Rural Labor Migration in China: An Overview*

Zheren Wu†

Abstract

This study gives an overview of rural migration in China and provides a deep understanding of the unique rural migration in the country. The paper focuses on three aspects: (1) the hukou system and the history of the institutional arrangements relating to migration; (2) the migration profile; and (3) the major factors affect migration decision and empirical findings in literature.

JEL classifications: J24; O15; R23
Keywords: Migration, China, Rural

1 Introduction

China had for decades tightly restricted rural-to-urban migration. The prime instrument of control is the hukou system. This institutional arrangement remains in place today but it has been relaxed substantially in practice since the mid-1980s so that China experienced a surge in internal migration. In 2006, the number of rural migrant labors hit 132 million and continued to increase. The scale of migration in China is possibly the largest one of domestic labor movement witnessed in human history (Kung, 2002; Taylor et al., 2003).

Research on migration in China is getting started in recent years. Prior to 1987, due to the lack of data, research on this field was generally nonexistent. With the awareness that internal migration was tightly controlled by government, authorities did not include any question on migration in almost all official surveys. The first national survey that included question about migration was the 1987 1% population survey and 1990 was the first year in which the government collected data on migration in the population census (Zhu, 2002). Since then, a number of household and personal surveys which have included more detail questions about migration have been conducted. With the growing availability of data, empirical literature on internal migration in China, especially on migration determination, has begun to flourish.

This paper reviews policy concerns and major studies of migration in China and especially contributes to a better and more complete understanding of rural migration in current China. The paper is organized as follows. In section 2, we provide the historical and institutional background of labor migration in China. Section 3 takes a brief overview about current rural migration in China. Section 4

* I thank Tsunehiro Otsuki, Akira Kousaka, and Hisakazu Matsushige for many valuable comments.
† Correspondence: Institute of Social and Economic Research Association, Osaka University, 6-1 Mihogaoka, Ibaraki Osaka 567-0047, JAPAN
E-mail: wzheren@iser.osaka-u.ac.jp

focuses on selected factors that affect migration decisions and reviews economic literature in related issues. And finally, section 5 makes some closing remarks.

2 The Evolution of Migration Policy in China

Migration in China differs greatly from that in most other countries because of the heavy government involvement. The Chinese government has restricted internal migration for long periods. The household registration system, or the hukou system, has been utilized as a main instrument of migration control. Based on literature (Cheng and Selden, 1994; Lin, et. al., 1996; Yao and Zhu, 1998; Chan and Zhang, 1999; Knight and Song, 1999; Zhao, 1999a; Fleisher and Yang, 2003; Zhan, 2005; Poncet, 2006; Song et al., 2006; Whalley and Zhang, 2007) and policy documents, below we focus on the hukou system and review the evolution and changes of policies on rural migration. The evolution of migration policy could be divided into six periods since the birth of People's Republic of China (PRC):

(1) 1949-1958: Free migration and the origin of the hukou system

During the early years of PRC, migration was not restricted. The current hukou system originated in cities in 1951 and extended to the rural areas in 1955. However, the system was not set up to control migration but to provide the state with information for securing social and political order. The 1954 Constitution even guaranteed the citizen's right of free residential choice and migration. Particularly, in this period, rural laborers were encouraged to participate in urban development. About 40 million rural workers were recruited to urban industrial sectors (Zhan, 2005).

(2) 1958-1983: Intensifying the hukou system and prohibiting rural-to-urban migration

Under the heavy-industry-oriented development strategy, in order to finance the expansion of heavy industry and provide cheap agricultural products to the industrial sector, the government started to intensify the hukou system and severely restrict mobility of the population between industry and agriculture and between city and the countryside. With the promulgation of the "PRC Regulations on Household Registration" in 1958, Chinese citizens were required to register as permanent residents in their hukou location. Until now, nationals' personal hukou is classified by two related parts: one by residential location and one by socioeconomic eligibility (urban vs. rural or, in other words, nonagricultural vs. agricultural). The hukou status determines one's access to various amenities and social services. At that time, local urban hukou status entitled one to local access to permanent jobs, pension, regular housing, public schooling, public health care, food ration and grain subsidies. Local rural hukou entitled people to participate in commune's collective production activity, to share some produced grain and other essentials, and to access to local health and schooling facilities. Once one left his/her place of registration, he/she would also leave behind all of his/her rights and benefits. Moreover, people with rural hukou were unable to purchase food thus they were difficult to survive in cities.

