

Migration and the Well-being of Children in China*
(Draft)

Zai Liang and Lin Guo

Department of Sociology
State University of New York
Albany, NY 12222
Phone: 518-442-4676
Fax: 518-442-4936
E-mail: zliang@albany.edu

And

Charles Chengrong Duan

People's University of China

*Paper submitted to annual meetings of Population Association of America, to be held in New Orleans, April 2008. This project is supported, in part, by the Spencer Foundation. Please note that I had to remove some figures from the paper because the size of the file is too big. Figures will be sent separately in hard copy. Thanks for your attention.

ABSTRACT

Using data from the 2002 China 9-City Survey of Migrant Children, this paper examines three issues concerning the well-being of migrant children: education, health, and child labor. We provide both broad patterns of education, health, and child labor as well as statistical models which take into account individual, household level, and migration characteristics. The results show some good news and some bad news. Overall, migrant children show a profile of relatively high level of school enrollment and participation in vaccination programs. On the negative side, we find that child labor is quite high (as high as 15% in one city). Gender discrimination is also evident in both participation in vaccination program and child labor. Third, migrant children who reside in single parent households suffer both in education and child labor.

I. Introduction

On January 27, the *Wall Street Journal* ran a front-page article about migrant children in China (Chao, 2007). The article underscores the plight of children who are left behind because their parents are working in cities. In fact the report touches only the tip of an iceberg that concerns the education of China's migrant children. According to recent estimates, the total number of left behind children reached 23 million by 2000 (Duan and Zhou, 2005). In addition, there are estimated 14 million migrant children who are in migrant destinations (cities). All together an estimated 37 million migrant children are affected by China's tidal wave of migrant labors. The two groups of migrant children are facing different difficulties. For migrant children in cities, the main issue is equal access to local public schools. In contrast, the main challenges facing left behind migrant children include the lack of parental supervisions and emotional support, which may lead to less desirable educational outcomes and delinquent behavior. The plight of such huge numbers of children presents major challenges for policy-makers in China.

This paper examines the extent to which the wave of migration, began in late 1970s, has affected the well-being of migrants children in Chinese cities. It should be noted that while scholarly literature on China's migrant population has centered on the adult migrants, it is only until recent years that scholars began to pay attention to the well-being of migrant children. This in part reflects the migration process. 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. This pattern has been manifested in recent migration surveys. For example, in the 1997 Census of the Floating Population in Shanghai, children of school age account for nearly 12 percent 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. Some 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 addition, 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 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 schools and to complete elementary and secondary school level education, as this is a necessary step for socioeconomic advancement in an increasingly marketized society.

The second aim of our research is to examine health issues related to migrant children. Because of not having urban hukou, migrant children are vulnerable to health-related risks. Specifically, we are interested in the extent to which migrant children have equal access to basic vaccination programs. The issue of child health is especially important in light of recent findings about the long-term consequences of early childhood conditions (Hayward and Gorman, 2004; Polloni., 2006). Another important health-related issue is child labor. The recent shocking report of child labor in a brick-factory in Shanxi province is the most recent episode of this issue (Tang, 2007). Driven by greed, some of the employers show no respect for basic human rights. Compared to education and vaccination programs, it is most challenging to study child labor because systematic data are difficult to get.

In this paper, we shift the research attention from adult migrants to migrant children, especially in terms of their school enrollment and health issues. We first discuss the institutional context within which migrant parents make decisions about school choices and participation in vaccination program. We stress the role of Chinese household registration system (*hukou*) in

constraining migrant parents' opportunities. Migration is also an adaptive process, as migrants stay longer in cities, they become better informed of school choices and availability of health services in cities. Following a discussion about how different factors that are related to children's access to school and immunization, we will describe the data and methods used in our paper. Empirical part of the paper involves analyzing data from the 2002 9-City Survey of Migrant Children. We analyze patterns and determinants of educational experience of migrant children (enrollment and type of schools attended), vaccination programs, and child labor. In doing so, our research efforts take into account parental socio-economic characteristics, migration experience in destination city, children's characteristics, and family structure. Taking advantage of the rich data from the 2002 survey, we will present basic patterns and statistical models of three research areas of interest.

II. Background and Significance

Hukou and Educational Opportunity

China's spectacular economic growth since the late 1970s has been widely noted. Equally noteworthy is the tide of rural to urban migration that has been unleashed since the early 1980s. The floating population (defined as individuals who moved to a new destination without local household registration) continues to rise to new levels. Even if we look at inter-county migration alone, it has increased to 80 million by 2000 (Liang and Ma, 2004). Recent data from the 2005 China 1% Survey suggest floating population increased even further (NBS, 2007). Much of this flow of migrant population is adult migrants who are trying to make a living in a new urban environment. As migrants spend more time in destinations and have a stable job, some decide to bring their spouses and children. As a result number of migrant households with

children has increased. For example, in Shanghai, from 1993 to 1997, the size of floating population remains stable, but the number of migrant children of school age increased from 280,000 to 340,000, an increase of 28% (Liang, 2007). Similar changes were observed in Beijing using a different measure: household type. In 1997, 32% of migrants lived in migrant households. By 2000, the proportion of migrants who lived in migrant households had risen to 45%. Assuming that migrant households are more likely to contain migrant children than local resident households and institutional households. As migrants spend more time in cities, increasingly they will have children in destinations cities. According to the 1997 Beijing Survey of Floating Population, the proportions of school age children born in city of Beijing are 16% for 5-9 age group and 8% for 10-14 age group. Among age group of 0-4 migrant children, 38% were born in Beijing, pointing to a potential current and future demand for health care and education and health care need (BJFPCO, 1998). consequently, this new demographic reality calls for increased attention to the well-being of migrant children in China.

