location (baseline = area A)						
B	-0.636	(2.70)	**	-0.718	(2.88)	**
C	0.562	(1.29)		0.561	(1.26)	
D	-1.168	(3.95)	***	-1.375	(4.13)	***
child's height for age				0.106	(1.15)	
child health (baseline = very good)						
good				-0.168	(0.59)	
mediocre				-0.345	(1.12)	
sometimes or always sick				-0.430	(0.83)	
years since migration (baseline = 0-5 years)						
5-10 years	0.173	(0.67)		0.163	(0.61)	
10-20 years	0.593	(2.52)	*	0.637	(2.55)	*
20+ years	0.940	(3.00)	**	0.976	(2.92)	**
non-migrant	1.466	(2.95)	**	1.563	(3.06)	**

Note: N = 754. Estimates for threshold parameters not shown. Numbers in parentheses are absolute values of z-scores. Statistical significance: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 4 presents results of the censored ordered logit analysis of educational attainment (highest grade reached). Because of the non-linear structure of the model, the coefficients cannot be interpreted as the actual impact of each variable on grade attainment, which must instead be estimated using comparative statics (Glick & Sahn 2000). Model 1 includes the child's age and sex, and household characteristics, while Model 2 adds the child's health and height for age (an indicator of stunting; see World Health Organization n.d.). The results of the two models are similar, and the health and height for age coefficients are non-significant, so I focus on Model 1.[8]

The results are somewhat similar to those for educational expenditure. Age and age-squared are again significant, and with opposite signs, suggesting an inverted-U pattern of expected attainment.[9] But while for expenditure, there was no significant difference between boys and girls, there is a significant difference in terms of expected years of school equivalent to around 0.6 grades, consistent with other studies in Bangladesh that have shown higher enrolment rates for girls than boys (World Bank 2008; UNICEF 2010).[10] Current household income, on the other hand, appears to affect current educational expenditure but is not significant in explaining variation in expected grade attainment in a model that also includes wealth and other household characteristics.

There were significant differences by wealth, parents' education, and location. Children from households in the fourth and fifth wealth quintiles had expected attainment 1.0 and 2.4 grades higher, respectively, than those in the poorest wealth quintile. Non-migrants had the highest expected attainment, 1.5 grades higher than the most recent (0-4 years) migrants. Long-term (20 years+) migrants had attainment 0.9 grades higher than the most recent migrants. Social connection variables were significant neither individually nor jointly.

6.2. What explains the differences by migration status?

In order to examine the differences between the migrant categories, I estimate the predicted educational expenditure and grade attainment for each of the migrant categories, under a series of counterfactuals. First, I use the model to predict what educational expenditure would be for a household in each migrant category that has average characteristics for that category. As would be expected given the coefficients in the models estimated above, there is a large gap in predicted expenditure between each of the migrant categories and non-migrants. Then, I shift the wealth of these (imaginary) average migrant households to the average wealth for non-migrants, and calculate what fraction of the expenditure gap is closed by doing this. Then I repeat this but manipulating the other covariates (the number of children in the household, income, parents' education, social connection indicators, and location) one at a time, instead of wealth.

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[8] Children with lower height for age and worse health *are* less likely to be in school when household characteristics are left out of the model. High correlations between the two sets of variables make it difficult to distinguish whether some of the estimated effects of household characteristics might operate via child health and nutrition.
[9] Glick and Sahn (2000) estimate educational attainment only for children aged 10 and over, on the grounds that children aged under 10 and not yet in school may enrol later and so it is inaccurate to assign them an expected grade of zero. I check whether this influences the results by also estimating the models for the sub-sample aged 10 and over. This does not affect the significance of the coefficients and only slightly affects their magnitudes; the estimated effects of wealth and migration become larger.
[10] I also test whether separate models are needed by estimating a model with interaction terms between sex and the other independent variables. However a joint test on the interaction terms was unable to reject the hypothesis that their coefficients were all zero, suggesting that separate models for males and females are not needed.

Table 5 reports the results, showing that the difference in wealth is by far the most important in explaining the gap between non-migrants and migrants. Assigning recent (0-4 years) migrant households the average wealth levels of non-migrant households would, according to the model's predictions, reduce the gap in educational expenditure by 37%. If recent (0-4 years) households had similar levels of parental education to non-migrants, the gap is reduced by 10%; and if they lived in the same areas, by 13%. The importance of location reflects large differences in school supply in different parts of the city, even though all of the study areas were informal settlements, and the fact that recent migrants appear to live in areas that have worse service provision. Altogether the household characteristics included here can explain 64% of the gap between the most recent (0-4 years) migrants and non-migrants, rising to 85% of the gap between longer-term (10-19 years) migrants and non-migrants. For migrants who came to the city more than 20 years ago, the results suggest their educational expenditure would actually be higher than that of non-migrants if they had similar household characteristics.

Table 5. Share of expenditure gap closed if a migrant household had non-migrant characteristics

	years since migration			
	0-4	5-9	10-19	20+
children aged 0-15	0.008	0.017	0.004	0.007
wealth	0.369	0.458	0.472	0.606
ln(income)	0.025	0.033	0.028	0.026
parents' education	0.101	0.095	0.123	0.243
social connections	0.003	0.021	0.016	0.061
location	0.129	0.117	0.203	0.209
all	0.635	0.741	0.847	1.151

Note: The results are the proportional reduction in the gap between non-migrant and migrant household that is predicted to occur if migrant households are assigned typical non-migrant characteristics.

Table 6 applies the same type of analysis to grade attainment (using Model 1 from Table 4 above). Again, the difference in wealth between migrants and non-migrants appears to be the most important characteristic explaining differences in educational outcome. Bringing wealth levels of the most recent (0-4 years) migrants up to the levels of non-migrants is predicted to reduce the grade attainment gap by 28%. As in Table 5, parents' education and location are also important. For longer-settled migrants, expenditure levels approach and even exceed those of non-migrants once household characteristics are accounted for, yet grade attainment gaps remain for all categories of migrant. Even when all covariates are set to the average level for non-migrants (as in the final row of Table 6) over one-third of the attainment gap with non-migrants remains.

