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The educational consequences of migration for children in China ☆

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Abstract

Recent research literature on migration in China has mainly focused on adult migrants. As more and more people participate in the migration process and as migrants expand the duration of their stays in cities, migrant children increasingly become part of the migration stream. The presence of large numbers of migrant children in cities, especially children without local *hukou*, creates major problems for their parents and challenges for education policy-makers. In this paper, we examine the school enrollment of migrant children who resided in cities of Guangdong province in 1995. Using data from the 1995 China 1% Population Sample Survey, we apply a research strategy that incorporates both migration origin as well as destination. This allows us to estimate school enrollment rates for temporary migrant children, permanent migrant children, and local children, in addition to non-migrant children at the place of origin. Two major findings emerge from multivariate analyses of school enrollment. First, temporary migrant children are much less likely to be enrolled in school compared to local children. Temporary migrants with less than one year of residence in cities suffer the most. Perhaps somewhat surprisingly, permanent migrant children are more likely to be enrolled in school than local children due largely to the highly selective nature of their parents. Second, compared to non-migrant children at the place of origin, rural temporary migrant children from Guangdong also encounter a major disadvantage in terms of school enrollment. As education becomes more and more important for socio-economic mobility in the Chinese society, such disadvantages faced by temporary migrant children is likely to have detrimental and long-term consequences for migrant children and for urban society as a whole.

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1. Introduction

One of the most significant social trends in China during the 1990s is the large volume of internal migrants (World Bank, 1997). With the increasing flow of migrants, a body of literature on migration in China is quickly emerging. Studies of migration in China have documented the trends of migration since 1949 (Zhao, 2000), occupational attainment of migrants (Yang and Guo, 1996), gender patterns of migration (Fan, 1996; Lee, 1998), the determinants of migration and return migration (Ma, 2001; Rozelle et al., 1999), and the issue of rural migration and citizenship (Solinger, 1999). Although adult migrants still face difficulties and hurdles in urban China, the consensus seems to be that migration has had a major positive impact on the economies of both the sending and receiving communities. In addition, to the extent that most migrants make more financial gains at the place of destination than at the place of origin, migrants too benefited from the migration process. What is less clear, however, is the consequence of migration for migrant children and children of migrants.

The fact that the issue of education of migrant children did not get serious attention from the scholarly community until quite recently can be explained in part by the migration process itself. At the initial stage of the migration process, migration usually selects the young adult males. However, as migrants secure employment and settle down, they are more likely to bring other family members, including their spouses and children. For example, in the 1997 Census of the Floating Population in Shanghai, children of school age account for nearly 12% of the total migrant population (Zhang, 1998). The tidal wave of China's migration process, which started in the 1980s, has reached a point where some migrants who arrived in the earlier years are now bearing their children in these cities. These city-born migrant children had already reached school age by the 1990s. Therefore, the issue of education of migrant children is likely to be more and more important over time.

In this paper, we shift the research attention from adult migrants to migrant children, especially in terms of their school enrollment. Using individual-level data from the 1995 China 1% Population Sample Survey, we examine how migrant children fare in the migration process in the mid-1990s. We are particularly concerned with enrollment of school-age migrant children between the ages of 6 and 15, an age group for whom 9-year compulsory education is required in China (PRC, 1998). As in other societies, education is the engine of socio-economic mobility in China (Deng and Treiman, 1997). Recent research on migration in China shows that there is a large concentration of adult migrants in low status occupations. Whether or not this pattern will be shifted or reproduced in the second generation of migrants and migrant children depends largely on how well migrant children are educated. Therefore, it is absolutely essential for migrant children to be enrolled in and to complete elementary and secondary schools, as this is a necessary step for socioeconomic advancement in urban society.

2. Migration, children's education, and *hukou*

The issue of migration and children's educational outcomes has been a major topic for scholarly inquiry (Coleman, 1988; Long, 1975; Lloyd and Blanc, 1996; Pribesh and Downey, 1999).

The issue takes on a particular importance in developing countries, as these countries' economies are developing, education is expected to play increasingly important role in individual mobility and life chances (Curran et al., forthcoming). Much of recent work concerning migration and children's school performance focuses on the role of social capital (Astone and McLanahan, 1994; Coleman, 1988; Hagan et al., 1998; Teachman et al., 1999). While this perspective of social capital may very well explain the migrant children's school performance in the context of the United States, we expect social capital plays a less important role in affecting migrant children's educational outcomes in China. This is because what distinguishes the case of China from that of other countries is the Chinese institution *hukou* (household registration system). Recent studies of migration in China have highlighted the importance of *hukou* in determining the life chances of internal migrants (Solinger, 1999; Wang and Zou, 2001). Established in 1958, *hukou* determines where one can live and what benefits one is entitled to. *Hukou* was created in large measure to control migration from rural to urban China (Liang, 2001). As such, for individuals who intend to move, permission must be obtained from the place of origin in addition to the place of destination. Because of the involvement of *hukou*, students of migration in China often define two types of migrants, i.e., permanent and temporary migrants. Permanent migrants are migrants who have obtained local household registration at their place of destination and temporary migrants are migrants (also known as the "floating population") who do not have household registration status at their place of destination.

The type of *hukou* migrant children hold is closely related to the opportunities for attending schools at their place of destination. In Chinese cities two criteria are important for schools to admit students: (1) students must reside within the local school district in the city; and (2) students must be registered in the school district as well. The reasoning behind these regulations is that since the education budget (elementary school and high school) is allocated through local city government, if temporary migrant children are allowed to attend local schools, it actually increases the financial burden (Liu et al., 1998).