To appreciate the degree of vulnerability of migrant children, one needs to discuss China's *hukou* system and how it is related to opportunity for migrant children in terms of education, immunization, labor abuse (child labor). Established in the late 1950s, hukou determines where one can live and what benefits one is entitled to. Hukou was created in large measure to control rural to urban migration. As such, for individuals who intend to move, permission should be obtained from the place of origin in addition to place of destination. Based on a migrant's hukou status, students of migration in China often define two types of migrations, i.e. permanent and temporary migrants (also known as the floating migrants). Permanent migrants are migrants who have obtained local household registration at their place of

destination and temporary migrants are migrants 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 school district in the city; and (2) students must be registered (as far as hukou is concerned) in the school district as well. The justification behind these regulations is that since the education budget is allocated based on the size of city registered children, enrollment of non-registered children (children without local hukou) would present a fiscal burden on the part of the city government and schools. Earlier government regulations stipulate that students who are enrolled in schools in places other than their place of household registration pay endorsement fee of 480 yuan per semester (Cao, 1997). The reality is that most public schools charge a much higher price than that. Although this discussion applies to the period of our research (in early 2000s), there was a major change in March 2006. The document issued by the State Council in March 2006 explicitly requires that local government in migrant destinations put the education of migrant children on their education planning agenda and include this component in fiscal planning (Research Group of the State Council, 2006).

Given the importance of education for migrant children, several researchers have examined this issue. In 1995, the Horizon Survey Company (HSC) conducted a survey of migrant children in Beijing. Based on this survey, HSC reported only 40 percent of school-age children were enrolled in schools (HSC, 1997). They 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 percent in some cities of Guangdong (Cao, 1997). In contrast,

the 1997 Census of Beijing's Floating Population reported a school enrollment rate of 82.1% for children ages 6-15. Using information on non-migrant children in migrant origins and migrant children in destinations, Liang and Chen (2007) show that migrant children have a lower school enrollment rate compared to non-migrant children in migrant origins, underscoring the educational disadvantages suffered by migrant children.

In response to the demand for education for migrant children and difficulties of enrolling in local public schools, there has been an emerging phenomenon in almost all cities, big or small: schools that cater particularly to the schooling need of migrant children. Another line of research focuses on the migrant sponsored schools in Chinese cities. In 1997, researchers from Eastern China Normal University surveyed five migrant sponsored schools in Shanghai (Liu et al., 1998). Duan (1999) also visited many migrant schools in Beijing. Perhaps the most systematic study of migrant sponsored schools was conducted by Lu and her colleagues at Research and Development Center under State Council. Lu and her colleagues visited 114 migrant schools in Beijing in 1999. The main thrust of this line of research is to document the major characteristics of migrant children schools in different cities. According to Lu et al. (2001), these migrant children schools usually do not have license from local education bureau, the quality of teachers is questionable, and conditions of these school are rather poor (lack of teaching equipment and adequate buildings). Our fieldwork in migrant sponsored schools in Beijing, Shanghai, Fuzhou, and Xiamen over the years is consistent with these observations. However, the contributions of migrant school are recognized by Zhu's report (2001). Based on some case studies of migrant children, she argues that although migrant sponsored school is not a perfect choice for migrant children's education, it helps these children to finish compulsory education and acquire basic education (Zhu, 2001). Thus in light of high cost of

education in local public schools, we expect that migrant parents with better socio-economic resources are more likely to place their children in local public schools than in migrant schools.

Migration and Health for Migrant Children

Similar to fiscal planning for education, health care/service planning in urban China is also projected based on the potential health care need of registered population (Lin et al., 2003). As far as education and access to immunization programs are concerned, we expect that migrant children are much less likely to be enrolled in schools and less likely to receive vaccine than local registered children.

Another important issue, related to children's health and rights, is the issue of child labor. In the third week of June, 2007, a shocking news (along with tarrying photos) spread all across China: several hundred indentured slave laborers were found in a brick-making factory in Hongdong county of Shanxi province (Liu et al., 2007; Tang, 2007). Among the 558 workers, 29 are children below age 16 (Tang, 2007)¹. Child labor is strictly prohibited in China. In 1991, China's State Council issued document entitled "Prohibition of Child Labor in China (CSC, 1991)." The document calls for punishment of employers who hire anyone who is younger than 16 years old. However, the regulation is short of giving fines to employers and only asks employers to pay for medical bills and other health-related cost. In 2002, China State Council issued revised version of the child labor document using much tougher language and severe financial penalty for both employers who hire under-aged and employment agencies which facilitated the process of employment for the under-aged (defined as below 16 years old) (CSC,

¹ Another source reported over 100 child laborers found in this factory. see <http://www.cnd.org/my/modules/wfsection/article.php%3Farticleid=17238> accessed July 31, 2007.

2002). Newspapers' sensational stories aside, systematic study of child labor is often very difficult because of lack of data. For example, in most surveys and national censuses, questions on labor force participation are only asked for people who are above 15 years old, making it impossible to study child labor issues. Fortunately, to our knowledge, the 2002 China 9-City Survey of Migrant Children is the only large scale social survey that covers issues on child labor, which also allows us to link child labor with characteristics of children and their parents as well as cities in which they reside.

We should note that understanding education and health for migrant children by itself is important and has significant policy implications, there are also long-term consequences for socioeconomic mobility of migrant children. As China becomes more marketized, education will play an increasingly important role in social and economic mobility. Currently large portion of parents of these migrant children are concentrated in low-level occupations. Education will hold important clue for whether migrant children will follow their parents' socio-economic path. As far as children's health is concerned, recent studies suggest children health has long term consequences. For example, using longitudinal data from the United States, Palloni (2006) shows that early childhood health matters for adult social class positions. In the Chinese case, lack of educational opportunity and potential health consequences of not having adequate health care could be the worst combination in view of the current literature.

(THIS can be discussed in a separate section). Households where migrant children come from are often not well-off, so there is a financial incentive from the parents' perspective for children to help support household economy. The fact that for some migrant children, going to school is difficult and costly in cities, then start working at earlier age becomes a practical

alternative. Part of the difficulty of studying child labor issue is lack of data. However, difficulty of measuring this.

Parental Resources, Family Structure, Migration Experiences and Children's Well-being

In previous section, we discussed the extent to which the Chinese institution of hukou constrains opportunity for education and health care for migrant children and the potential long-term consequences for health and socio-economic advancement. In this section, we link migrant children's family background/resources, traditional gender roles, and migration experience to education and health care access for migrant children. It is important to realize institutional barriers (lack of hukou status) restricting choices of schooling and access to health care, family characteristics and parental involvement are also important factors as well (see Coleman (1964) for case of race and education in the context of the United States). We expect parent education is important in this process. Well-educated parents are more likely to appreciate the value of good quality education and will make good efforts to enrollment their children in schools and place their children in local public schools. Well-educated parents are also well informed about local educational opportunities and medical service and health benefits of immunization program, which enhances the likelihood of enrolment in good school and participation in immunization program for their children. To the extent that education serves as a proxy for resources, we also expect that education is related to children's participation in child labor. In most cases, migrant households are not well-off, so there is a financial incentive from the parents' perspective for children to help support household economy. The fact that for some migrant children, going to school is difficult and costly in cities, then start working at earlier age becomes a practical alternative.