Table 6. Share of grade attainment gap closed if a migrant household had non-migrant characteristics

| | years since migration | | | |
	0-4	5-9	10-19	20+
children aged 0-15	0.004	0.009	0.002	0.002
wealth	0.275	0.328	0.294	0.270
ln(income)	0.011	0.014	0.011	0.007
parents' education	0.122	0.110	0.124	0.175
social connection variables	0.020	0.023	0.019	0.023
location	0.191	0.192	0.245	0.188
all	0.624	0.675	0.695	0.665

Note: The results are the proportional reduction in the gap between non-migrant and migrant household that is predicted to occur if migrant households are assigned typical non-migrant characteristics.

6.3. Why do newer migrants have worse educational outcomes?

In this section I focus exclusively on migrant households and weigh up possible explanations for why more recent migrants appear to have had worse educational outcomes than longer-term ones. It is first worth reiterating that more recent migrants had similar levels of per capita income to longer-term migrants.[11] Migrant households that had lived in the city for 20 or more years had higher total income but also had more adult members, compared to more recent migrants. Migrant households of different durations also had roughly similar educational levels, with around half of the household heads never having been to school. However, longer-term migrants had significantly more assets and social connections than more recent migrants, and the preceding regression results are consistent with a large effect of wealth on both educational expenditure and outcomes. Longer-term migrants and non-migrants in this sample were also concentrated in a location that had a better supply of schools and better outcomes.

Still, a large part of the variation in expenditure by duration of residence in the city cannot be explained by other household characteristics. In some cases the relationship is not even in the expected direction; for example, migrants of 5-9 years on average have fewer assets than migrants of 0-4 years, yet spend more on education and have higher grade attainment.

One possible explanation is that the process of migrating while a child is of school age disrupts education. However, I do not find evidence in support of this. If there was a discontinuity whereby children who migrated while they were of school age (6+) had worse outcomes compared to those who migrated earlier (0-5), this would create a negative interaction effect between age and length of migration. Table 7 reports results from a regression model that includes interaction terms between age, age squared and length of migration. Coefficients on the interaction terms are not significant.[12]

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[11] However, this survey did not include information on migrant remittances. As section 7 shows, migrants in Vietnam often send a large part of their incomes to their rural homes, and recent migrants send the most.
[12] An alternative specification with a dummy for migration at age 5 or over, or at age 6 or over, replacing the age-migration length interaction term, also fails to provide statistical support for an age-at-migration effect.

Table 7. Censored ordered logit regression on grade attainment with interactions between length of migration and age

	coefficient	
female	0.670	(3.59)
age*	1.622	(5.43)
age squared*	-0.070	(5.01)
children aged 0 to 15	-0.133	(1.58)
wealth quintile (baseline = poorest)		
2	0.031	(0.13)
3	0.613	(1.9)
4	1.031	(2.69)
5 (richest)	1.506	(2.35)
ln(income)	0.139	(0.59)
parents' education	0.145	(4.2)
belong to an organisation	0.175	(0.71)
relatives in area	0.200	(0.9)
relatives in Dhaka	0.027	(0.12)
know a leader	0.150	(0.71)
friends (baseline = none/few)		
some	-0.060	(0.24)
many	-0.275	(0.86)
location (baseline = area A)		
B	-0.636	(2.72)
C	1.094	(2.13)
D	-1.193	(3.97)
time since migration*	0.046	(2.57)
age × time since migration	0.017	(0.5)
age squared × time since migration	-0.001	(0.59)

Note: * age, age squared and time since migration are centred. The interaction terms are also based on the centred versions of the variables. N = 575. Numbers in parentheses are absolute values of z-scores.

A viable explanation, though not one I am fully able to test, is that households adapt to life in the city over time in ways that are not picked up by the social connections variables used in this study, for instance through information – they learn about the education system and returns to education in local labour markets – or change in attitudes. At the same time, their welfare improves in several ways that *are* picked up by the variables used here, including that they accumulate wealth and appear to live in areas that are better served in terms of school availability. The latter effect might occur because the households move to where the schools are, or because the schools come to them. Migrant households might initially come to the city to take up a particular job and then later, as they find out about jobs elsewhere in the city, are more able to move to a more desirable location. Alternatively, local government or private school owners may be more likely to open schools where there is an established community with a demand for education.

Table 8 shows some differences in the decisions about schools made by recent and less recent migrants and non-migrants, underlying the differences in expenditure and outcomes. For children

from recent migrant households, decisions about schools were more often reportedly made on the basis of proximity and cost, whereas less recent migrants and non-migrants claimed more often that the quality of teaching was the main reason for choosing a school. Children from recent migrant households were more often in NGO schools, less often in government or private schools, and less often taking supplementary private tuition, than those from the other migration categories. These results no doubt partly reflect the different levels of wealth and (to a lesser extent) income, but as noted above, those differences cannot fully explain different expenditure between migrant categories. This is consistent with a stronger emphasis on quality of education, and greater awareness of differences in quality among schools, among longer-established and non-migrant households compared to recent migrants.[13]

Table 8. Descriptive statistics on school choice (schoolgoing children aged 6-15)

Migration category	0-4	5-9	10-19	20+	non-migrant
Reason for choosing school (%)					
nearest	47.3	35.1	36.2	35.2	12.6
good teaching	35.2	29.8	49.1	45.4	79.5
cost-free	13.2	35.1	12.9	6.5	3.9
other	4.4	0.0	1.7	13.0	3.9
Type of school (children in primary school, %)					
government	62.0	49.4	54.4	72.0	66.7
NGO	33.3	46.9	37.7	18.3	6.4
private	4.7	3.7	7.9	9.7	27.0
have private tuition (%)	38.5	35.1	56.9	65.7	78.0

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[13] It is also consistent with better established households spending more money and going to greater lengths to distinguish their children from those of more recent arrivals, by enrolling them in private schools and private tuition. Without denying that this may happen, it is worth noting that education outcomes in terms of grade attainment are also better for the longer established households. Children from these households are more likely to start at the right age and less likely to drop out, as well as going to different types of school and taking more private tuition.

7. RESULTS: HO CHI MINH CITY AND HANOI

In the following sub-sections I first present descriptive statistics and results from similar regression analyses to those in section 6.1. As in section 6.2, I then use analysis of counterfactuals to examine the contribution of various household characteristics to the disparity in educational outcomes. A final sub-section investigates whether there is a relationship between education attainment and age at migration for adult migrants.