The government regulations stipulate that students who attend schools in places other than their place of household registration (*hukou*) pay enrollment fee of 480 yuan per semester (Cao, 1997). This, it turns out, is a much-discounted price given what the local government has to finance. Instead of denying access to education entirely for temporary migrant children, many schools in cities actually allow temporary migrant children to attend but their parents must pay "education endorsement fees" (*jiaoyu zanzhu fei*), which are as high as 2000 yuan¹ for elementary school and 50,000 yuan for high school per year (Cao, 1997).² Although paying 2000 yuan for elementary school tuition is not impossible for urbanites, it is a significant and sometimes prohibitively heavy burden for parents of migrant children, given the large concentration of migrants in low-paying occupations. In light of this institutional barrier for temporary migrant children to attend school, we hypothesize that temporary migrant children are less likely to be enrolled when compared to both local children and permanent migrant children (i.e., migrant children who have local *hukou*).

¹ In 2005, roughly 1USD = 8.2 yuan.

² However, some local public school officials denied that their schools link endorsement fee with school admission. One school official that we interviewed in 2001 (in the city of Xiamen in Southern China) told us that his school accepts endorsement fees only after students had already been accepted. Notwithstanding his claims, it is doubtful that this is the case in other local public schools across the country.

Given the importance of education for migrant children, several researchers have examined the issue and the school enrollment level for migrant children varies from different sources. In 1995, the Horizon Survey Company (HSC) conducted a survey of migrants in Beijing. Based on this survey, HSC reported that only 40% of school-age children were enrolled in schools (HSC, 1997). The same study also showed that the enrollment rate differed by household income and duration of residence of mothers in Beijing. A reporter cited an even lower enrollment rate of 12.7% in some cities of Guangdong (Cao, 1997). In contrast, a 1997 Census of Beijing's Floating Population reported a school enrollment rate of 82.1% for children ages 6–15. In response to the demand for education for migrant children and the difficulties of enrolling in local schools, there is an emerging phenomenon in many large cities: schools that cater particularly to migrant children. Zhao (2000) and Liu et al. (1998) carried out careful field studies of migrant schools in Beijing and Shanghai. The study by Liu et al. (1998) provides a portrait of a typical story for migrant schools in big cities: delayed age at school enrollment, low socioeconomic background of parents, high mobility among students, and problems with teacher qualification and school infrastructure.

Although these earlier studies of migrant schools are very helpful to understand the current situation of education of migrant children, temporary migrant children are only part of the migrant children population. We still need to examine the overall picture of enrollment for migrant children. To gain a thorough understanding of the issue, a more systematic approach that takes into account a variety of factors such as temporary vs. permanent migration status (i.e., *hukou* status), rural/urban origin of migrant children, and gender, as well as children's duration of residence in cities is needed. In addition, stronger theoretical linkage to the literature on education and migration could also situate education of migrant children in the large context of the scholarly endeavor. For example, as a corollary of the social capital thesis, we would argue that as students settle down in their new communities, learn more about their schools, and make friends in their respective neighborhoods, they begin to accumulate new social capital in the place of destination. Therefore, over time, we would expect that their educational disadvantage would diminish and their performance would increasingly resemble that of local children at the place of destination, other things being equal. In the case of school enrollment in China, we would expect that the longer migrant children stay in the city, the more likely the enrollment gap between migrant children and local children will be narrowed and thus migrant children's level of school enrollment will eventually resemble that of local children.³

Pursuant to recent literature on school enrollment in China as well as other developing countries (Buchmann and Hannum, 2001; Connelly and Zheng, 2003; Lloyd and Blanc, 1996), we also consider factors such as rural/urban origin, gender, and living arrangement of the household. We hypothesize that rural migrant children are less likely to be enrolled in schools than migrant children from cities and towns, and that migrant girls are less likely to be enrolled when compared to migrant boys.⁴ It should be noted that although our paper focuses on the education of migrant children in China, the issue goes much beyond the case of China as internal and international migration continue to increase in the 21st century (Bilsborrow, 1998; Castles and Miller, 1998, see Kandel and Kao (2001) for the case of Mexico and Curran et al. (forthcoming) for the case of Thailand).

³ This perspective is consistent with the assimilation paradigm in the literature on international migration Zhou and Bankston III (1998).

⁴ On gender inequality, see also Bauer et al. (1992), Hannum and Xie (1994), and Lavelly et al. (1990).

152 3. Migrant children's school enrollment: incorporating origin and destination

153 Recent literature on migration suggests that it is often advantageous to consider both
154 origin and destination when studying consequences of migration on various socio-demo-
155 graphic variables such as fertility and infant mortality. In a series of papers, Nancy Lan-
156 dale and her associates used data from both Puerto Ricans who reside in the mainland US
157 and Puerto Ricans who reside in Puerto Rico to study issues including family formation,
158 child-bearing, and infant mortality (Landale, 1994; Landale and Hauan, 1996; Landale
159 et al., 2000; Singley and Landale, 1998). Through these innovative studies, we have gained
160 significant new insights into the consequences of migration. To this end, Landale et al.
161 (2000) strongly advocated that “future studies of other migrant groups will adopt similar
162 origin/destination frameworks (p. 906).”

163 Although the advantages of an origin-destination pooled research design are unques-
164 tionable, the implementation of this type of research design may often prove difficult
165 because of lack of appropriate data. Several of the studies cited above used data on school
166 enrollment and other information in the destination cities. Such an approach is under-
167 standable because migration surveys typically focus on migrants in the destination areas.
168 Notwithstanding, it should be noted that such approach has methodological limitations.
169 While a comparison of enrollment rate of migrant children (often using aggregate level
170 data) with that of children at the place of destination may be quite telling, it may mask a
171 lot of complexities that may be at work. It may compound the impact of migration (or
172 *hukou* status) with migration selectivity. If, for example, migrants are selected from the
173 lower stratum of socioeconomic backgrounds in the place of origin, the thesis of “lack of
174 *hukou* causes the low school enrollment for temporary migrant children” can be seriously
175 undermined. To truly appreciate the consequences of no having local *hukou* on school
176 enrollment, we need to bring migration origin back into the equation. Then, our reference
177 of comparison is not only with local children in cities, and permanent migrants in cities,
178 but also with non-migrant children in the place of origin. Using data from the 1995 China
179 1% Population Sample Survey, we develop a strategy that allows us to compare school
180 enrollment of temporary migrant children (no local *hukou*) with local children in cities,
181 permanent migrant children in cities, and non-migrant children in the place of origin.