Family structure has been shown to be a critical variable for the well-being of children (Astone and McLanahan, 1994; Buchman and Hannum, 2001). Most of the studies tend to measure family structure by intact family vs. single parent families. In our study of migrant children, a more meaningful classification is the following: children with two parents in destination, children with one parent, child with one parent and other non-parents. We argue that comparing with children who live in other types of households, children with two parents would enjoy the best outcomes on our research interests: school enrollment, immunization, and child labor.

Since we are concerned with the well-being of children from migrant families, migration experience itself should bear on children's education and health related experiences. Commonly known as the assimilation paradigm in the immigration literature, it refers to the process whereby migrants gradually follow the behavior/practices/norms of local residents. One of the important variables in this assimilation paradigm is duration of residence in destinations areas. This leads us to hypothesize that as migrant stay longer in cities, they are more likely to make sure their children are enrolled in schools and in public schools and participate in immunization program. In addition, as migrant spend more time in cities, they are also more likely to be aware of rights for children and relevant laws for protection of children (including prohibition of use of child labor) and therefore their children are less likely to be involved in child labor.

III. Data and Methods

For this paper, we mainly rely on data from the 2002 China Nine-City Migrant Children Survey. The survey was sponsored by The Office of Women and Children Affairs under the State Council, China Children's Center, and United Nations Children's Fund (OWCASC et al.

2003). The main objectives of the survey are to gain comprehensive understanding of migrant children with respect to living environment, community service, and access to health care, education, and protection of children's rights. The survey's target population is migrant children who are 18 years old or younger who reside in households headed by migrants with no local household registration status. The sampling unit is household whose members are officially registered in countryside and have resided in surveyed city for more than six months and there is at least one migrant children who is age 18 or younger. The survey has a broad geographic coverage: covering 9 cities that are located in eastern, central, and western parts of China. There are three cities located in eastern China: Beijing, Shenzhen (in Guangdong province), and Shaoxing (in Zhejiang province); there are three cities in western China: Chengdu (Sichuan province), Xianyang (Shannxi province), and Yining (Xinjiang Autonomous Region); there are three cities in central China: Wuhan (Hubei province), Jilin (Jilin province), and Zhuzhou (Hunan province). These cities also represent different city sizes: three large cities (Beijing, Wuhan, and Chengdu), three medium size cities (Shenzhen, Jilin, Xianyang), and three small cities (Shaoxing, Zhuzhou, and Jining). Map 1 shows the distribution of survey sites and sample size for each survey site.

The survey provides perhaps the most comprehensive information ever on migrant children for any survey conducted in China. It contains detailed questions on basic socioeconomic background information on parents (in some cases guardians if no parents is with the children) and children, migration information for both parents and children, educational experience, health related questions (nutrition, recent illness episodes, accidents, regular medical check-up, purchase of insurance, immunization, knowledge on AIDS, sexual abuse and harassment, and children's psychological feelings of being in the city). There is rich information

on educational experience (enrollment, public vs. migrant school enrollment, tuition payment in each type of schools, There is also information on housing conditions (i.e. if migrant children have their private room) and neighborhoods where migrant children reside. Finally there is information about child labor (children paid for work). Despite the richness of the data, there is one limitation, we only have information on migrant children. Thus we can not make comparison with non-migrants in migrant origins and local children at destinations. To the extent possible, we have gathered comparable and aggregate level data for local resident children..

Taking advantage of the rich information on education and health, our research focus on three main variable: (1) whether or not migrants are enrolled in school; (2) for migrant children who are enrolled in schools, whether in local public school or migrant sponsored school; (3) whether or not migrant children received required vaccination; and (4) whether or not migrant children are engaged in paid labor (child labor). When considering these indicators related to well-being of migrant children, we must take children's age into account. For issue of school enrollment, we restrict our analysis to children of 7-16, this is the age group that by law children is supposed to receive mandatory education (elementary school and middle school). For child labor, by law, children under age 16 are not allowed to participate in paid labor. Since number of children aged 12 or below who are engaged in paid labor is rare, we use age 12-15 for study of child labor. For participation in vaccination program, the issue is somewhat complicated. Information is obtained for participation in five vaccines: BCC (vaccine for TB), measles, PDT (pertussis, diphtheria, and tetanus), poliomyelitis, and Hapatitis B. Figure 2 shows the age schedule for each vaccine based on information from China Center for Disease Control.²

² See <http://www.crn.net.cn:80/labo/jiezhong/contact01.html> (accessed August 15, 2007).

Our data analysis will proceed as follows: for each variable of our interest (such as school enrollment or vaccination), we begin with some description of the broad pattern of the variable. Given the importance of gender difference in access to education and health care, we always present the pattern by gender. This will be followed by careful statistical analysis that takes into account a variety of characteristics at individual and household level.

Findings

Descriptive statistics of the sample

We begin with a basic description of our sample from the 9-city survey of migrant children. Table 1 shows basic characteristics of parents and children.³ Overwhelming majority of the children (89%) live in two-parents household and the remaining types of households include one parent with another relative, one parent only, grandparent(s), and non-parent. Only 1% of migrant children live with non-parent households. Since the survey targets migrant households with children, the age distribution of migrant children varies from less than one-year old babies to 18 years old. Overall, there are more boys than girls in our sample, perhaps reflecting the fact that parents tend to bring boys to cities first. From our research perspective, we have different research focus for migrant children in different age groups.

Turning to the number of children per household in cities, we find that 64% of migrant households have only one child and 32% have two children.⁴ Nearly 60% of migrant fathers have junior high school level education and nearly 20% of migrant fathers have elementary school education. The average duration of stay for migrant fathers is nearly 7 years, average

³ In some cases we use the characteristics of the guardians often relatives, when parents are not with their children in cities.