Conversion of one's hukou was no longer a matter of personal choice. The designation of registration place and status for a person was defined as a birth right, until 1998, inherited from that of his/her mother. Change of the hukou (either the registered place or the registered status or both) has to go through a process of seeking approval from the government. Throughout the collective period (to a certain extent still today), especially in the case of rural-to-urban migration, the number of people allowed to make such hukou transfer has been tightly controlled. As a result, the hukou system began to operate as an effective barrier of labor mobility.

(3) 1984-1988: Relaxing the hukou system and allowing rural migration.

In the late 1970s, the decollectivization and the emergence of the Household Responsibility System (HRS) in rural areas significantly raised agricultural output and permitted farmers to sell their surplus crops on the open market, which in turn led to the abandonment of food rationing. In addition, the rural reform returned the freedom to farmers to allocate their time. To deal with the rapidly swelling surplus rural labor, the government encouraged rural laborers to participate in local township and village enterprises (TVEs) but still strictly controlled and restricted rural-to-urban migration.

The first step towards relaxing the hukou system came in the mid-1980s when the economic reform spread to the urban areas. With the allowing of non-state ownership and FDI, especially in the special economic zones and open cities in coastal areas, urban construction projects, foreign invested companies and private enterprises generated a rapidly growing demand for cheap labor. These reforms put pressures on the pre-existing hukou system. From 1984, rural workers were allowed to work in urban areas and they could apply for temporary registration at their destinations. Changes of permanent hukou remained difficult.

(4) 1989-1991: Strengthening rural migration controls

For a number of years since the relaxing of the migratory restrictions, rural-to-urban migration was not a significant social phenomenon because TVEs experienced rapid development in the same period and absorbed most of the rural surplus labor. However, in the late 1980s, due to the economic retrenchment, the government adopted austere monetary and fiscal policies, which forced many TVEs to shut down therefore large numbers of rural laborers seek employment in urban areas.[3] After the so-called "rural migrant wave" in 1989, the central and local governments interfered and restricted migration to control the Blind Flow (mang liu) of job-seeking farmers.

(5) 1992-2000: Regulating rural migration

In this period, the policies at the central level allowed, regulated, and even encouraged orderly rural labor migration to accommodate the high growth rate of the economy and the huge demand for labor force in urban areas. Especially, in 1997, the government allowed 450 pilot towns and cities to grant

[3] According to the National Statistical Bureau (NSB, 1995), about 10 million rural laborers were absorbed by TVEs every year from 1984 to 1988. However, the growth rate of workers in TVEs fell to a negative level in 1989 and 1990, decreased from 188.8 million in 1988 to 185 million in 1990.

urban hukou for qualified rural hukou holders. However, in most regions, migrants without urban hukou still had little access to public services. Furthermore, in the last half of 1990s, due to the massive layoffs in urban areas caused by the reform of state-owned enterprises, some local policy makers of large cities and coastal areas tightened restriction on migration.

(6) After 2000: Reforming the hukou system and promoting rural migration

Since 2000, many policies have been made to reform the existing hukou system. Several polices of the ongoing reform have made urban hukou easier to obtain, while others have reduced the importance of individuals' hukou status and generated fairer treatment for rural migrants. For example, from October 2001, in all small towns (county-level town and below) and several large cities, a rural hukou holder is qualified to apply for local urban hukou if he/she has a fixed place of residence in the respective small town or city and a stable source of income (State Council Circular No.6). His/Her immediate family members are also qualified. Successful applicants have the same right as those regular urban residents in respect to education, employment, subsidized foodstuffs, social security and welfare benefits but have to give up their use right of arable land in the countryside. In early 2002, the State Councils Office's "No. 2 Document" noted that no unreasonable or biased policies should be inflicted upon rural migrants. In January 2003, the "No.1 Document" stipulated several specifics to protect the rights of rural migrants.