182 4. The case of Guangdong province

183 The empirical portion of our paper focuses on Guangdong, a province located in the
184 southern part of China (see Fig. 1 for the location of Guangdong province). Guangdong
185 province and its cities have been the subject of many recent studies (Ikels, 1996; Vogel,
186 1989; Wong and Huen, 1998). In several crucial aspects, Guangdong is “one step ahead in
187 China” (Vogel, 1989). For example, in 1995, Guangdong's gross domestic product ranked
188 first in China (SSB, 1997a). Another major characteristic of Guangdong's economy is the
189 large flow of foreign direct investment, which in 1995, accounted for 22% of the total for-
190 eign direct investment in China. Moreover, Guangdong also has three of China's first four
191 special economic zones which, due to their status, enjoy special policies (i.e., tax incentives):
192 Shenzhen, Zhuhai, and Shantou. Whereas this underscores the important role of Guang-
193 dong in China's overall economic development, we choose to study Guangdong also
194 because of its large migrant population. Aside from stellar economic records, Guangdong
195 is the most preferred destination province for internal migrants in China. In fact, 13% of



Fig. 1. Location of Guangdong province, China.

China's temporary migrants in China chose Guangdong as their destination in the 1990s. This large volume of migrants guarantees that we will have a sufficient number of cases for our study of migrant children.⁵

5. Data and methods

The data for this study come from the 1995 China 1% Population Sample Survey conducted by China State Statistical Bureau on October 1, 1995 (SSB, 1997b). The 1995 survey is considered a mini-census conducted between the 1990 and the 2000 Chinese censuses. Our analysis relies on a 25% sub-sample of the Guangdong portion of the 1995 China 1% Population Sample Survey. This Survey contains basic socio-demographic characteristics of each member of selected households. One unique feature of the 1995 survey, when compared with the 1990 Census, is its broader coverage of temporary migrants. Temporary migrants are counted at the place of destination if they have stayed there at least six months.⁶ Several questions on migration are also incorporated into this survey. One is the standard question on migration, which asks whether the respondent migrated during the 1990–1995. The rural/

⁵ Since, by some estimates, migrant children account for approximately 11–12% of the migrant population, consideration of proper sample size is needed for our research strategy. Data from the 2000 Chinese Population Census suggest the size of temporary migrant population is around 80 million. This suggests the size of temporary migrant children is around 8–10 million at migrant destinations.

⁶ Several scholars pointed out that the 1995 survey underestimated temporary migrant population (Chan and Hu, 2003; Liang and Ma, 2004). This underestimation of temporary migrant population is unlikely to alter our main conclusions because migrants who were missed in surveys usually are under-privileged and their children are less likely to be enrolled in school.

urban origin of migrants is also identified. A second question asks respondents when they arrived at their current location (city, county or district), with three possible answers: (1) respondents who live in the same place where they were born (therefore never moved); (2) respondents who moved to the current location before 1990; (3) respondents who moved to the current location after 1990. The third set of questions regarding migration is directed to individuals who migrated during 1990–1995 which identifies the actual month and year of migration. The fourth question is concerned with the individual's local *hukou* status, the goal of which is to identify whether the individual is registered at their current location. We use this variable to distinguish temporary and permanent migrants. In our empirical analyses, we utilize all four variables regarding migration in our empirical analyses. It should be noted that the 1995 survey is concerned only with cross-county migration.

For individuals who are six years old and above, there is a question about whether they are currently enrolled in school. We use this information as our dependent variable and we coded this variable 1 if the child is currently enrolled in school and 0 otherwise.⁷ We restrict our sample to children between the ages of 6 and 15 who were residing in cities of Guangdong province in 1995. We use this age group mainly because this age group is required by China's Compulsory Education Law to receive 9 years of education (PRC, 1998). We define migrant children as one who arrived in any of the cities of Guangdong either before or after 1990. Moreover, with the additional detailed information on the exact month and year of arrival for migrant children who came during 1990–1995, we are able to capture migrant children with various years of duration of residence: within 1 year, 1–2 years, ...4–5 years,⁸ and more than five years. This variable allows us to evaluate the impact of duration of residence in cities on the likelihood of school enrollment. There is a caveat regarding year of duration, i.e., we do not observe migrants who have returned home. To the extent that return migrants tend to be negatively selected on socioeconomic characteristics (Zhao, 2003), our procedures probably overestimate school enrollment of migrant children.

We further define two types of migrants based on the type of household registration status. Permanent migrant children are defined as migrant children who have local *hukou* in the cities of Guangdong. It is often the case that migration of permanent migrants (parents of these permanent migrant children) is sanctioned by the stated as job assignments and job transfer. Increasingly in recent years, people who have purchasing power for commercial housing can also be eligible to receive urban *hukou* and become permanent migrants. In general, permanent migrants tend to be highly educated and concentrate in prestigious occupations, which has implications for education outcomes of their children. In contrast, temporary migrant children are children who lack local *hukou* their parents are often at the bottom of socioeconomic hierarchy in cities (Solinger, 1999). To iterate, these migrant children have already been in the cities of Guangdong for at least six months.⁹ Although the focus on migrant children who have lived in cities of Guangdong for at least six-month is a constrained inherent in the data, it should be

⁷ Among migrant children who are not currently enrolled, some are never enrolled in city schools and others are dropouts. We make no distinction between the two because of the small number of dropouts.