⁴ We note that some parents decided to take one child to migrant destination and leave one or more children behind in migrant origins. This is the story of “left behind children”, which is beyond the scope of this paper

duration for mothers is above 6 years, and average duration of stay for children is about 3.6 years. In other words, a typical story is that migrant father will migrate to cities first, then bring spouses on the trip. Parents will typically wait for at least three years before taking their children to the destination cities. This information also suggests that our sample tends to represent migrants who have been living in these cities for a while, and they are very likely to stay in the cities. We should keep this in mind when interpreting our results later. If we put the two pieces of information (family structure and duration of stay) together, we get a likely picture of the migration process: parents migrate first and secure get stable jobs in cities and then take their children to cities.

Broad Patterns of School enrollment, participation in Vaccination programs preprograms, and Child labor

(1) School Enrollment

Next we describe the broad patterns of our research interest concerning migrant children: school enrollment, participation in immunization programs, and child labor. First, we discuss school enrollment patterns. For study of school enrollment, we selected migrant children who are in the age group of 7-16 years old, an age group that is expected to be enrolled in education according to China's Law of Compulsory Education. Compared to earlier studies, data from the 2002 survey of migrant children reveal that school enrollment among school age migrant children 7-16 seem to be not particularly problematic. In 6 out of 9 cities, school enrollment rate is either close to or above 90%, for both boys and girls. There is clearly a variation across regions. The lowest school enrollment rates are found in Shaoxing city in Zhejiang province, followed by city of Jilin in Jilin province and Xining in Xinjiang autonomous region. The

school enrollment rate in city of Shaoxing is 71% for boys and 69% for girls. It turns out that Shaoxing is also a city that has high rate of child labor among migrant children. Figure 3 shows that migrant girls have a slightly lower level of school enrollment. This is not surprising in light of the gender gap in education in China (Hunum and Park, 2007). We also explored how school enrollment varies by other characteristics such as gender, father's education, duration stay of children, family structure, and age (results are not shown). We find that the most important factors are family structure, father's education, and age of migrant child. Migrant children who live in intact families (both parents) are much more likely to be enrolled in school than migrant children who live in other types of families. School enrollment rate by age is worth-noting. From age 7 to above age 12, school enrollment rate was very high, close to 100%. But school enrollment rate began to drop after age 12 and continues to decline as children get older. What this means is that the migrant parents often manage to enroll their children for elementary schools. However, for middle school (or junior high school), it is a different story even though it is also required by China's 9-year compulsory education law. Several factors probably contributed to this. One is that it usually costs a lot more money to enroll students in middle school than in elementary schools in cities. In Beijing, for example, the official fees for migrant children to be enrolled in local elementary schools is 1200 yuan vs. 2000 yuan for middle school (Liudong ertong zhuangkuan diaocha ketizhu, 2003). Second, most migrant sponsored schools offer elementary school education, few offer middle school level education, which makes it harder on the part of migrant children who want to attend low-cost middle school.

To the extent that migrant children are enrolled in schools, we examine whether they are enrolled in local public schools or migrant sponsored schools (*dagong zidi xuexiao*). Figure 4 shows the proportion of migrant children who are enrolled in local public schools. Two patterns

show up. One is that majority of migrants children are enrolled in local public schools. For example, in Chengdu in western China and Jilin in Northeastern China, among currently enrolled children 7-16 years old, nearly 100% of migrant children were enrolled in public schools in 2002. Again there are variation across different cities. In one of China's most attractive migrant destination cities, Shenzhen, 55% of the boys were enrolled in public schools and nearly 60% girls were enrolled in public schools. A similar story is revealed for cities of Beijing and Wuhan, to a lesser degree. One possibility is that those cities such as Shenzhen and Beijing have extremely large number of migrants, migrant sponsored schools are well developed to meet the need of education for migrant children. It is also likely that given the high living cost in those cities, fees for enrollment in public schools are also much higher than other cities.

(2) Participation in Vaccination Program.

It is expected that migrant children are less likely to participate in vaccination programs. Simply put, the local health service budget for vaccination is only for locally registered children, by definition local health care workers are not responsible for vaccination of migrant children. The 2002 Survey asked if migrant children have received vaccination for five kinds of vaccines: BCG, Measles, PDT, Poliomyelitis, and Hepatitis B. Following the protocol of reporting vaccination rate practiced in China, we restrict our sample to only children who are in the age group of 0-6 years old. Figure 5 shows the vaccination rate by type of vaccine. The highest vaccination rates are found for BCG (88%) and poliomyelitis (88%). These rates are about 10 percentage lower than reported rates of vaccination in China as a whole (Lin et al., 2003). The lowest rates are found in measles (85%) and PDT (83%). One possible reason for the higher vaccination rates for BCG (for prevention of TB) and poliomyelitis is that respondents probably

have a good knowledge of these two diseases because of coverage by popular media over the years.

In Figure 6, we compare vaccination rate of respondents in the 2002 Survey with 2001 data for migrant children from Shanghai and 2001 data from China as a whole. The results from the 2002 Survey of Migrant Children seem to lie between China as a whole and Shanghai. Data from Shanghai show a much lower rates of vaccination across all five vaccines. For instance, PDT vaccination rate for migrant children in Shanghai is about 60% as compared to 80% for migrant children in the 2002 survey of migrant children. We noted earlier that the sample of migrant children tend to come from families that have been living in the cities for a while (with a mean duration of nearly 7 years) and have a somewhat stable settlement location and easier for health care workers to locate. In contrast, results from Shanghai include all kinds of migrant children, some of them just arrived recently. It is those migrant children that are the most vulnerable and likely to be missed in any vaccination programs.

(3). Child Labor

Finally we report findings regarding child labor among migrant children in the survey. Child labor is defined as participation in paid labor for children age 15 or below. We focus on migrant children who are 12-15 years old. Figure 7 depicts patterns of child labor by gender and city. Two patterns are evident in the chart. The overall level of child labor is quite high for this age group of children and should be a concern for the government and policy makers. In Shenzhen and Yining, as high as 13 or 14% of migrant children 12-15 years old participating in paid labor in 2002. Keeping in mind that our survey is likely to capture those migrant households which have been in the cities for a while, thus our estimate of child labor is very

conservative. The child labor rate would be much higher if the survey were able to capture more recently arrived migrant families and their children. We also find that there is a strong association between father's education and participation in child labor: the less educated the fathers are, the more likely children participate in child labor.