3 Distributions and the Temporary Pattern of Rural Labor Migration

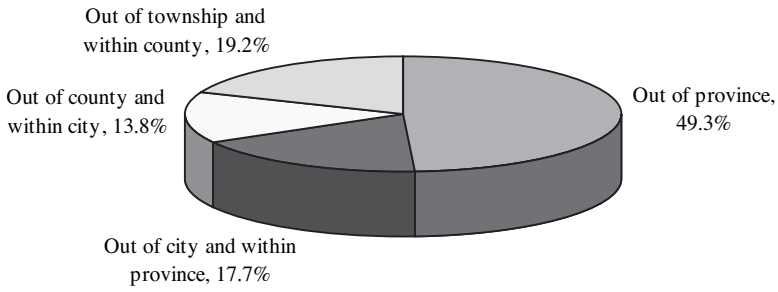
3.1 Distributions

Along with the gradual relaxation of migration restrictions, China has experienced a surge in migration. According to official statistics from the NSB, the number of rural migrants increased from merely two million in the mid-1980s to 30 million in 1989. In 1997, there were already about 45 million migrant workers in China. Despite the large-scale layoffs in urban areas, the number of rural migrant laborers increased to 55 million in 1998, 67 million in 1999 and 75 million in 2000. After that, with the hukou reform, the number has been steadily growing and reached 132 million in 2006, which accounted for 24.8% of the rural workforce.

Data from the second national agricultural census shows that, of the 132 million migrants in 2006, 19.2% were employed within their home county, 13.8% got jobs out of the county and within the home city, and 17.7% moved to other cities but did not across province. The remaining 49.3% left their province (Figure 1; NSB, 2008).

Farmers are attracted by large regional income gaps and by the urban-rural income gap. Most rural migrant laborers come from China's underdeveloped western and central provinces and mainly head to urban areas, eastern coastal locations. Based on NSB's rural household survey in 2004, Table 1 describes the flows of rural migrant workers. 94.3% of the 118.23 million rural migrants moved to urban areas. 27.2% of the rural workforce in the central region and 25.4% in the western region worked away from their registered town (below county-level).[4] The proportion was much lower in the

Figure 1: Rural migrant laborers by destination. (2006)



Source： The second national agricultural census (NBS, 2008)

eastern regions, recorded by 19.8%. Moreover, as a destination, the eastern region absorbed 65.2% of the central region' migrants and 41% of the western region' migrants, totally 70% of the national rural migrants.[5] While as a place of origin, only about 3% of its migrants moved to the central and western regions (NSB, 2005). In the 2005 and 2006 survey, the ratio did not change much: the eastern regional absorbed 70.3% and 70.1% of the country's rural migrant laborers, respectively (NSB, 2006, 2007).

It is interesting to note that although average rural per capita net income in the central region (at 2,706 yuan in 2004) is much higher than that in the western region (at 2,134 yuan in 2004), more migrants come from the central region than from the relatively poor western region. Similarly to many other countries, it is not necessarily the case that the poorest of the poor have the highest migration rates.

According to Table 2, we find that rural migrants had a tendency to head for large metropolitan cities. During 2001 to 2006, in each year, 57%-65% rural migrants moved to municipalities, provincial capitals and prefecture cities. Only about 20% found jobs in county level cities and less than 15% worked in township level regions. Similar trends could also be found in other years' survey of the NSB and rural household survey conducted by the Ministry of Agriculture of China (MAC), or various investigations and estimations, see, for example, Cai (1996), Wang (2000), de Brauw et al. (2002), Huang and Pieke (2003), Liang and Ma (2004) and Zhao (2005).

Figure 2 describes the industrial composition of rural migrant workers. Migrants are usually given labor-intensive, low-skill jobs. They engage mostly in manufacturing and construction sectors, followed by the service and business sectors. Migrant workers employed in manufacturing and construction sectors accounted for 53.2%, 55% and 56.2% of the total rural migrants in 2004, 2005 and 2006, respectively.