7.1. Differences by migration status

Table 9 shows descriptive statistics on the sample in Ho Chi Minh City and Hanoi, Vietnam. The proportion of migrants is relatively low; 84% were registered non-migrants. Most migrants had come to the city less than 5 years ago, but around 10% had come more than 10 years ago. Some of these households were highly mobile: 18% of heads of migrant households with children (and 29% of those without children) said they had spent more than one month in the past twelve outside the city, suggesting some degree of temporary or circular migration. 13% said that they had to change their living place more than twice a year while living the city, mostly for work reasons. Recent migrants were overwhelmingly in the poorest wealth quintile; less recent migrants (who had been in the city for more than 6 years) were markedly less poor; and non-migrants with local registration were relatively evenly split between the wealth quintiles, but with more in the richest than the poorest quintile. There was a similar pattern with respect to total household income; households headed by registered non-migrants earned more than twice as much as recent migrants. However, non-migrant households were also much larger, and consequently per capita incomes are much the same between the migration categories.

Non-migrant household heads were split in terms of their levels of education: 12% had not completed primary school, while at the other extreme 19% had college or university education. Recent migrants had rarely studied at university; most commonly, migrant household heads had completed lower secondary education. Non-migrants had better social connections than long-term migrants and than recent migrants in particular, as measured through a number of indicators including their attendance at neighbourhood events and membership of groups and associations.

Table 9. Household-level descriptive statistics by migration categories, Vietnam

	less than 2 years	2-6 years	more than 6 years*	registered non-migrant
estimated proportion in population	3.8	4.42	7.62	84.16
breakdown by asset quintiles (%)				
poorest (Q1)	87.8	78.1	50.4	11.1
middle (Q3)	4.1	1.6	19.2	21.9
richest (Q5)	1.1	0.0	1.3	23.4
household income (millions of dong per year)	47.6	51.3	78.6	121.6
per capita household income (millions of dong per year)	27.4	28.0	28.5	28.8
household size	1.78	2.06	3.04	4.50
number of children (age 0-17)	0.35	0.41	0.88	1.22
educational level of household head (% of households)				
no qualification	7.7	9.1	11.7	12.2
primary	28.2	19.6	21.9	18.0
lower secondary	35.5	36.4	33.8	27.0
upper secondary	26.1	27.1	20.2	23.4
higher	2.5	7.8	12.4	19.4
indicators of social connections (% of households)				
youth union	10.2	14.3	16.7	26.2
women's association	5.0	11.8	12.8	46.3
trade union	25.7	28.2	30.7	38.9
attend event in neighbourhood (wedding, funeral, etc.)	56.1	60.0	77.5	96.8
communicate with neighbours	79.3	82.2	90.5	98.2

Note: Weightings are used so that the statistics are representative of the two cities' populations. "More than 6 years" includes the ten households whose heads were reportedly non-registered non-migrants. 'Higher' education refers to having completed college or university.

Before proceeding further, a particular characteristic of the dataset needs to be taken into account. As well as including households with multiple members, the survey over-sampled "individuals," meaning persons who may live in shared accommodation with others, such as in hostels or on construction sites, but are "economically independent, meaning that they do not share an income and expenditure budget" (Haughton et al. 2010: 10). (Since these are included in the household-level data set, I refer to these persons living independently as single-person households). Applying sample weightings to estimate the proportions in the population, 39.7% of non-registered households were single-person, compared to only 1.7% of registered households.

2.7% of non-registered households consisted of a single person aged under 18; these individuals were all aged between 14 and 17.

Table 10 presents some characteristics of households under five categories: non-registered child migrants living as single-person households, non-registered adult migrants living as single-person households, multiple-person migrant households that migrated recently (in the past three years), multiple-person migrant households that migrated three years ago or more, and registered (non-migrant) households. Migrant single-person households had lower total income than multiple-person households, but because their income is not shared among other household members, per capita income was higher, at least for adults. On the other hand, they send a much larger share of their incomes away as remittances. Thus these individuals may be best thought of as continuing to form part of a rural household with which they share income. Single-person household migrants aged under 18 had the lowest incomes of all, especially after deducting remittances.

The second part of Table 10 shows the proportions of each type of household in poverty. However this classification is highly sensitive to the choice of poverty indicator. Using the 2001-2010 poverty line for Ho Chi Minh City of VND12 million per person per year (Haughton et al. 2010), 11.6% of registered households, but only 7.5% of recent migrants and 6.2% of long-term migrant multiple-person households were poor. Even smaller proportions of migrant single-person households were poor by this measure. But deducting remittances from income changes the picture. By this measure 29% of adult single-person migrant households and 11% of child single-person migrant households, were poor; but the rate of poverty was still lower for non-registered than registered households. Using a third poverty indicator, concentration in the poorest quintile in terms of per capita assets,[14] most migrant single-person households fell into this category. More than half of recently migrated multiple person households, and over 30% of longer-term migrant multiple-person households, were also poor in terms of assets per capita, while registered households were under-represented among the poorest.

As discussed above, locally registered household heads were more likely to have been to college or university. Apart from this highly educated sub-group, there are not large differences in education between registered and migrant households. Within the poorest per-capita asset quintile, the locally registered households actually had somewhat lower educational levels than migrants; in each case over half had primary education or less. Adult migrants living as single-person households had similar educational levels to those living in non-registered households, but among the poorest quintile, adult migrants in single-person households actually had the highest education levels; 19% had completed upper secondary education and 35% lower secondary.

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[14] This indicator is based on the number of televisions in the household divided by number of household members, number of tables divided by number of household members, and so on for each asset available (see appendix). This may not be a good indicator of economic well-being, per se, because the flow of benefits from some assets (e.g. a radio) can be shared between household members without a loss of utility to any one of them (see Moser & Felton 2007). As an indicator of the household's long-term economic status or per-capita permanent income, however, it seems appropriate to divide by the size of the household.