We can also detect a gender gap in child labor from Figure 7: girls are participating in paid labor in a higher rate than boys. In conjunction with the evidence on gender gap in school enrollment, this evidence raises further concerns regarding the well-being of migrant girls in Chinese cities. Fieldwork report by Zhou et al. (2003) describe some of the typical paid jobs that these children are engaged in: nanny in domestic service, flower shops, hair salon, and waiters/waitresses. Although these jobs are not as dangerous as working in mining industry, the reality is that they really should devote their time to education not paid labor and the long term consequences for their education and health is likely to be high.

Results from Statistical Models

Our statistical models consider four dependent variables and all are dichotomy variables: (1) if migrant children are enrolled in school; (2) if migrant children are enrolled in local public school (vs. migrant sponsored schools); (3) if migrant children received BCC vaccine (for prevention of TB); (4) if children participated in paid labor. To examine each of our dependent variables, we consider three kinds of characteristics: household characteristics (family structure, father's education, duration in the city, age of father), characteristics of children (gender, age, and duration of stay in the city), and dummy variables that distinguishing cities.

Table 2 shows the estimated coefficients from logistic model of school enrollment for migrant children age 7-16. Model 1 uses individual and household level characteristics and

Model 2 also includes city dummy variables to detect any variation in school enrollment across cities. Consistent with our expectation, the higher the education level of father, the more likely children are enrolled in school. Educated fathers are more likely to appreciate the value of education and thus make sure their children are enrolled in school. Migrant children from two-parents families are more likely to enroll in schools than migrant children from one-parent families. Characteristics of children are also important factors in school enrollment process. The negative sign between age of migrant children and the probability of school enrollment suggests that as migrant children grow older, they are less likely to be enrolled in school. This mainly reflects the fact that enrollment in middle school (for older children) is lower than enrollment in elementary school (for younger children). In other words, drop-out (or not enrolled in school) is more likely to happen in middle school than in elementary school even though 9-year Compulsory Education Laws covers middle school as well. Consistent with our expectation, as duration of stay for children increases, so does the probability of school enrollment.

Among migrant children who are already enrolled, Table 3 identifies important factors that determining who gets to go to local public schools (vs. migrant sponsored schools). As we discussed earlier, migrant sponsored schools are inferior compared to public schools in terms of teacher qualification, infrastructure, and other resources. In estimating this model, our assumption is that migrant parents would prefer to place their children in local public schools. Although father's education continues to be important, it is only statistically significant for fathers with college level education. As migrant children get older, they are more likely to be enrolled in public school. This is in large part driven by the fact that there are not many migrant sponsored middle schools in cities and public school is almost the only choice. With each

additional year of duration in the city for migrant children, the probability of enrolling in public school increases. As children stay longer in the city, parents often prepare them for a life in the cities in the future. Public education is one of the ways to ensure a good future for migrant children. There is also some evidence of gender difference, i.e. girls are less likely to be enrolled in public schools, but the results are not statistically significant.

We now turn to statistical model of vaccination. We choose BCG because it is one of the best known vaccines in China. Table 4 shows the results from logistic regression model predicting receiving BCG vaccination for migrant children. Father's education is perhaps the most important predictor of receiving BCG vaccination for migrant children. Father's education indicates father's knowledge of health consequences of not having BCG vaccination for migrant children. Father's duration of stay in the city also increases the probability of receiving BCG vaccination. The longer the father stays in the city, the more likely father is aware of vaccination service available to migrant children. It is comforting to know that the migrant children in capital city of Beijing have the best chance of receiving BCG vaccination than migrant children in other cities. Perhaps the most important finding concerning BCG vaccination is that girls are much less likely to receive BCG vaccination than boys, a shocking finding in the 21st century. This indicates a potential lack of attention from parents or discrimination against migrant girls. Not receiving appropriate vaccination will increase the chance of developing certain diseases down the road.

Finally, we address the issue of child labor. Results from Table 5 show that living with one parent (instead of two parents) significantly increases the chance of working for pay among migrant children of 12-15 years old. It is possible that households headed by one parent need children to contribute to the household economy more than the case of two-parent household.

Thus this increased chance of child paid labor is driven by household economic circumstances. Perhaps the most important message in Table 5 is that girls are much more likely to be in paid labor than boys. This adds another reason for reason in that the issue of gender discrimination at this younger age should be a major policy concern. The good news is the as migrant children spend more time in the city, their chance of participating in paid labor declines. This suggests that child labor is perhaps a temporary strategy on the part of migrant parents to alleviate some family economic burdens.

Summary and Conclusions:

As China's tidal wave of migrants continues to rise and settle in urban areas, increasingly more and more migrant children join the wave of migration. Using perhaps the most comprehensive survey of migrant children, this paper aims to address the issue of the well-being of migrant children. The well-being of migrant children is not only important in itself because of large number of migrant children are involved, it is also important for the future of urban China. The availability of data from the 2002 China 9-city Survey of Migrant Children presents an unique opportunity to examine the well-being of migrant children. Our paper focuses on three issues: education, health, and child labor. There are some good news and bad news coming out from our study.

Let's begin with good news. Overall, we find that migrant children from this survey show a profile of high level of school enrollment and participation in vaccination programs. Both school enrollment rate and proportion of enrolling in local public schools are in line with national level trend in education statistics. Likewise, the broad pattern of participation in vaccination program for migrant children is close to the rate of vaccination for the general

population. We want to caution readers that our data are characterized by migrant households which have been living in cities for a substantial number of years (with 6.8 mean years of duration in cities) and are not necessarily representative of migrant children in China as a whole.

Now we turn to some bad news. First, one of the main innovative aspects of the survey is information on child labor. We often hear reports of child labor in the news media, but systematic studies are seriously lacking. To our knowledge, the 2002 China Nine-City Survey of Migrant Children is the only one survey that contains systematic information on child labor for a large sample of migrant children. The picture that emerges from the survey is not a rosy one. In four out of nine cities, child labor rate is close to or above 10%. Child labor interrupts children's regular schooling and could have potential negative consequences for children's health.