3.2 The temporary nature of rural migration

The pattern of current rural migration is characterized as temporary. Most migrants separate from

---

[4] Especially, in the provinces of Anhui, Jiangxi, Hubei, Hunan, Chongqing and Sichuan, out-migrants comprised more than 30% of the rural workforce

[5] Particularly, the Guangdong province absorbed 28.4% of the 118.2 million migrant laborers, followed by Zhejiang (8.1%) and Jiangsu (6.8%).

Table 1 Income levels and flow of rural migrant laborers in China (2004 survey)

	*Per capita net income (yuan)		Outflow		Inflow			
	Rural	Urban	(million persons)	Migrants/ local workforce	Urban	Eastern	Central	Western
National	2,936	9,422	118.23	23.8%	94.3%	70.0%	14.2%	15.6%
Eastern	3,970	11,340	39.34	19.8%	—	96.6%	2.1%	0.8%
Central	2,706	7,844	47.28	27.2%	—	65.2%	32.8%	1.8%
Western	2,134	7,875	31.61	25.4%	—	41.0%	2.9%	55.8%

Source: Department of Rural Surveys, National Bureau of Statistics (2005).

*Calculated from China Statistical Yearbook (2005), NSB.

Note: The sum of the percentages of inflow (Eastern+Central+Western) is not 100 in each row. It may due to the unidentifiable flow of migrants.

Table 2 Total number and composition of rural migrant laborers by destinations' region-level

	2001	2002	2003	2004	2005	2006
Total numbers (million persons)	89.61	104.70	113.90	118.23	125.78	132.12
Composition of rural migrant laborers employed in (%)						
Municipalities	8.2	8.4	9.5	9.6	9.9	9.4
Provincial capitals	21.8	21.2	19.6	18.5	19.1	18.6
prefecture level cities	27.2	27.2	31.8	34.3	36.1	36.8
County level cities	21	21.1	20.4	20.5	19.7	20.2
Township level regions	13	12.9	11.6	11.4	15.1	15
Others (include rural regions)	8.7	9.2	7.1	5.7		

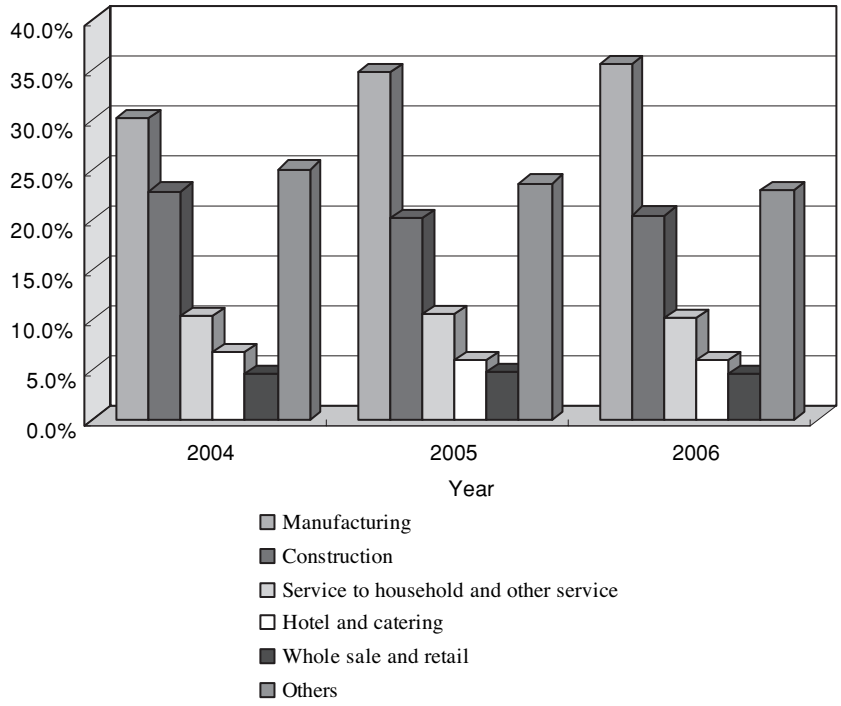
Source: 2001-2006 rural household survey (NSB, 2002-2007)

some of their family members in the home villages, seeking economic opportunities in other areas and circulating between their places of origin and destination (Zhao 1999b; Wang and Zuo, 1999; Liang and Ma, 2004; Au and Henderson, 2006). According to a survey conducted by the Research Office of the State Council of China in 11 provinces in 2005, only 8.13% of the surveyed migrants planned to work permanently in their current destinations and 39.07% of the surveyed migrants expressed a strong desire to return to their homes in the future.[6] Cause of the temporary pattern of rural migration can be summarized as follows:

First, it is a result of the difficulties in obtaining urban hukou. Rural migrants mainly flow to large cities and most large cities still control hukou transfer tightly. In migration destinations, most rural migrants are not allowed to be registered as urban dwellers, they are registered as temporary residents.