Table 10. Household-level descriptive statistics by local registration and individual vs. household status (Vietnam)

	type of household				
	single	single	multiple	multiple	multiple
	migrant, age <18	migrant, age ≥18	migrant, recent	migrant, long term	registered
(millions of VND per annum)					
income	22.2	35.0	78.8	85.7	123.0
per capita income	22.2	35.0	25.4	25.7	28.5
rent	0.1	0.4	2.1	2.7	0.3
remittances	3.8	4.1	1.4	2.2	0.2
members			3.3	3.5	4.6
children			0.9	1.0	1.2
households below poverty line (%)					
per capita income < VND12m	4.7	2.5	7.5	6.2	11.6
per capita income net remittances < VND12m	28.6	11.3	10.0	8.0	11.7
poorest per-capita assets quintile	80.6	55.0	51.0	31.6	15.0
average education levels for adults (%)					
no degree		12.1	13.5	9.2	9.4
primary		22.8	20.0	24.9	15.4
lower secondary		29.4	26.8	32.2	24.2
upper secondary		25.0	29.9	23.9	31.4
college/higher		10.7	9.9	9.9	19.6

Note: Households are categorised according to whether the household head is registered in the local area or not. 'Higher' education refers to having completed college or university. 'Recent' migrants are those where the household head migrated less than three years ago; 'long-term' where the household head migrated three years ago or more.

As Table 11 shows, none of the single-person under-18 migrants was currently attending school. Their educational attainment was relatively high, but this reflects the fact that they were older than children in the other categories. Most had lower secondary education, making them better educated than many older people. However almost none had more than lower secondary education, and as they were no longer in school it is unlikely they would progress to any higher level. I exclude under-18s living as single-person households from the rest of the analysis, because their educational attainment and expenditure cannot very well be modelled as a function of their current household resources, since they very likely left education prior to migrating to the city, and I do not have data on their households of origin.

For children in non-registered households, educational expenditure was much lower, and attainment somewhat worse, than in registered households. The second part of Table 11 focuses on the poorest quintile (in terms of assets). For this group educational expenditure by households was much lower than the average, but there remains a large gap between the registered and non-registered households. Even in the poorest quintile, 88% of children in registered households, but only 35% of children in non-registered households, attend school. To some degree, however, this appears to reflect differences in age; children in poor non-registered households were significantly older than those in poor registered households. The age difference may also explain the higher prior attainment of children in non-registered households; 31% had reportedly finished lower secondary school, compared to only 20.5% of those in registered households. Children in poor non-registered households appear to be predominantly older children who have completed primary or lower secondary school and then left the education system.

Table 11. Educational indicators for children aged 6-17 by registration and individual vs. household status (Vietnam)

	type of household		
	single, migrant (<18)	multiple, migrant	registered
annual household educational expenditure per child (thousands VND)	12	4129	9265
school-going (%)	0.0	66.8	95.0
— 6-10 year-olds		94.6	99.8
— 11-14 year-olds		64.8	96.2
— 15-17 year-olds		36.1	83.7
highest level of education reached (%)			
— none	0.3	52.2	46.4
— primary	37.1	27.0	31.9
— lower secondary	62.5	20.7	20.7
— upper secondary	0.1	0.0	1.0
For households in poorest (per capita) asset quintile			
annual household educational expenditure per child (thousands VND)	15	916	2673
school-going (%)	0.0	35.1	88.3
highest level of education reached (%)			
— none	0.3	43.9	45.1
— primary	35.8	25.1	33.6
— lower secondary	63.8	31.0	20.5
— upper secondary	0.1	0.0	0.9

Note: Children are categorised according to their own registration status.

As in section 6 above, I use a Tobit model to examine educational expenditure and a censored ordered logit model to examine educational attainment.15 I model both outcomes as functions of the total resources available to the household. I include assets, savings, and housing quality as separate indicators of the household's total endowment of resources which could be used for education. I also include an index of social connections, an index of the quality of the household's environment, and indicators of human capital in the form of adult health and maximum educational level of other members of the household. As before, I also include the household's current income, as a test of whether current income - as well as longer-term economic status - is an important predictor of educational outcomes. Given the size of both rent and remittances, however, I deduct these from the income variable to obtain the net income that the household can dispose of for meeting educational costs. A dummy variable for the city (Hanoi or Ho Chi Minh) accounts for possible differences in education supply and other unobserved differences based on location. I also include the number of children in the household, on the basis that the household's resources have to be shared between its different child members.

As this paper is concerned specifically with urban poverty as well as migration status, I create categorical variables containing information on both poverty and migration status. I use two different poverty measures in separate regression. The first is based on the Ho Chi Minh City poverty line of VND12 million per person per year (see above).16 The second is based on whether the household belongs to the bottom quintile in terms of the index of per-capita asset ownership. The categorical variables for migration/poverty status are then included as sets of dummy variables in the regressions.17

Previous research has documented the particular difficulty that migrant households have in accessing public services, and their greater reliance on the private sector compared to registered households (Haughton & Loan 2011), and therefore on private educational expenditure. So I hypothesise that children from registered non-migrant households have worse educational outcomes, and that the difference is amplified among the poor who would be least able to meet the expenses of private education. The effect on expenditures is less clear a priori. Migrant households may need to spend more to achieve the same educational outcome; but conversely they may spend less because their children do not reach the same levels of the education system, as well as potentially, because they are also poorer than non-migrant households. Thus while I expect to see lower expenditure among poorer households, I do not have strong priors regarding the direction of any difference in expenditure between migrant and non-migrant households, at a given level of wealth or income.

Data for expenditure is only available at the household level, so I am not able to include individual child characteristics separately in the expenditure regression, but instead include the average age of children in the household and the proportion of girls. Table 12 shows results from the Tobit

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[15] The analysis here is similar to that in Haughton and Loan (2011) and has some similar results. The main differences are that I use different models (Haughton and Loan use ordinary least squares to examine education expenditure and logit regression to look at whether or not a child is in school), include a wider array of household characteristics, and focus in particular on poor households. While it would have been useful to include an indicator of the length of time since the household migrated, there were not enough migrant children in the sample to obtain reliable results.
[16] I also considered a relative income poverty line of 50% of median per capita income, calculated at the household level, in each city. However this line turns out to be very close to the official HCMC poverty line of VND12 million per year and only one child in the sample is identified as poor by one of these two poverty lines but not the other; consequently I use the VND 12 million poverty line.
[17] There are four categories: non-poor registered household, non-poor non-registered household, poor registered household, and poor non-registered household.

model. Examining Model 1 first, households in which the adults were better educated, and in which children were on average younger, had higher expenditure. Non-registered households spent less than registered ones, and the difference was particularly large among poor households. For registered households, being below the poverty line made no significant difference to expenditure. In Model 2, education of adults in the household is again significant, but the age composition of children in the household is not, and unlike in Model 1, being in Hanoi is associated with significantly higher expenditure. The coefficient for net income was also significant and positive.