Second, although we take comfort in somewhat optimistic patterns of schooling and participation in vaccination programs, there are major variations across migrant children with different characteristics. There is consistent evidence for some potential gender discrimination in both vaccination and child labor. Migrant girls are much less likely to have received BCG vaccination than boys. Likewise, migrant girls of 12-15 years old are also more likely to be engaged in paid labor than boys. The gender gap in education in rural China has been widely documented, but we are among the first to document evident disadvantages experienced by migrant girls in access to health service and participation in child labor. It seems that, along with migration of adult parents, the practice of unequal treatment of girls has migrated to cities as well.

The third bad news is that migrants who reside in families with single parent suffer both in education and in child labor. This is not surprising to readers who study social and economic

consequences of single parenthood in the United States, it takes a different sociological meaning in the context of China. Single parenthood in the United States results from non-marital child-bearing or high rate of divorce. But in the case of migrant children in China, single parenthood for migrant children is created directly or indirectly by the lack of full membership privilege in urban China not through non-marital child-bearing or high rate of divorce. Migration process itself is difficult for parents and children, at least initially. But not having urban household registration adds salt to the injury because it often leads to bad jobs, undesirable neighborhood, and lack of access to social and health benefits. What this means is that for some families, it is hard to have the whole family united in migrant destination cities. Sometime difficult decisions have to be made: one parent takes one child to cities and another parent stays behinds and takes care of another child in the countryside. Our results show that this difficult decision has negative consequences for migrant children in terms of school enrollment and child labor. The fact that children who come from single parent families show lower rate of school enrollment and higher rate of participation in paid labor is not an accident but could logically linked. Single parents often struggle financially and to the extent children can contribute to the household economy, children will get involved in paid labor rather than going to school: a very sad reality.

The study of education and health issues for migrant children is an extremely important topic, but it is also a difficult topic because of lack of systematic data and because of difficulty of locating our study subjects. Our paper represents some of the necessary steps toward systematic study of this population. Of course our understanding of education and health issues is far from complete. For example, our study found that school enrollment for migrant children is not particularly low and percentage of students who are enrolled in local public schools is quite high.

However, we do not know a lot about what goes on in schools in terms of the actual learning process. How are migrant children enrolled in public schools compared with migrant children who are enrolled in migrant sponsored schools? Do migrant children in public schools face any discrimination because of their distinctive accent or because of their different dresses? Equally important, what explains the variations in child labor across cities? There is also a big question of what happens to children who are left behind that we need to carefully study in the future.

Our paper holds some policy implications as well. One of our findings suggests that children are increasingly dropped out of school as they get to the age of middle school. Thus from the policy perspective, we should make a lot more efforts to encourage migrant children to attend middle schools. This can be done by eradicating barriers (such as high endorsement fees and other fees) for access to middle school.

Another finding is that migrant children who came recently are less likely to receive vaccinations. Perhaps two things can be done here. One is to increase the efforts on the part of health care workers to locate and identify newly arrived migrant children. The current government policy regarding registration of floating migrants is that only individuals who are age 16 and above are required to register with local security office. To reach migrant children who are in the age of vaccination, we need to require all migrant children be registered with local security office. Another approach could be a community based approach, which can be more effective than government directed efforts. That is to designate community leaders to disseminate health service availability to recently arrived migrant children and encourage them to participate in vaccination programs. Occasional health service seminars by health care workers and supported by local community leaders could also be sensible approach. Finally, we would like to end the paper with a positive note. We believe that despite the difficulties facing

migrant children today in terms of access to education and health service, this is the best of times since early 1980s from the perspective of migrant children. The official policy from the 2006 Document by China's State Council has explicit provisions for education, health service, and prohibition of child labor. It stipulates that local government in the migrant destination should take responsibility of educating migrant children and it is against the government policy to demand extra fees for migrant children. In addition, local government must include migrant children for planning and implementation of vaccination programs (Research Group of the State Council, 2006). Of course, official policy does not translate immediately to reality. We should be cautiously optimistic.

References

- Astone, Nan and Sara S. McLanahan. 1994. "Family Structure, Residential Mobility, and School Dropout: A Research Note." Demography 31:575-584.
- Beijing Floating Population Census Office (BFPCO). 1998. The 1997 Beijing Floating Population Census Tabulations. Beijing: China Commerce Press.
- Buchman, Claudia and Emily Hannum. 2001. "Education and Stratification in Developing Countries." Annual Review of Sociology 27:77-102.
- Chao, Loretta. 2007. "As China Booms, Millions of Children are Left Behind." The Wall Street Journal. January 24. A1 and A11.
- Chen, Yiu Por and Zai Liang. 2007. "Educational Attainment of Migrant Children: The Forgotten Story of China's Urbanization." Pp. 117-132 in Emily Hunum and Albert Park (Eds.) Inequality and Education in China. Routledge.
- China State Council. 1991. Prohibition of Child Labor in China. Available at <http://www.fm120.com/zt/law/laws/1/YYWSZHFLFG/XZFG/XZFG1055.htm>. accessed July 31, 2007.
- China State Council. 2002. Prohibition of Child Labor in China. Available at: <http://www.people.com.cn/GB/shehui/43/20021017/844070.html>. Accessed July 31, 2007.
- China Youth Research Center (CYRC). 2007. "Contradictory Self-identification among Migrant Children in China." World Journal. January 24. C5.
- Coleman, James S. 1964. Equality of Educational Opportunity. Which press.
- Duan, Chengrong and Zhou Fulin. 2005. 'A Study on Children Left behind', *Population Research* 29/1: 29-36.
- Hayward, Mark D. and B.K. Gorman. 2004. "The Long Arm of Childhood: The Influence of Early-Life Social Conditions on Men's Mortality." Demography 41:87-107.
- Hernandez, Donald. "From Generation to Generation. National Academy Press.
- Horizon Survey Company, State Statistical Bureau, and Survey System of China Entrepreneurs (HSC et al.). 1997. Observing China. Beijing, Agriculture and Commerce Press.
- Hunum, Emily and Albert Park. 2007. Education and Reform in China. Rutledge
- Jintang County Government (JCG, Sichuan Province). 2004. "Implementing Labor-Exporting Policy and Transform Labor Resources to Financial Capital." Unpublished document.