Second, although people are allowed to live and work in other locations without local hukou and the government makes efforts to treat migrants fairly, currently, rural migrants without permanent hukou at their destinations are still subject to discriminatory treatment and denied many of the privileges

Figure 2: Distribution of rural migrant laborers by industry: 2004-2006 (%)



Source： 2004-2006 rural household survey (NSB, 2005-2007)

enjoyed by local urban residents. According to the 2006 nationwide investigation on the life quality condition of the farmer workers lived in above county level cities, of the 29,425 migrant laborers interviewed, only 26.63%, 27.23%, 15.35%, and 32.54% participated in basic pension insurance, medical insurance, unemployment insurance, and industrial injury insurance respectively. Most migrants worked overtime. They spent an average of 6.29 days a week and 8.93 hours a day on the job. 88.61% worked over five days a week and 39.89% worked more than 8 hours a day, but only 49.87% were eligible for overtime premium. Only 7.58% and 4.76% had access to housing allowance and housing provident fund respectively. And only 20.22% of the 10,398 female migrants were entitled to paid maternity leave. This survey also shows that 2,493 of the 5,065 migrant workers who moved along with their school-age children paid higher fees for tuition than those paid by local residents. The average fee was in excess of 1,226 yuan per year, which exceeds the migrant worker's average monthly salary of 966 yuan (NSB, 2007). The potential barriers raise migrants' living costs in urban areas and make it difficult for them and their families to stay.

Third, high living costs in urban areas, especially high house prices, together with low-paid jobs make it difficult and less attractive for most migrant workers to settle down and raise families in cities. According to the rural household survey conducted by NBS (2005), in 2004, the average monthly

[6] The 11 provinces are Beijing, Shanghai, Guangdong, Shandong, Hunan, Hubei, Jiangsu, Zhejiang, Sichuan, Henan and Ningxia.

earning of rural migrants is 780 yuan, which is far less than the urban workers' average income (1,335 yuan) even without accounting for social welfare. Many migrants live in sheds provided by their employers or temporary housing arrangements with crude conditions. Their incomes are too low to pay urban living expenses for their families.

Fourth, unstable employment makes it difficult for migrants to reside in a particular destination permanently. Due to their poor education and skill endowments, a majority of rural migrant workers are engaged in informal and insecure sectors. The 2006 survey on the life quality condition of rural migrants reveals that, of the 29,425 migrants interviewed, only 15,891 signed formal contracts with employers. Of these, 68.27% were fixed-term employment contracts, with an average term of 1 year; 22.2% were temporary contracts; and 10.53% were permanent (NSB, 2007).

Finally, under China's existing land ownership structure, migrants who keep rural permanent hukou are allowed to keep their use rights of arable land at their origin. In China, land is owned by the state, with individuals having only the land use rights but not the rights of alienation. The rural authorities contract arable land to a collective, often the village. The collective in turn allocates the land awarded to it to individual households by the number of its permanent residents. Migrants who transfer their rural permanent hukou to an urban one will have to relinquish land use rights in their rural region, thus giving up a stream of future land earnings. Cultivation of land guarantees a minimum level of subsistence for rural people even if everything else fails. Hence, although some migrants are offered the opportunity to obtain permanent urban hukou in some medium-sized and small cities, many of them choose to maintain their dual residential status and move temporarily.