⁸ We are able to obtain this information from two variables on the month and year of arrival. For example, to identify migrants who arrived within one year, we locate migrants who arrived from October, 1994 to the date of the survey in October, 1995.

⁹ It should be noted that the use of the term "temporary migration" in the Chinese case is pretty much to follow the use of this term in the current literature, it does not necessarily mean that these migrants will return home quickly.

noted that this strategy has some advantages and disadvantages. One limitation is that we miss these migrant children with shorter duration of residence. Nevertheless the advantage is that we are likely to eliminate or reduce the potential bias in study of school enrollment caused by initial interruptions when migrant children first arrive (i.e., parents trying to figure out the types of schools available and their locations and fees).

Our analysis proceeds in the following way. We begin with some general description of our sample. Our initial exploration of the data suggests that there is a major difference in the level of school enrollment between migrant children who arrived during the last five years before the survey and migrant children who came greater than five years prior. Therefore, we decided to focus on five broad groups of children: (1) local children in cities; (2) permanent migrant children with more than five years of duration in cities; (3) permanent migrant children with less than five years of duration in cities; (4) temporary migrant children with more than five years of duration of residence; and (5) temporary migrant children within five years of duration of residence in cities. In the first set of statistical models we use the sample that contains local children in cities of Guangdong and migrant children from all provinces who were living in any of the cities of Guangdong. We use a logistic regression model because our dependent variable is a dummy 0–1 variable.

The second part of our statistical model employs a new approach that incorporates information from both migrant origin and destination. The idea is to select migrant children in cities of Guangdong who originally came from rural Guangdong. In addition, we use information regarding school enrollment among non-migrant children who reside in these rural countries where rural migrants in Guangdong cities came from. This research strategy has the advantage of allowing us to make simultaneous comparisons with children at the place of migration destinations and, more importantly, with non-migrant children in migration origin–rural Guangdong province.

6. Results

6.1. Descriptive statistics

To facilitate a basic understanding of our sample, descriptive statistics for migrant children and non-migrant children are displayed in Table 1. We highlight the major findings below. With respect to school enrollment rate by migration status, it is somewhat surprising to find that permanent migrant children have the highest rate of school enrollment, followed by local children in cities, and temporary migrant children.¹⁰ This high enrollment rate among permanent migrant children is consistent with the socioeconomic profile of the household heads of migrant households with children, which will be discussed shortly. In contrast, temporary migrant children within one year of duration suffer the most, with school enrollment rate of only 60%. Another finding concerning school enrollment is that duration of residence matters—for both permanent and temporary migrant children, the longer migrant children stay in cities, the more likely they are to be enrolled in schools.

There are three patterns of migration worth noting. Not surprisingly, for both temporary and permanent migrant children, more than 85% of them are from other parts of

¹⁰ This ranking order of permanent migrants, local residents, and temporary migrants has been noted by Fan (2001).

Table 1

Descriptive characteristics for migrant and non-migrant children from all provinces in cities of Guangdong

	(1)	(2)	(3)	(4)	(5)	(6)
School enrollment (%)	89.81	96.56	84.90	91.84	84.69	60
<i>Individual level characteristics</i>						
Male (%)	52.32	50.51	52.08	55.53	55.1	49.23
<i>Age</i>						
Mean	10.16	11.66	9.66	10.17	10.02	9.7
Standard deviation	2.88	2.71	2.85	2.84	2.87	3.32
<i>Living arrangement (%)</i>						
Living with two parents	78.15	80.15	71.23	80.00	86.73	78.46
Living with one parent	5.79	7.12	7.60	6.58	3.06	0.03
Living with grandparents	14.55	10.31	18.44	6.58	4.08	1.54
Living with others	1.51	2.42	2.74	6.84	6.13	19.97
<i>Type of original residence (%)</i>						
Rural	NA	NA	NA	29.47	60.88	56.95
Town	NA	NA	NA	17.11	8.16	9.23
City	NA	NA	NA	53.42	30.95	33.85
<i>Province of original residence (%)</i>						
Other parts of Guangdong	NA	NA	NA	85.26	92.18	72.31
Hunan	NA	NA	NA	3.68	1.7	6.15
Guangxi	NA	NA	NA	1.58	3.06	4.62
Other provinces	NA	NA	NA	9.47	3.06	16.92
<i>Household head characteristics</i>						
<i>Education (%)</i>						
No formal education	1.48	0.44	1.16	0.00	7.48	6.16
Elementary school	35.49	12.54	21.59	11.85	23.47	20
Junior high school	38.76	27.26	39.33	26.75	39.46	36.92
High school	20.93	41.11	31.49	34.04	24.15	23.08
Junior college or higher	3.34	18.51	6.43	27.36	5.44	13.85
N	9355	786	987	380	294	65

Source. The 1995 China 1% Population Sample Survey.

(1) Local children, (2) permanent migrant children with duration of residence >5 years in cities of Guangdong, (3) temporary migrant children >5 years, (4) permanent migrant children ≤5 years, (5) temporary migrant children with 1–5 years of duration of residence, and (6) temporary migrant children within 1 year of duration of residence.

Guangdong province. The provinces that sent the largest numbers of migrants to Guangdong are Guangxi (a neighboring province) and Hunan. Another finding is that more than 60% of temporary migrant children are from rural areas. In contrast, nearly three quarters of permanent migrants are from urban areas (towns and cities). This underscores the fact that it is much more difficult for rural migrants to obtain local *hukou* than migrants from urban areas.¹¹ The third pattern of migration is that the number of temporary migrants who have stayed over five years (987) nearly triples the number of temporary migrants who have lived in Guangdong within five years. This suggests that a substantial number of tem-

¹¹ For migrants who migrated to the current location more than five years ago, there is no information regarding the rural/urban status. Thus, our calculations in this part are only for migrants who arrived during 1990–1995.

porary migrants actually have lived in cities in Guangdong for a long time and are really a permanent part of the city population.