Table 12. Tobit models for educational expenditure (Vietnam)

	Model 1 (income poverty line)			Model 2 (assets poverty line)		
poverty/migration status (baseline = registered non-poor)						
migrant non-poor	-1.315	(2.22)	*	0.295	(0.80)	
registered poor	-0.467	(1.66)		-0.094	(0.24)	
migrant poor	-4.062	(2.32)	*	-4.674	(3.89)	***
adults' education	0.407	(3.73)	***	0.365	(3.38)	**
adults' health	0.000	(0.00)		0.005	(0.06)	
assets	0.047	(0.78)				
ln(income)				0.516	(2.15)	*
savings	0.000	(1.11)		0.000	(1.04)	
housing	0.297	(1.31)		0.084	(0.45)	
environment	0.105	(1.51)		0.104	(1.71)	
social connections	0.173	(1.14)		0.082	(0.62)	
Ho Chi Minh City	-0.374	(1.66)		-0.496	(2.24)	*
number of children in household	-0.186	(1.00)		-0.217	(1.07)	
average age of children	-0.093	(2.25)	*	-0.055	(1.49)	
proportion of girls	-0.002	(0.01)		-0.023	(0.12)	
constant	7.912	(17.54)		1.956	(0.80)	

Note: N = 752. The unit of analysis is the household and the dependent variable is the natural logarithm of total annual educational expenditure. Only households with at least one child aged 6-17 are included; non-registered migrants living as single-person households are excluded. Numbers in parentheses are t-scores (for Tobit coefficients) or z-scores (for marginal effects). Statistical significance: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 13 presents results of the censored ordered logit models for educational attainment. (The data does not include detailed grade attainment so I use completion of primary, lower secondary or upper secondary as the levels of the dependent variable.) Again, I estimate two models, one with an income-based poverty line and the second with an assets-based poverty line. In both models, expected education attainment is positively related to age and negatively related to age-squared, suggesting an inverted-U relationship. Predicted attainment is higher for Hanoi than Ho Chi Minh City, and higher for children living in better housing conditions. Education of adult household members is significant in predicting child attainment, although the effect is not particularly large.

As was the case for educational expenditure, education attainment is highest for non-poor registered households and lowest for poor non-registered households. Attainment is in general

higher for registered than non-registered households, but the gap increases among the poorest (by either poverty measure). Using the income poverty measure, children from poor registered households have lower attainment than those from non-poor registered households; but this is not the case using the asset poverty measure.

Although the housing variable was included to try to capture possible effects of housing as a resource that the family owns, can invest in, and that may help or hinder education, the regression coefficient may also pick up on other effects. For example, housing may be a better reflection of the household's long-term socioeconomic status than assets and this could explain its predictive power over education attainment. It could also reflect local differences in supply of schools, if it is the case that better houses tend to be those built nearer schools. In any case, the effect is not particularly large: moving from the lowest quintile in terms of housing condition to the highest quintile would still have much less effect on expected education attainment than a move from Ho Chi Minh City to Hanoi or from a non-registered to registered household.

Table 13. Censored ordered logit model for educational attainment (Vietnam)

	Model 1 (income poverty line)			Model 2 (assets poverty line)		
poverty/migration status (baseline = registered non-poor)						
migrant non-poor	-1.462	(2.51)	*	-1.080	(1.80)	
registered poor	-1.688	(2.48)	*	-0.708	(1.25)	
migrant poor	-3.937	(3.40)	**	-2.302	(2.91)	**
education of other household						
members	0.407	(2.37)	*	0.374	(2.25)	*
adult health	0.160	(0.76)		0.162	(0.81)	
assets	0.119	(1.05)				
ln(net income)				0.719	(1.32)	
savings	0.000	(1.54)		0.000	(1.61)	
housing	0.645	(2.50)	*	0.496	(2.06)	*
environment	0.139	(1.23)		0.092	(0.84)	
social connections	0.209	(0.77)		0.070	(0.27)	
Ho Chi Minh City	-2.075	(2.76)	**	-1.870	(2.89)	**
number of children in household	-0.169	(0.52)		-0.243	(0.69)	
female	0.488	(1.07)		0.357	(0.87)	
age	2.436	(2.64)	**	2.238	(2.57)	*
age squared	-0.091	(2.63)	**	-0.083	(2.56)	*

Note: N = 1007. Estimates for threshold parameters not shown. The unit of analysis is the individual child (aged 6-17) and the dependent variable is the level of education completed (none, primary, lower secondary, or upper secondary). The registration status is that of the head of the household.[18]

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[18] A model was also estimated using the child's own registration status, with similar results.

7.2. What explains the differences?

In Table 14 I present counterfactual analysis similar to that in section 6, on what proportion of the educational expenditure gap would be closed by giving households without local registration similar characteristics to those with local registration. The model used for the counterfactual analysis is similar to Model 1 in Table 12 above, but includes only members of the poorest quintile in terms of per-capita assets.

Changing the average age of children in the non-registered households (11.9 years) to the average for registered households (10.9 years) and the average proportion of girls (45% compared to 48%) would close nearly a 9% portion of the gap in predicted education expenditure. Raising education and health levels of adults in non-registered households to the average level for registered households would close the gap by about 6%. Among the poorest quintile (in terms of assets), registered households are actually poorer in terms of net income and have worse social connections than non-registered ones; so shifting non-registered households to the registered levels in terms of these variables would actually lower predicted expenditure. Even changing all of the variables for non-registered households to the registered average would only close 15% of the (log) expenditure gap, suggesting that there are large differences in unobserved variables that cause expenditure to be lower for poor non-registered households.

Table 14. Share of (log) expenditure gap closed if a non-registered household had registered household characteristics

education/health	6.4%
net income	-0.5%
savings, housing, environment	1.6%
social connections	-5.8%
city	4.4%
household composition	8.7%
all	14.7%

Note: The model used for estimation is similar to Model 2 in Table 12, but including only the poorest quintile in terms of per-capita assets. 'Education/health' means the education and health of adult household members. 'Household composition' includes the number of children in the household, their average age and the proportion of girls. A negative number indicates that giving the non-registered household the average characteristic of registered households would widen, rather than close, the gap.