4 Factors Affecting Migration Decisions

The determinants of internal migration decision have been organized in many comprehensive surveys such as Bhattacharya (1993), Lucas (1997) and Greenwood (1975, 1997). Factors affect migration decisions include characteristics of places, persons and their families. Location characteristics are specific to sending and receiving areas, such as employment, wage level and location-specific amenities. Personal and family characteristics help shape individual and family response to opportunities that may exist at different locations. Along with the growing availability of data on migration in China, a significant body of recent studies has examined the Chinese experience and offered corroborating evidence. Notable studies include Hare (1999), Rozelle, et al. (1999), Zhao (1999a, b), Zhu (2002), de Brauw, et al. (2002), Wu and Yao (2003), Du, et al.(2005), and Shi et al. (2007). Below we review the literature with respect to several key factors.

4.1 Income concerns

Income is the most important motivation for migration. The influence of income on migration can be considered from two different perspectives. One is consistent with absolute income and the other is consistent with relative income. The first perspective involves the determination of whether migration occurs from poor regions to rich regions, and the second perspective could explain why migration

rates in the poorest regions are not necessarily the highest and why migration rates are usually higher in regions where the distributions of income are more unequal.

For the absolute income issue, in a seminal contribution, Todaro (1969) and Harris and Todaro (1970) offer a basic theoretical framework which argued that migration is a response to expected income differential. People engage in migration to gain access to a higher income. Given the expected urban income, the lower the rural income, the higher is the possibility of migration; and given the rural income, the higher the employment probability and wage levels in urban areas, the stronger is the migration propensity.

Many empirical studies have provided evidences supporting this theory (for example, see the survey researches of Todaro, 1976; Yap 1977; and Williamson, 1988). In China, based on a household survey conducted in the Hubei province in 1993, Zhu (2002) confirms the importance of the urban-rural income gaps for individuals' migration decisions. Wu and Yao (2003) utilize two sets of province level panel data and find urban-rural wages differential is an important pecuniary incentive of migration, while the level of urban unemployment is a significant factor holding back rural migration into cities. Several investigations even directly asked migrants the reasons to move. Based on a rural census survey in the Wuhun county conducted by the statistics bureau of the Wuhu County before the closing date March 31, 2004, Table 3 lists the reasons for migration. The Wuhu county is an agricultural county located in the Anhui province, and is a typical migrants exporter. Of the 100,837 migrants who held Wuhu's rural hukou but worked away from the county, over 80% were mainly attracted by (potential) high migrate incomes: with 61.6% moved because rural income were too low and 19.1% engaged in migration to overcome economic difficulties.

The importance of the relative income positions for the migration decision is highlighted by Stark (1984) and Stark and Yitzhaki (1988). Through a large number of village studies, they observed several interesting and unexplained regularities: (1) rural-to-urban migration rates are not highest from the poorest villages; (2) migration rates are always higher from villages where the distribution of income by size is more unequal; and (3) from these villages, it is the very poor whose propensity to migrate is highest. They model these relationships and argue that an improvement in an agent's relative income improves the agent's welfare and rural-to-urban migration might be undertaken to improve the agent's comparative income position with respect to that of others in the relevant reference group. Under this so called "relative deprivation hypothesis", people might migrate, even without expected absolute income gain, to increase their relative income positions through changing the reference group.

This hypothesis is supported by empirical studies by Stark and Taylor (1989, 1991). They find that the initial relative income of households in the village reference group significantly affect emigration from Mexico to the United States. However, no strong evidence is found in internal migration. The authors explain that it reflects the likelihood of shifting the reference group under internal migration but not in relation to foreigners in the emigrant's host country. Stark and Yitzhaki (1988) also mention that as individuals migrate, in particular when they engage in permanent, once-and-for-all migration, the reference group may change. Perhaps due to this reason, the relationship between migration and

Table 3 Why did they migrate?

Number of migrants (people)	100,837
Total rural population (people)	473,199
Reasons to migrate (%)	
Farming income is too low	61.6
Faced with economic difficulties	19.1
Dislike rural life	7.3
Want to broaden view	5.4
Others	6.6
Total	100

Source: The statistics bureau of the Wuhu County of the Anhui province (2003-May, 2004).

relative income positions has not been studied intensively. Fortunately, the Chinese data provides excellent and precious materials which mitigate the problem of reference group substitution due to the typical temporary and repetitive internal migration pattern. Utilizing a panel data set from a rural household survey in the Sichuan and Anhui provinces, Wu (2008a) finds that motives based on relative income play an important role in households' internal migration decisions. When all else is equal, a household that is poor relative to its home village reference group is more likely to increase migration than is a household in the upper end of the village income distribution.