Results on the socioeconomic background of household heads by migration status are quite striking.¹² For permanent migrant children who arrived during 1990–1995, amazingly enough, 27% of their household heads have college level education. The corresponding number for migrant children who arrived before 1990 is 18.5%. This increase in the educational level of household heads may reflect the possibility that over time Guangdong attracts more and more highly educated migrants. The proportion of household heads with college education is only slightly over 3% for local children. The educational distribution of household heads is favorable for temporary migrants as compared to local children.¹³ For example, the proportion of household heads with college degrees among temporary migrant children is two times that of the proportion for local kids. The proportion of household heads with high school education for temporary migrant children are 10-percentage points higher when compared to local children.

We offer following explanation for the relatively favorable background characteristics for household heads of temporary migrants. One possibility is that among temporary migrants, some are highly educated migrants who have high school or even college degree and look for jobs in cities of Guangdong. Guangdong is one of the most marketized areas in China and it certainly attracts highly educated individuals. Second, our general image of low SES migrants contains all kinds of migrants, single and married. It should be noted that our sample is not a general sample of migrant population; it is a sample of households that contain migrant children. In other words, in most cases, this is a sample of (married) migrant couples who decided to bring their child (children) to cities of Guangdong. This relative favorable educational advantage of temporary migrant children households can be explained mainly by the exclusion of two kinds of migrants: (1) younger migrants with no children (usually do not have high education); (2) married migrant couples who, perhaps due to economic circumstances, decided not to bring their children to the cities. We also note that about 30% of temporary migrants are from cities, urban origin migrants are much better educated than rural origin migrants.

6.2. School enrollment: comparisons at the place of migrant destination

The first sets of statistical models compare school enrollment of temporary and permanent migrant children with local children in cities of Guangdong. As reported in Table 1, the most striking finding is that temporary migrant children suffer most during the first year of migration, when school enrollment rate is only 60%. While it is tempting to suggest that this may be the result of interruption caused by migration, this is not the case. If it is simply the effect of the interruption caused by migration per se, we should expect to find a similar level of school enrollment for permanent migrant children. However, the results show that for permanent migrant children within the first year of arrival, around 90% of them are enrolled in schools. The school enrollment rate for the first year temporary

¹² We performed separate analysis for children who resided in households headed by their parents and households headed by others (i.e., grandparents), we found no significant differences.

¹³ This does not contradict the common perception that temporary migrants are disadvantaged in socioeconomic status compared to local residents. This is because migrants who decided to bring their children are relatively well-off or “made it” in cities and therefore are not representative of the temporary migrant population in general.

migrant children is also significantly lower than temporary migrant children who have stayed more than a year. Among migrant students who have lived in the cities of Guangdong for a duration of between 4 and 5 years, temporary migrant children reach parity with that of permanent migrant children. Because of this unique pattern of school enrollment, we use the following categories of duration of residence for temporary migrants in our statistical analyses: (1) temporary migrants who arrived within the first year; (2) temporary migrants who have stayed 1–5 years; (3) temporary migrant children who have stayed for more than five years.

For permanent migrant children, no significant patterns were detected among children with different years of duration of residence (save for a slight difference between migrant children who migrated within five years and migrant children who arrived more than five years ago). Thus, we created two simple categories: those who arrived within five years and those who arrived more than five years ago.

Table 2 shows results from the logistic regression model of school enrollment focusing on comparisons at the place of migration destination. We estimated three models: model I with only migration related variables, model II includes additional individual level variables, and model III adds household level variables. Model I essentially reproduces the same findings reported in Table 1 and Fig. 1 but adding testing of statistical significance. We pay particular attention to these migration-related variables to see how the effects of migration-related variables change (or remain unchanged) as we add individual and household level variables. As it turns out, the effects of migration-related variables remain essentially unchanged, even with additional variables. Thus, we focus our discussion on model III.

Consistent with our expectations, temporary migrant children within the first year of arrival suffer the most in school enrollment (see the large coefficient of -2.13). Moreover,

Table 2

Logistic regression predicting the probability of school enrollment based on children from all provinces who resided in cities of Guangdong, 1995

Independent variables	Model 1	Model 2	Model 3
<i>Migration status (ref = city local children)</i>			
Temporary migrant children (≤ 1 year)	-1.77^{**} (0.26)	-2.09^{**} (0.36)	-2.13^{**} (0.37)
Temporary migrant children (1–5 years)	-0.47^{**} (0.17)	-0.52^{**} (0.19)	-0.56^{**} (0.19)
Temporary migrant children (> 5 years)	0.02 (0.18)	0.24 (0.21)	0.25 (0.22)
Permanent migrant children (≤ 5 years)	0.24 (0.19)	0.23 (0.21)	0.22 (0.22)
Permanent migrant children (> 5 years)	1.16 ^{**} (0.20)	0.46 [*] (0.22)	0.44 [*] (0.22)
<i>Demographic characteristics</i>			
Age (ref = 6–12)		0.79 ^{**} (0.02)	0.79 ^{**} (0.02)
Sex (ref = female)		0.02 (0.07)	0.01 (0.07)
<i>Household head education (ref = elementary school)</i>			
Junior high school			0.29 ^{**} (0.09)
Senior high school			0.22 [*] (0.10)
Junior college and +			0.07 (0.18)
<i>Living arrangement (ref = living with no parents)</i>			
Living with two parents			-0.18 (0.09)
Living with one parent			0.05 (0.17)
Intercept	2.18 ^{**} (0.03)	-4.34^{**} (0.18)	-4.40^{**} (0.19)
Number of cases	11,867	11,867	11,867

* $p < 0.05$.