Table 15 presents a similar breakdown for educational attainment. Assigning a non-registered household the average characteristics of a registered one, including better adult education and health, better housing conditions, better social connections, and a greater probability of living in Hanoi rather than Ho Chi Minh City, is predicted to close a large part of the education attainment gap between migrants and non-migrants.

Table 15. Share of attainment gap closed if a non-registered household had registered household characteristics

education/health	10%
net income	-8%
savings/housing/environment	25%
social connections	20%
city	8%
children	4%
all	60%

Note: The model used for estimation is similar to Model 2 in Table 13, but including only the poorest quintile in terms of per-capita assets. The measure of attainment used is the linear prediction of the censored ordered logit model. A negative number indicates that giving the non-registered household the average characteristic of registered households would widen, rather than close, the gap.

Table 16 puts the above results in perspective by showing the predicted probability of reaching upper secondary school for a 15-year-old girl. There is an estimated 25% chance of reaching upper secondary school for those from a typical poor non-registered household, compared to 88% for a typical poor registered household. However, the former rises to 68% if the non-registered household is assigned the average characteristics of a registered one.

Table 16. Predicted probability of reaching upper secondary school for a 15-year-old girl

	non-registered	registered
baseline	0.252	0.877
education/health	0.317	
net income	0.207	
savings/housing/environment	0.422	
social connections	0.383	
city	0.302	
children	0.277	
all	0.676	

Note: The probabilities in the non-registered column are those predicted for a non-registered household assigned the characteristics of a registered household.

Asked about the reasons for children not attending school, only a small number of migrant respondents mentioned the lack of permanent residence (Table 17). The most popular response, stated by 65% of migrants and 40% of non-migrants, was to do paid work, although failure to pay the school was frequently cited especially for migrants.

Table 17. Reasons for non-attendance, children aged 6-17

	migrant	non-migrant
over school age	6%	0%
illness/disability	0%	16%
no permanent residence	6%	0%
failure to pay school	27%	12%
teachers' ill treatment	1%	0%
other students' ill treatment	0%	0%
housework	6%	15%
paid work	65%	40%
over-enrolment in class	0%	0%
finished upper secondary school	0%	0%
no need/no concern about schooling	21%	28%
other	15%	9%

Note: Children aged 6-17 and not currently attending school are included. Multiple categories were allowed.

The school types used by different groups provide some further clues on the differences between migrant and non-migrant attainment (Table 18). Only a minority of children were in private or semi-private schools, but children from non-registered households were more likely to be in such schools than those from registered households. Even in the poorest quintile, nearly 8% of children from poor non-registered households were in private or semi-private schools. This is consistent with some migrant households having difficulty accessing public schools, and having to choose between private schools or non-attendance (as also suggested by Haughton & Loan 2011), although 40% of children from migrant households were in public schools, suggesting that the barriers are not universal.

Table 18. School attendance and type of school, children aged 6-17

	registered non-poor	non-registered non-poor	registered poor	non-registered poor
not attending	3.0	8.5	11.7	63.7
in public school	85.8	70.4	86.7	28.6
private/semi school	11.2	21.1	1.6	7.7
total	100.0	100.0	100.0	100.0

Note: Registration status is that of the individual child (sometimes different from that of the household head). The poverty category is belonging to the poorest per-capita asset quintile. Under-18s living as single-person households are excluded.

7.3. Education of adult migrants

The preceding sections have suggested that education of adult household members appears to be an important factor for expenditure on children's education. On average, non-migrant adults had more education than migrants, with recently-arrived migrants having the lowest educational level, but as shown in section 7.2, education of other household members appears able to explain only a small part of the variation in educational expenditure. In this section I use further regression analysis to examine how the educational levels of adult migrants vary with their age, date of migration, and age at migration.

A difficulty is that these three explanatory variables perfectly identify each other. To overcome this I use the approach developed by Schaafsma and Sweetman (2001) to model earnings and educational levels of international immigrants living in Canada. I first determine an age-education profile for non-migrants, using an ordered logit regression of education stage on a quartic function of age. For migrants, I then subtract the predicted attainment-for-age based on this regression from their actual education attainment, obtaining a measure of the degree to which migrants fall short or exceed the level they would be expected to have for their age. Finally I regress this measure on a set of dummies for age at migration and date of migration, using bootstrapped standard errors as in the Schaafsma and Sweetman study.

Table 19 presents the results of the second stage. Female adult migrants have significantly worse educational outcomes than males. The lowest relative attainment is among those who migrated under the age of 10, and the highest among those who migrated either between 10 and 19, or after they were 50. Only among the over-50s does migrants' education attainment approach that of non-migrants. The date of migration categories were not significant.

These findings suggest that the pattern seen in several studies of international migrants, where migrants who arrived when very young tend to have higher educational attainment, while those who migrated in their late teens appear to have ended their education prematurely (e.g. van Ours & Veenman 2006; Schaafsma & Sweetman 2001), cannot readily be applied to rural-urban migrants in Vietnam.

The pattern seen here is difficult to explain as there are no prima facie reasons why people who migrated at an older age (controlling for migrant cohort and current age) would have better relative achievement, and it is difficult to rule out the possibility that it is an artefact of the statistical technique. Migrants who arrived at older ages do not have high education attainment in absolute terms, only relative to non-migrants of the same age. For migrants who arrived before age 10, the low relative education attainment does reflect low attainment in absolute terms; 52% of this group had no education at all. This is consistent with migrants facing barriers to accessing urban education due to their lack of local registration. Yet attainment was much higher among those who arrived at age 10-19, who would be expected to face similar or worse barriers compared to those who arrived at younger ages.

Table 19. Regression analysis on the educational level of adult migrants, compared to non-migrants

	coefficient		
sex	-0.356	(5.00)	***
age at migration (baseline: under 10)			
10-19	1.518	(2.99)	**
20-29	1.250	(2.44)	*
30-39	1.024	(2.03)	*
40-49	1.201	(2.13)	*
50+	1.797	(3.34)	**
date of migration (baseline: before 1995)			
1995-1999	0.165	(0.65)	
2000-2004	0.185	(0.86)	
2005-2009	0.077	(0.36)	
constant	-1.966	(4.19)	

Note: N = 2047. Adjusted R^2 = 0.04.