4.2 Self-selection of migrants

Which one finds it worthwhile to migrate? Under the income maximization hypothesis, migration decision is an endogenous process because the expected income gains through migration dependent on peoples' characteristics (for example, Roy, 1951; Heckman and Honoré, 1990). Differences in the wage distributions between the sending and receiving regions lead only certain people to have an incentive to migrate. Using insights form Roy (1951), Borjas (1987, 1991) develops the self-selection theory. He shows that immigrants can be either positively or negatively self-selected, with regard to observed (such as education) and unobserved (such as skill) characteristics.

The self-selection theory also can be used to analyze internal migration. Self-selection of migrants identifies how migrants compare to the population in the origin. Hence ascertaining the directions of self-selection is important for predicting what impact out-migrants have on the sending regions. In simple terms, if people with better endowment (relative to comparable non-migrants in origin) choose to move, then migrants are positively selected with regard to this endowment. If migrants are of poor quality (i.e., those earning less than the average income of a comparable non-migrants), negative selection occurs. For example, as observed in many developing countries that rural-to-urban migration always occurs among people with relatively higher levels of educational attainment, there is apparently a positive selection in migration with regard to education.

Existing studies, such as researches on "brain drain", mainly focus on observable characteristics but

shed little light on unobservable characteristics. It is worth noting that there is no necessary correlation between the self-selection in observed and unobserved characteristics. For example, it is perfectly possible for migrants to be among the most educated in their home community to perform poorly, in the group of similarly educated individuals. Hence, investigating self-selection based on unobserved characteristics will yield important implications.

Heckman (1976, 1979) developes a two-step procedure to correct self-selection bias and infer the unobserved characteristics by checking whether individuals' unobserved characteristics from their choice of whether or not to participate in the activity of interest (e.g., migration) are correlated with the outcome of interest (e.g., migrant earnings). Lee (1983) and Dubin and McFadden (1984) develope the approach to apply to multiple choice. In general, when the unobservable characteristics from the migration decision are consistently associated with a higher (lower) wage rate, we conclude migrants are more (less) productive and positively (negatively) selected.

Although the existing literature has provided deep theoretical insight into, and various econometric methodologies toward understanding, the self-selection in migration, empirical studies to ascertain the impact of unobservable characteristics on the migration decision and earnings estimation are still few in number. It might be because information (especially regarding wages) of migrants is always missing from surveys conducted in their origin. As an alternative, Lanzona (1998) analyzes whether the selectivity of migration affects the wage structure estimated for those who stay in rural communities. Using Philippine data and Lee's sample selection model, Lanzona finds that there is a negative selection bias in nonmigrants' wage estimate, and that as a result migrants were positively selected.

Axelsson and Westerlund (1998) examine the potential influence of migration on total household real income in Sweden. Employing Heckman's selection bias correction approach, they accounte for the potential correlation between unobserved household characteristics exerting influence on both the decision to migrate and on household income but do not find significant self-selection in migration.

Wu (2008b) explores the link between employment choice (nonworking, local farm work, local nonfarm work and migratory work) and migrant earnings in China. Utilizing the method developed by Dubin and McFadden (1984) and a panel data set from a rural household survey in the Sichuan and Anhui provinces, in terms of unobserved characteristics, she finds positive selection in migration as related to the alternatives of not working and local farm work, and insignificant self-selection as related to local nonfarm work.

4.3 Personal characteristics: gender, age and education

Gender, age and education are three important personal characteristics affect mobility. Rural migrants in China are predominantly male. And similar to other countries' experience, they are usually younger and more educated than remaining rural workers (Zhao, 1999a; Huang and Pieke 2003; Zhao, 2005; Wu, 2008b; etc.).