** $p < 0.01$.

even among temporary migrants who have been living in the cities of Guangdong for 1–5 years, they are still less likely to be enrolled in school when compared to local children. This finding is astonishing and it shows that not having *hukou* has short term as well as long term consequences. Temporary migrant children are able to reach parity in school enrollment only when they have lived in cities for more than five years. In contrast, permanent migrant children do not face any disadvantage in school enrollment. In fact, permanent migrant children who have stayed for more than five years are more likely to be enrolled in school than local children.

Since gender gap in education in China has long been noted by scholars (Connelly and Zheng, 2003; Hannum and Xie, 1994; Lavelly et al., 1990), we also entered the variable gender and expected that migrant girls would have lower levels of school enrollment than migrant boys. The results show that although boys are more likely to be enrolled in schools, it is not statistically significant.

Aside from migration-related variables, another important determinant of children's school enrollment is household head's education. We use household head's education (instead of father or mother's education) mainly because a sizable number of migrant children (and local children) do not live with their parents (see Table 1 for detailed distributions on living arrangement). We argue that household head's education has implications for children's education in at least two ways. One is that highly educated household heads tend to have more resources and therefore are more likely to pay the high tuition often incurred for migrant children. Second, well-educated household heads also have more appreciation of education and therefore may desire that migrant children in their households be educated. This issue may not be very important for migrant children who are from cities, or local children, since completion of 9-year compulsory education is almost a commonly accepted norm in urban China. Nevertheless it is quite different for children from rural China. Findings from the 1997 Beijing Survey of the Floating Population support this view. The following question is asked to migrant parents whose children were not enrolled in school at the time of survey: What is the reason that your child is not enrolled in school? Surprisingly, more than a quarter of those parents reported that "there is no need to attend school (BFPCO, 1998)." The results from Table 2 indeed show that household head's education is indeed a very important determinant of children's education.¹⁴

Since Table 2 includes migrants who arrived at any time and the rural/urban origin information is only available for migrants who arrived during 1990–1995, we are not able to include information on the rural/urban origin of migrants. In Table 3, we limit our sample to migrant children who arrived during 1990–1995 along with local children, which enables us to include a variable identifying rural/urban origin of migrants. Because of this strategy, we should note that findings from Table 3 are concerned only with migrant children who arrived during 1990–1995. Perhaps the most important message emerging from Table 3 is that even controlling all other important individual and household level characteristics, migrants from rural areas are still disadvantaged in terms of school enrollment when compared to local children. This again highlights the fact that rural/urban status in China is no longer a simple classification of an individual's residential location; rather it is

¹⁴ We noted that the coefficient for household heads with college level education is positive but not statistically significant. This is probably due to the fact that many of the college-educated household heads are concentrated in the permanent migrant population and part of the effect of college education may be picked up for migration status.

Table 3

Logistic regression predicting the probability of school enrollment based on migrant children in cities of Guangdong within five years of duration of residence

Independent variables	Model 1	Model 2	Model 3
<i>Migration status (ref = local)</i>			
Temporary migrant children (≤ 1 year)	-1.77** (0.26)	-1.71** (0.40)	-1.71** (0.39)
Temporary migrant children (1–5 years)	-0.50** (0.10)	-0.18 (0.12)	-0.20 (0.12)
Permanent migrant children (≤ 5 years)	0.24 (0.19)	0.44 (0.24)	0.48* (0.24)
<i>Demographic characteristics</i>			
Age (ref = 6–12)		0.79** (0.03)	0.79** (0.03)
Sex (ref = female)		0.004 (0.07)	-0.001 (0.07)
<i>Rurallurban origin (ref = city)</i>			
Rural origin		-0.69** (0.22)	-0.73** (0.22)
Town origin		0.12 (0.43)	0.08 (0.43)
<i>Household head education</i>			
(ref = elementary school education)			
Junior high school			0.25** (0.09)
Senior high school			0.18* (0.10)
Junior college and +			-0.08 (0.18)
<i>Living arrangement</i>			
(ref = living with no parent)			
Living with two parents			-0.13 (0.10)
Living with one parent			0.11 (0.18)
Intercept	2.18** (0.03)	-4.36** (0.19)	-4.42** (0.20)
Number of cases	10,716	10,716	10,716

Source. The 1995 China 1% Population Sample Survey.

Note 1. Coefficient with ** is 0.01 level significant, Coefficient with * is 0.05 level significant.

Note 2. Figures in parenthesis are standard errors.

a sociological variable that has important implications for an individual's life chances
before and even after migration.

403 6.3. School enrollment: origin-destination pooled models

In Tables 1–3, we compare school enrollment of migrant children with that of local children in cities. Again, we focus on migrant children who arrived in cities within last five years. For migrant children who arrived in cities more than five years ago, the rural/urban nature of the place of origin cannot be identified. We now turn to results from migration origin-destination pooled model. In doing so, we include the following three categories of children in our sample: (1) local children in cities of Guangdong; (2) migrant children who are from *rural* Guangdong but currently live in cities of Guangdong; (3) non-migrant children who live in *rural* Guangdong (this is a sample of nonmigrants from the migrant origin). Table 4 displays the descriptive statistics of our sample. Confirming our earlier findings, we still find that permanent migrant children have the highest level of school enrollment and temporary migrant children have the lowest level of school enrollment. Somewhat surprisingly, the difference in level of school enrollment between rural non-migrant children and city children in Guangdong is almost negligible. This is especially worth noting in light of the unfavorable educa-