Kanaiaupuni, Shawn Malia, Katherine M. Donato. 2005. "Counting on Kin: Social Networks, Social Support, and Child Health Status." Social Forces 83:1137-1164.

Liang, Zai. 2001. "The Age of Migration in China." Population and Development Review 27:499-524.

Liang, Zai and Zhongdong Ma. 2004. "China's Floating Population: New Evidence from the 2000 Census." Population and Development Review 30(3):467-488.

Liang, Zai and Xueji Liang. 2005. "Choices or Constraints: Education of China's Migrant Children." Paper presented at mini-conference of North American Chinese Sociologist Association. San Francisco, August.

Liang, Zai and Yiu Por Chen. 2007. "The Educational Consequences of Migration for Children in China." Social Science Research 36:28-47.

Liang, Zai. 2007. "Internal Migration: Policy Changes, Recent Trends, and New Challenges." Pp. 197-214 in Zhongwei Zhao and Fei Guo (eds.) Transition and Challenge: China's Population at the Beginning of the 21st Century. New York: Oxford University Press.

Lin, Liangming, Guo Xue, Mi Jie, and Shan Xiaoyi. 2003. "Health and Preventive Health Care of Migrant Children." P. 115-132 in Liming Zhang and Shunyi Zhao (eds.) Survey Report on the Temporary Migrant Children in 9 Cities of China. Beijing: Office of Women and Children Affairs under the State Council, China Children's Center, and United Nations Children's Fund.

Liu, Yan, Chen Xiao, and Shen Zhu. 2007. "Underground Brick-making Factory: Black Economy in the Countryside." China Newsweek(zhongguo xinwen zhoukan) 329:38-40. July 2.

Research Team of the Floating Migrant Children (Liudong ertong zhuangkuang diaocha ketizhu) (RTFMC). 2003. "Research on Policies related to Migrant Children." P.184-208 in Liming Zhang and Shunyi Zhao (eds.) Survey Report on the Temporary Migrant Children in 9 Cities of China. Beijing: Office of Women and Children Affairs under the State Council, China Children's Center, and United Nations Children's Fund.

Murphy, Rachel. 2002. How Migrant Labor is Changing Rural China. New York: Cambridge University Press.

National Bureau of Statistics (NBS). 2002. Tabulations of the 2000 Population Census of China. Beijing: China Statistics Press.

National Research Council. 1998. From Generation to Generation: The Health and Well-being of Children in Immigrant Families. National Academy Press.

Ni, Ching-ching. 2006. "Orphans of the Chinese Economy: Millions of children are separated from parents who left their villages to make a living. The social effects may be tragic and far-reaching." Los Angeles Times. July 5.

Office of Women and Children Affairs under the State Council and UNESCO China Children Center (OWCASC and UNESCO). 2003. Survey Report on the Temporary Migrant Children in Cities of China.

Oropesa, R.S. and Nancy S. Landale. 2000. "From Austerity to Prosperity?: Migration and Child Poverty among Mainland and Island Puerto Ricans." Demography 37(3): 323-338.

Palloni, Alberto. 2006. "Reproducing Inequalities: Luck, Wallets, and the Enduring Effects of Childhood Health." Demography 43:587-615.

Pores, Alejandro and Ruben G. Rumbaut 2001. Legacies: The Story of the Immigrant Second Generation. Berkeley, CA: University of California Press.

Research Group for the 9-city Migrant Children Survey. 2003. "Final Report on the Well-being of Migrant Children in 9 Cities in China." P. 5-30 in Liming Zhang and Shunyi Zhao (eds.) Survey Report on the Temporary Migrant Children in 9 Cities of China. Beijing: Office of Women and Children Affairs under the State Council, China Children's Center, and United Nations Children's Fund.

Research Group of the State Council of China. 2006. Report on China's Peasant Workers (Zhongguo nonmin gong diaoyan baogao). China Yanshi Press.

Tang, Yong. 2007. "Children as Slave Labor." P.78-83. New Century News Weekly (xin shiji zhoukan). June 21.

Wang, Fei-ling. 2005. Organizing through Davison and Exclusion: China's Hukou System. Stanford, CA: Stanford University Press.

Yardley, Jim. 2004. "Rural Exodus for Work Fractures Chinese Family." The New York Times. December 21. A2.

Ye, Jingzhong and James Murray (eds.). 2005. Left Behind Children in Rural China. Beijing, China: Social Science Publishing House.

Zhou, Hong, Zhiyoung Qiu, and Diling Zhang. 2003. "Research on Protection of Children's Rights." P. 161-182 in Liming Zhang and Shunyi Zhao (eds.) Survey Report on the Temporary Migrant Children in 9 Cities of China. Beijing: Office of Women and Children Affairs under the State Council, China Children's Center, and United Nations Children's Fund.

Table 1. Descriptive Statistics

Variables	Frequency	Valid %
Family structure		
Two Parents	6992	89.60
One Parent and One Other Relative	75	0.96
One Parent Only	604	7.74
Father's Educational Attainment		
Beyond Junior College	210	2.91
Junior College	224	3.11
High School	1415	19.62
Junior Middle School	4106	56.93
Elementary School	1149	15.93
Illiterate/Semiliterate	108	1.50
Mother's Educational Attainment		
Beyond Junior College	104	1.40
Junior College	188	2.52
High School	910	12.21
Junior Middle School	3975	53.33
Elementary School	1903	25.53
Illiterate/Semiliterate	373	5.00
Gender of the Child		
Male	4395	56.25
Female	3418	43.75
Age of the Child		
0-5	3275	41.91
6-12	3219	41.20
13-18	1320	16.89
Mean age		7.22
Duration of Stay		
	Mean	S.D.
Father	6.86	4.83
Mother	6.08	4.47
Child	3.64	3.44

N=7,817

Source: The 2002 9-City Survey of Migrant Children, Sponsored by OWCA and UNICEF

Table 2. Coefficients from Logistic Regression for School Enrollment (7-16)