8. DISCUSSION

In the preceding sections I have used regression analysis to examine the correlates of educational expenditure and attainment, finding that in Dhaka, migrant status and length of migration, and in Ho Chi Minh City and Hanoi, household registration status, are important predictors of both outcome variables. I then used counterfactual analysis to decompose the differences between migrant and non-migrant households, noting that characteristics such as wealth explain an important part, but not all, of the gap. Finally I investigated some possible explanations for this gap, using further regression analysis to focus on length of migration and age at migration; due to the nature of the data I am able to do this for children in Dhaka and for adults in Vietnam. I also present descriptive statistics suggesting that decisions about which type of school to go to may be made differently between migrant and non-migrant households.

In Dhaka, around 27% of children at primary age are not in school overall in the slum areas that were the subject of this study, rising to over 40% for the most recent migrants. Recent migrants are also poorer, have lower adult education levels, live in worse areas, and have fewer social connections in their present location, but these household characteristics do not fully explain the gap between the children of migrant and non-migrant parents.

In Ho Chi Minh City and Hanoi, migrant households again spend less on education; children from migrant households have lower attainment compared to non-migrants; and the gaps are larger among poor households. Primary enrolment was near-universal, but among children of secondary school age a much smaller proportion of migrants were enrolled than non-migrants. 63% of migrants aged 11-17 were not in school. This may partly reflect the structure of school fees and exemptions in Vietnam, which imposes higher costs at secondary than primary level. Migrant households are poorer than non-migrant households in terms of assets and housing but not in terms of per-capita income. They have worse social connections and whereas 20% of adults in non-migrant households have college-level or higher education, it is only 10% in migrant households. But as for Dhaka, the gap between migrants and non-migrants remains after conditioning for household characteristics. In Vietnam, the results also reveal a group of 14-17-year-old children who appeared to have cut their education short in order to migrate to the city, where they lived independently, worked, and sent money home.

In both cases migrants appear to arrive in the city with few resources such as wealth, social connections or higher education. In Dhaka they are, perhaps as a consequence, at a strong disadvantage in terms of their earning capacity. They build up wealth and social connections over time. Educational disadvantage of migrant children stems to some extent from migrants' greater difficulty in paying for school expenses including fees and private tuition. The migrant disadvantage is also partly explained by lower adult educational levels in migrant households, probably a result of a historical rural-urban gap in education supply and demand in both countries. In Vietnam, migrants' incomes are similar to those of non-migrants, although the former send a substantial part of their incomes back as remittances. There may be a more direct obstacle to accessing public schools in the form of the household registration system, which seems to be reflected in the greater use of private schools by migrants, although when asked directly about this, they rarely mentioned it.

New migrants in Dhaka also live in worse areas from the point of view of education provision. In the Vietnamese cities migrants live in worse quality housing than registered residents, and housing is significant in explaining school attainment, which may reflect direct effects of housing quality on education – for instance, the difficulty of doing homework in poor quality informal housing – but could also reflect differences in wealth and location that are otherwise incompletely measured. Educational outcomes are substantially worse in Ho Chi Minh City than in Hanoi, even though Ho Chi Minh City is richer. There were more migrants in Ho Chi Minh City, and their location appears to explain part of the gap between migrants and non-migrants in education outcomes. It is not possible to tell from cross-sectional household data whether the better location of longer-term migrants in Dhaka was due to migrants moving to better parts of the city, or due to new schools eventually opening in formerly under-served areas.

The remaining gap between migrant and non-migrant households, after conditioning for household and child characteristics, may result from differences in unmeasured aspects of the social status and position of the household, their access and ability to understand information about schools, and perhaps differences in the value assigned to education. For example, a recently migrated household that expects to return to a rural area may consider lower levels of education to be the most useful, while those who expect to stay permanently in the city would more likely perceive higher levels of education as having the highest economic and social returns. This is consistent with evidence from Dhaka that non-migrants and longer-term migrants attach more importance to school quality in their decisions, while more recent migrants focus more on cost and proximity. Stigma associated with migrant status, as detected by Afridi et al. (2011) in China, may play a role. Another plausible explanation is that children's education is directly disrupted by the process of migrating, as they drop out of a rural school and have to re-enrol in an urban one. But in Dhaka I looked for, but was unable to find, evidence that would support this explanation.

Unlike previous studies (Liang & Chen 2007) I am not able here to find evidence for an effect of social connections once other household characteristics and migration status have been taken into account. The results tentatively suggest that migrants' wealth – reflected in assets and housing – may be more important than social connections, as the most important factor mediating better access to education for non-migrants and longer-term migrants. However this does not rule out unobserved aspects of the household's position in society, such as power or status, having an effect not picked up by the questions about social connections.

In Dhaka there was a gender gap in favour of girls in school attainment but not expenditure; there was no evidence of any gender gap for children in Ho Chi Minh City and Hanoi. In both cases among adults, men had more education than women. Both countries appear to have reduced or reversed a significant gender gap over the past 10-20 years, a finding which is worth further exploration given the potential lessons for many other developing countries where girls are at a strong disadvantage in education.

9. CONCLUSIONS

In the three cities studied in this paper, migrant households in poor urban areas spend less on education than non-migrant ones, and children from migrant households reach lower levels of education. In both country contexts, rural-urban migrant households were also worse off than non-migrant ones in aspects such as wealth, social connection, and location. Even controlling for household characteristics there is still a remaining gap between children of migrant and non-migrant parents. In Dhaka, there is evidence that more recent migrants are the most disadvantaged, and in Ho Chi Minh City and Hanoi, evidence that the gap between migrants and non-migrants is largest among the poorest households. In Vietnam this remaining gap can be explained to a large extent by the household registration system. In both cases other bureaucratic obstacles, lack of information about local schools, and unmeasured social variables are also plausible (and not mutually exclusive) explanations.

What, then, are the implications for policy? Are special measures needed for rural-urban migrant households? It is first worth recalling that evidence from elsewhere has suggested that rural-urban migrants often have better access to education than people who stay in rural areas (Harttgen & Klasen 2009). Rural-urban migration may have positive effects on educational attainment for a country as a whole. But migrants were still at a substantial disadvantage compared to urban natives, in the cases studied here. The analysis suggests that some, but not all of the educational deprivation experienced by children from migrant households can be explained in terms of their poverty, even compared to other poor urban households. Much of the policy recommended for rural-urban migrants is therefore similar to that needed for other poor urban households, and likely includes removing remaining school fees; dealing with the pervasiveness and expensiveness of private tuition, for instance through free clubs before or after school hours for households that cannot pay for a private tutor (Bray 2009); and coordinating services better between government and the non-government organizations that are often the first to serve poor urban areas.