Table 4
Descriptive characteristics for migrant and non-migrant children from Guanagdong, 1995

	City local children	Rural local children	Permanent migrant children (same rural origin)	Temporary migrant children (same rural origin)
School enrollment (%)	89.81	88.27	87.80	81.88
<i>Individual level characteristics</i>				
Male (%)	52.37	52.51	56.10	53.02
<i>Age</i>				
Mean	10.16	10.31	10.11	10.13
Standard deviation	2.88	2.85	2.78	2.91
<i>Living arrangement (%)</i>				
Living with two parent	83.34	84.12	89.02	90.60
Living with one parent	0.74	0.43	1.22	2.68
Living with grandparents	14.57	13.47	1.22	0.67
Living with others	1.35	1.99	8.54	6.04
<i>Household head characteristic</i>				
<i>Household head education (%)</i>				
No formal education	8.88	10.43	6.10	6.04
Elementary school	38.16	45.05	23.17	25.50
Junior high school	32.10	31.45	41.46	42.28
Senior high school	16.00	11.67	21.95	22.82
Junior college or higher	4.87	1.40	7.32	3.36
N	9340	28,626	82	149

Source. The 1995 China 1% Population Sample Survey.
Note. Permanent migrant children and temporary migrant children figures are for those from the same rural origin as rural children.

tional distribution of household heads for rural non-migrant children as compared to that of local children. This shows that perhaps due to Guangdong’s rapid economic development in recent decades, rural/urban gap in education seems to have narrowed down considerably.

Table 5 shows the results from the origin-destination pooled sample.¹⁵ In Model 1, we include only migration-related variables and then we sequentially added other individual- and household-level variables in Models 2 and 3. The important thing to note is that we have changed the reference group, instead of children in cities, the reference group now is non-migrant children in rural Guangdong. We focus our discussion on Model 3. The most striking finding from Model 3 is that temporary migrant children from rural Guangdong are less likely to be enrolled in school compared to non-migrant children in rural Guangdong. This is true for temporary migrant children within one year of duration. It is also the case for temporary migrant children with duration of residence of 4–5 years, but it is not statistically significant. Clearly, temporary migrant children within one year of duration in cities suffered the most. Thus far, this is the strongest evidence demonstrating that the education of temporary migrant children suffered because of their migration to cities.

¹⁵ To our knowledge, this is the first time this origin-destination linked strategy has been employed in study of school enrollment of migrant children in China. At the same time, we realize that the sample size for permanent migrant children with same rural origin is not ideal. We await the availability of the micro-level data from the 2000 census, where sample size is much larger, to further confirm our findings.

Table 5

Logistic regression predicting the probability of school enrollment based on children in rural Guangdong: origin-destination linked sample

Independent variables	Model 1	Model 2	Model 3
<i>Migration status (ref = rural Guangdong Children from the same origin)</i>			
Guangdong temporary migrant (≤ 1 year)	−1.25** (0.49)	−1.29** (0.50)	−1.32** (0.50)
Guangdong temporary migrant (1–5 years)	−0.37 (0.24)	−0.37 (0.24)	−0.41 (0.24)
Guangdong city local children	0.16** (0.04)	0.17** (0.04)	0.17** (0.04)
Guangdong permanent migrant	−0.04 (0.34)	−0.01 (0.34)	−0.04 (0.34)
<i>Demographic variables</i>			
Age (ref = age 6–12)		0.76** (0.04)	0.74** (0.04)
Gender (ref = girls)		0.15** (0.03)	0.15** (0.03)
<i>Household head education</i>			
Junior high school			0.05 (0.04)
High school			0.03 (0.05)
Junior college and +			−0.01 (0.11)
<i>Living arrangement</i>			
Living with one parent			0.22 (0.24)
Living with two parent			0.22** (0.04)
Intercept	2.02** (0.02)	1.77** (0.03)	1.57** (0.04)
Number of cases	38,197	38,197	38,197

Source. The 1995 China 1% Population Sample Survey.

Note 1. Local residents from the same origin, female, elementary school education, living with no parents are reference groups of respective dummy variables.

Note 2. Coefficient with ** is 0.01 level significant, coefficient with * is 0.05 level significant.

Note 3. Figures in parenthesis are standard errors.

Similar to what we found before, educational attainment of household heads continues to be an important determinant of children's school enrollment. Two patterns that seem to be different from earlier models. One is that the impact of gender is now much more poignant in school enrollment than before. The other is that living with two parents/one parent significantly increases the probability of school enrollment. Since rural non-migrants in Guangdong account for large proportion of our sample for Table 5, we suggest that the sharp differences in school enrollment by gender to some extent characterize the continuing gender discrimination in rural Guangdong society in the mid-1990s.

To facilitate interpretation and to project a clear sense of the magnitude of the educational disadvantage suffered by temporary migrant children, we generated predicted probabilities of school enrollment by migration status and gender. To obtain these predicted probabilities, we made the following assumptions: children in the age group of 6–12, living in two parent households, with household heads having junior high school education. For example, temporary migrant boys within one year of residence in cities have a predicted probability of enrollment of .74 and the corresponding predicated enrollment probability for rural non-migrant boys is .89. Due to migration, this is a drop in enrollment probability by 17% $((0.89 - 0.74)/0.89 = .17)$! As migrant children spend more time in cities, this disadvantage tends to diminish.

7. Conclusion and discussion

As migration continues to increase in the mid-1990s and beyond, the emerging literature on migration in China seems to have reached the consensus that the recent large volume of

migration has indeed benefited the places of destination and origin, along with the migrant themselves. Nevertheless what is less clear is how migrant children fare in this large-scale social transformation.