Variables	Model 1		Model 2	
	B	S.E.	B	S.E.
Household Characteristics				
Years of stay Guardian1	0.004	0.020	-0.007	0.021
Age of Guardian 1	-0.027	0.020	-0.019	0.020
Father's Education (Ref: Illiterate/Semiliterate)				
Beyond Junior College	19.056	5013.407	19.227	4922.206
Junior College	1.028	0.765	1.119	0.780
High School	1.185**	0.456	1.237**	0.465
Junior High School	0.947**	0.430	1.012**	0.436
Elementary School	0.386	0.441	0.424	0.448
Family Structure (Ref: 2 Parents)				
One Parent and One Other	-0.692	1.381	-0.847	1.480
One Parent Only	-0.886**	0.311	-1.540**	0.457
Child Characteristics				
Child being Female	-0.134	0.157	-0.087	0.160
Age of the Child	-0.626**	0.044	-0.657**	0.046
Years of stay child	0.154**	0.025	0.160**	0.026
City (Ref: Shaoxing)				
Beijing			-0.639	0.490
Wuhan			-0.307	0.485
Chengdu			0.003	0.497
Shenzhen			-0.247	0.541
Jilin			-0.951*	0.515
Xianyang			0.395	0.553
Zhuzhou			1.953**	0.857
Yining			1.005	0.739
Constant	10.109	0.895	10.404	0.995
Pseudo R²	0.373		0.400	

N=7,817

*P<.1; **P<.05

Source: The 2002 9-City Survey of Migrant Children, Sponsored by OWCA and UNICEF

Table 3. Coefficients from Logistic Regression for Public School Enrollment (7-16)

Variables	Model 1		Model 2	
	B	S.E.	B	S.E.
Household Characteristics				
Years of stay Guardian1	-0.005	0.013	-0.008	0.015
Age of Guardian 1	-0.051**	0.013	-0.018	0.014
Father's Education (Ref: Illiterate/Semiliterate)				
Beyond Junior College	1.224**	0.621	1.790**	0.673
Junior College	-0.753*	0.426	-0.037	0.485
High School	0.231	0.353	0.445	0.403
Junior High School	0.336	0.342	0.446	0.389
Elementary School	0.423	0.355	0.382	0.403
Family Structure (Ref: 2 Parents)				
One Parent and One Other	-0.043	0.843	-1.399	1.062
One Parent Only	0.270	0.326	-0.695	0.562
Child Characteristics				
Child being Female	0.051	0.098	-0.003	0.109
Age of the Child	0.090**	0.023	0.052**	0.025
Years of stay child	0.108**	0.018	0.134**	0.020
City (Ref: Shaoxing)				
Beijing			-19.915	4086.420
Wuhan			-20.791	4086.420
Chengdu			-15.094	4086.420
Shenzhen			-21.316	4086.420
Jilin			-17.126	4086.420
Xianyang			-16.455	4086.420
Zhuzhou			-18.834	4086.420
Yining			-18.609	4086.420
Constant	1.746	0.533	20.680	4086.420
Pseudo R²	0.353		0.050	

N=7,817

*P<.1; **P<.05

Source: The 2002 9-City Survey of Migrant Children, Sponsored by OWCA and UNICEF

Table 4. Coefficients from Logistic Regression for BCG Vaccination (0-6 years old)

Variables	Model 1		Model 2	
	B	S.E.	B	S.E.
Household Characteristics				
Years of stay Guardian1	0.089**	0.030	0.085**	0.031
Age of Guardian 1	-0.001	0.024	-0.014	0.025
Father's Education (Ref: Illiterate/Semiliterate)				
Beyond Junior College	2.309**	0.692	2.537**	0.714
Junior College	2.337**	0.751	2.515**	0.765
High School	2.317**	0.539	2.441**	0.557
Junior High School	1.752**	0.482	1.835**	0.497
Elementary School	0.896*	0.499	0.949*	0.509
Family Structure (Ref: 2 Parents)				
One Parent and One Other	18.102	9795.816	18.648	9753.882
One Parent Only	18.239	4737.003	18.323	8290.763
Child Characteristics				
Child being Female	-0.530**	0.185	-0.536**	0.186
Age of the Child	0.041	0.065	0.045	0.066
Years of stay child	0.137	0.088	0.133	0.089
City (Ref: Shaoxing)				
Beijing			1.389**	0.455
Wuhan			0.080	0.363
Chengdu			0.007	0.363
Shenzhen			0.018	0.383
Jilin			0.566	0.431
Xianyang			0.061	0.430
Zhuzhou			0.663	0.549
Yining			0.330	10087.539
Constant	0.993	0.854	1.027	0.928
Pseudo R²	0.089		0.113	

N=7,817

*P<.1; **P<.05

Source: The 2002 9-City Survey of Migrant Children, Sponsored by OWCA and UNICEF

Table 5. Coefficients from Logistic Regression for Child Labor (12-15)

Variables	Model 1		Model 2	
	B	S.E.	B	S.E.
Household Characteristics				
Years of stay Guardian1	-0.058	0.038	-0.057	0.041
Age of Guardian 1	0.081**	0.035	0.077**	0.036
Father's Education (Ref: Illiterate/Semiliterate)				
Beyond Junior College	-19.172	8712.566	-19.706	8581.041
Junior College	0.303	0.972	-0.050	1.000
High School	-0.823	0.660	-0.956	0.693
Junior High School	-0.649	0.621	-0.635	0.650
Elementary School	-0.630	0.653	-0.550	0.683
Family Structure (Ref: 2 Parents)				
One Parent and One Other	-17.874	27235.403	-18.172	27645.668
One Parent Only	1.357**	0.437	2.276**	0.563
Child Characteristics				
Child being Female	0.611**	0.278	0.628**	0.285
Age of the Child	0.352**	0.131	0.379**	0.136
Years of stay child	-0.095**	0.047	-0.084*	0.048
City (Ref: Shaoxing)				
Beijing			1.921	1.188
Wuhan			1.357	1.176
Chengdu			1.088	1.208
Shenzhen			1.944	1.243
Jilin			1.201	1.248
Xianyang			1.838	1.224
Zhuzhou			0.071	1.534
Yining			-0.929	1.556
Constant	-9.714	2.102	-11.404	2.421
Pseudo R²	0.182		0.145	

N=7,817

*P<.1; **P<.05

Source: The 2002 9-City Survey of Migrant Children, Sponsored by OWCA and UNICEF