Migrants may face bureaucratic obstacles, such as a refusal to admit children in the middle of a year, non-recognition of education attained in the rural place of origin, demands for birth or examination certificates that migrant families may not have, and selective admission based on household registration. These need to be addressed while acknowledging the strain that urban government schools can come under when the local population grows or changes rapidly. Population growth is often simply not met by a corresponding growth in classrooms and teachers. Circular or short-term migration, as appeared to be the case for a substantial number of households at least in Vietnam, may pose particular difficulties in terms of disruption of education, possibly requiring programmes that supplement the main school system. In India, for example, policies for internally migrating children have included "mobile schools, examinations on demand, bridge courses, residential camps and drop-in centres for street and slum children" to make education more accessible to children who (alone or with families) engage in circular or temporary migration (Schapiro 2009: 48). But a first step would be to ensure that migrants benefit from existing programmes designed to help the most disadvantaged households, such as school fee waivers and stipends. Haughton and Loan (2011) note that this was not happening in Ho Chi Minh City and Hanoi.

The study raises a number of questions for further research. The suggestion that many household surveys are missing marginalised urban groups including migrants, including those used to calculate national statistics and for educational planning, is troubling because it would mean that poverty and educational deprivation in urban areas are being underestimated. The pace of population change also means that data is quickly out-dated. Approaches to estimating population and service delivery needs in informal settlements include a combination of aerial photography and key informant interviews, as used in CUS et al. (2006) and Hartley and Toan (2008), and the community-led mapping and documentation promoted by the organization Shack/Slum Dwellers International (Patel & Baptist 2012).

For Vietnam it was not possible in the present study to investigate in depth the situation of teenagers migrating independently. The survey in Bangladesh focused on households rather than, for example, people living in shared 'mess' accommodation, and so did not include children who migrated independently. Independent child migration has been found to be common in several countries, and usually appears to mark, or follow, the end of a child's education, although in some cases children migrate to take advantage of education opportunities in the city (see Whitehead et al. 2007). There is still little research into the consequences on education and current and future livelihoods when children migrate independently from rural to urban areas (but see Reale 2008).

The two surveys studied here highlight two approaches to studying urban poverty: one (Bangladesh) based on sampling only a selection of poor areas, the other (Vietnam) on a more careful attempt to align sampling strata with a national census to achieve a sample where poor households and migrants are over-represented, but where representative statistics can be calculated using survey weights. The advantage of the former (for a given sample size) is that it allows more detailed analysis of variation within the poorest group of households, and the disadvantages are that it allows little comparison between poor and richer households and does not allow computation of nationally, or city-wide, representative statistics.

How do rural-urban households' movements after an initial migration affect their poverty and access to education? Do they move into areas that have better services when they can afford to? Or do services sometimes come to them once there is an established community? These kinds of questions require either panel data or detailed recall data to address. Mixed qualitative and quantitative approaches are also needed to understand why exactly rural-urban migrants appear to face worse barriers to education than other equally poor urban households. How does school or local government bureaucracy interact with the household's social status, ability to pay, and education levels to create barriers to education? Where migrants do not enjoy legal status as residents – as in Vietnam because of the registration system, or in Bangladesh because they often live on land illegally taken over by slums – these can become sensitive issues.

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APPENDIX

Description of covariates: Bangladesh

Belong to an organization: one or more household members belong to a credit organization, women's organization or other organization.

Parents' education: the highest grade reached by the household head or his/her spouse.

Wealth index: the first component from ordinal principal components analysis (Kolenikov & Angeles 2009) on the following variables: number of tables; number of chairs; dwelling has electricity; radio; television; mobile phone; dwelling is secure; dwelling often/sometimes/never gets flooded during the rainy season; streets often/sometimes/never get flooded during the rainy season; material of roof; material of walls; cracks/openings in walls; dwelling has windows; dwelling has windows with no/broken glass; visible holes in roof; incomplete roof; insecure door; squatter; any member of the household owns a watch; bicycle; motorcycle or scooter; rickshaw; cycle *vangari; CNG* / motor rickshaw; cart.

Description of covariates: Vietnam

Adult education: the highest level of education reached by an adult member of the household.

Education of other household members: the highest level of education reached by any other member of the household.

Health of adult household members: the first component of principal components analysis on the proportion of adults in the household with chronic illness, and the proportion of adults in the household who have suffered from any illness or injuries in the past 12 months. The sign is reversed for convenience in interpretation; a higher index means better health.

Assets index: the first component of ordinal principal components analysis on the number of the following items owned by the household: motorbikes, bicycles, cars, video player, colour TV set, multi-tier stereo, computer, camera/video camera, refrigerator/freezer, air-conditioner, washing machine/dryer, water heater, gas cooker, electric cooker/rice cooker/pressure cooker, microwave oven, fruit juicing machine, fixed line telephone, internet connection, mobile telephone.

Per capita assets index: the same as the assets index, but the number of each item is divided by the number of household members.

Housing index: the first component of principal components analysis of: living space per person; major materials of roof, walls, and floor; type of toilet.

Per capita income: the sum of household members' salaries, pensions, benefits and other income sources, divided by the number of household members.

Net per capita income: total household income minus remittances and rent, divided by the number of household members.

Social connections: the first component of multiple correspondence analysis (Kolenikov & Angeles 2009) of categorical variables indicating whether household members participate or access: youth union; women's association; farmer's association; trade union; veterans' association; elders' association; students' association; population group meeting; meeting for voters' contact; meeting for comments on policies/regulations at residence area; contributions to social funds or donations; events in neighbourhood (wedding, funeral, etc.); communication with neighbours (visiting, talking, etc.).

Environment: first component of ordinal principal components analysis on whether the household has the following problems in minor, moderate, or severe form: flooding, electricity outages/cut-off, voltage variation, noise, dust and smoke, polluted drinking/washing water, bad-quality road around the dwelling, pollution due to uncollected garbage, bad odour, theft/robbery, other social evils (drug addict, prostitution, etc.), other.

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