In this paper, we provide perhaps the most systematic empirical analysis to date of school enrollment of migrant children in China, using Guangdong province as a case study. Although the issue of education of migrant children began to draw attention from scholars and social commentators (Cao, 1997; Duan, 2000; HSC, 1997; Solinger, 1999; Zhao, 2000), the existing studies tend to center on the issue of school enrollment at the places of migration destination. Whereas, the extant literature informs us about the current situation of the education of China's migrant children, such as enrollment rates in different cities and the situation of migrant schools in large cities, our paper places this research issue in a broader perspective by considering duration of residence of migrants in cities of Guangdong and more importantly by including non-migrants from the place of origin in Guangdong province. Such a research strategy generated insightful findings. The use of pooled origin/destination data allowed us to compare school enrollment of migrant children with local children in cities, as well as that of non-migrant rural children in Guangdong. Our results confirm earlier studies that temporary migrant children are less likely to be enrolled in school than local children. At the same time, our results show that temporary migrant children with less than a year's duration in cities are also *less likely* to be enrolled in school than non-migrant children in rural Guangdong (the place of migration origin). While their parents may have made financial gains working in the cities of Guangdong, unfortunately, temporary migrant children suffered in terms of their education. In this sense, the temporary migrant children are the truly disadvantaged in terms of educational opportunities.

Our findings also suggest that duration of residence matters for migrant children. Although temporary migrant children within the first five years of duration of residence all suffer, it is the temporary migrant children within the first year of arrival that suffer the most in school enrollment. Temporary migrants who have lived in cities for more than five years actually are able to reach the parity in school enrollment with local children. While this finding certainly gives us some sense of comfort, we note that school enrollment is only one of the measures of school outcomes. It is possible that early disruption in school enrollment may have long-term consequences for children's development of self-esteem and future academic trajectory.¹⁶ Furthermore, as we recall results from Table 1, household heads of temporary migrant children are better educated than local household heads. Given the fact that, we observe educational disadvantage even for a sample of temporary migrant children with relatively favorable household characteristics, we can safely deduce that the story would be more much worse for temporary migrant children with worse household level characteristics.

Our study also provides fresh evidence on the recent sociological literature of migration and children's schooling. The general consensus from this literature indicates that migration usually has negative consequences for children's schooling because of the loss of social capital in schools, neighborhood, and community of origin. Unlike most findings on migration and children's schooling, the case of China shows that permanent migrant children are more likely to be enrolled in schools than local children in cities. This finding perhaps reflects the highly selective nature of the parents of these permanent migrant

¹⁶ A careful study of the long-term consequences of school disruption would require the use of longitudinal type data which, to our knowledge, does not exist at present.

children.¹⁷ Consonant with the literature in the United States, we too found migration has negative consequences for China's temporary migrant children. However, the cause of these negative consequences for education is attributable to the fact of not having local *hukou* rather than the loss of social capital in the community of origin. Thus, our study points to a new direction for current stratification research. Recent studies of social stratification in China have focused on the role of cadre and education in career mobility and earnings and have not paid sufficient attention to the role of *hukou* status in shaping individuals' life chances. Given large number of migrant population in China, exploring the role of *hukou* status in social mobility promises to be an important research avenue.

The striking evidence of educational disadvantage for migrant children should draw further attention from both scholars and policy-makers. As the migration process continues to unfold, we expect more and more migrants to bring their children to the cities, and it is inevitable that more migrant parents bear and raise children in these cities. Perhaps realizing the importance of this issue, China's Ministry of Education issued "Temporary Regulations Concerning the Education of Children of the Floating Population" in 1998 (Duan, 2000; Huasheng Monthly, 1998; Liu, 2003). The "Regulations" stipulate that children of the floating population should primarily be enrolled in local schools and that local governments should shoulder the responsibility of providing education for these children. In reality, however, because of the high "endorsement fees" often demanded by local schools, few migrant parents can afford to send their children to local schools. Results from the 1997 Beijing Census of the Floating Population support this view. Among migrant parents whose children are not currently enrolled in school, 43% of them said that the endorsement fees were too high, while 7.4% reported that no school would accept their children (BFPCO, 1998, p. 174).

Across the globe, studies have repeatedly shown that lack of adequate education not only has negative consequences for children themselves in the future, but also negative consequences for society as a whole (Buchmann and Hannum, 2001). Clearly new policy initiatives concerning the issue of education of migrant children are sorely needed.¹⁸ In considering new initiatives, it would be helpful to consider two factors. First, based on this study, we see that a substantial number of temporary migrants have stayed in cities for many years. Thus, we must strive to change the belief among some of China's policy-makers and government officials that migrants only come to the cities to make money and then they leave. The real scenario is that a substantial number of temporary migrants actually settle in their destination cities and as a result their children are the future of these same Chinese cities. The second factor is that policy-makers should also be made aware that China's "One Child Policy" has another consequence for schools in cities, i.e., more and more urban families send their only child to school. Furthermore, most of China's schools were built at a time when urban families had at least two or three or sometimes even more children. The situation of one family sending two or three kids to school is increasingly rare and may well disappear at some point, if it has not occurred already. As a result, many schools in the cities face the problem of

¹⁷ We note that this finding still holds even controlling education of household heads for migrant children. This may indicate that there are other unmeasured characteristics that are important that our models do not capture. Such characteristics may include motivation of students and parental and children's expectations for educational achievement. Unfortunately, due to data limitations, we cannot test these plausible hypotheses.

¹⁸ As of this writing, Beijing began to allow migrant children to be enrolled in local public schools without paying large sum of "endorsement fees." It is not yet clear whether the rest of urban China will follow suit.

a shortage of students.¹⁹ To this end, the timing of considering new policy initiatives to deal with education of migrant children is very favorable.

8. Uncited references

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¹⁹ This certainly applies to some districts in Beijing. Communication with Prof. Duan Chengrong of Renmin University on June 25, 2005.

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