The second national agricultural census conducted by NSB in 2006 shows that, in contrast to 50.8% males among the rural labor resource, 64% of China's rural migrant workers were males (Table 4). In

literature, Zhao (1999a) finds that females are 55.3% less likely to migrate, while Hare (1999) finds that being male increases the probability of migration by 30%. Based on a household panel survey in 6 provinces or rural China cover the period of 1980-2000, de Brauw et al. (2002) find male participation in migration is more than 280% higher than female participation during the entire sample period. Huang and Pieke (2003) offer two main reasons for the more male labor migration. One is that the labor demand for male migrants, for example, in the construction industry, is larger than the demand for female migrants in China. Another reason is that in traditionally, women are considered as housewives and their main duties are childcare, household affairs and farming (also see Shi et al. 2007; etc.).

As regards the effect of age, migration literature suggests that the probability that a person will migrate is likely to decrease as his/her age increase, since older persons have a shorter expected working life over which to realize the advantages of migration, which makes the rate of return on migration lower for them. Moreover, family ties are likely to be more important for older persons than for younger ones, which will further discourage older persons from migration (see the survey of Greenwood, 1975, 1997). An additional reason for younger people have greater propensity for migration in China, mentioned by Zhu (2002), is that most of the rural to urban temporary migrants are unskilled manual workers, and older workers are at a disadvantage in physical strength. In Table 4, we find that 52.6% of the migrant workers were between 16 and 30 years old and 82.1% under 41 years old. While the corresponding ratios for the total rural labor force were 30.4% and 54.3% respectively. The negative effect of age in migration can be found in empirical studies such as Zhao (1999a), Zhu (2002), Shi et al.(2007) and Wu (2008b).

Another well documented relationship is that between education and migration (e.g., Schwartz, 1976; Root and De Jong, 1991; Greenwood, 1997; Lucas, 1997). In general, education is expected to promote migration. Information about a particular locality and job opportunities is both expected to increase with increased period of education, which contributes to lower risk aversion and higher efficiency of job search in moving. Table 4 shows that 80.1% of the migrants received junior secondary school education or higher, the ratio was 60.5% among the full rural labor resource. Hence, on the average, migrant workers were better educated than non-migrant workers. However, we notice that 10% of the migrants in the survey had senior high school education or more, and the proportion was 11% for the total rural labor resource. The empirical findings in China are mixed. Rozelle et.al (1999) find that the education of household head has a positive effect on the number of migrants. In a conditional fixed effects logit estimation, de Brauw et al. (2002) show that for each additional year of education, the probabilities of becoming a migrant and local wage earner both rise by 16%. In a multinomial choice model, Shi et al. (2008) find education has a significant positive effect on migration but education does not affect self-employment and local wage employment. Wu (2008b) finds the effects of education on local nonfarm work and migration are both positve. Zhu (2002) finds that education plays a positive role in migration only for males, and not for females. In a binary choice model of migration determination, Zhao (1999a) find that compared to workers with no formal schooling, primary and junior high school graduates had higher probabilities of migration (1.9% for

Table 4 Compositions of rural laborers and migrants: by gender, age and education cohort.

	Rural labor force resource	Rural migrant workers
Total number (million persons)	531	131.81
By gender (%)		
Male	50.8	64
Female	49.2	36
By age (%)		
20 and under	13.1	16.1
21－30	17.3	36.5
31－40	23.9	29.5
41－50	20.7	12.8
51 and over	25	5.1
By educational level (%)		
Illiteracy	6.8	1.2
Primary school	32.7	18.7
Junior secondary school	49.5	70.1
Senior secondary school	9.8	8.7
College and above	1.2	1.3

Source: The second national agricultural census, 2006 (NSB, 2008)
Note: Rural labor force resource refers to the resident population of rural households at 16 years old and over, and possess the work abilities at the end of 2006 (that is, population living in the household more than 6 months).
Rural migrant worker: refers to employed personnel of rural households' residence who engaged for one month and above outside of the subdivision or district of local town and township under the administrative jurisdiction in 2006.

both groups) and the effect of a senior high school degree on migration was not statistically significant. In a household level model, Zhao (1999b) finds that the mean education level of the household has a significant negative effect on migration. She explains that although migration yields a large monetary premium, most educated rural people generally choose rural nonfarm work over migration. That is, although education may increase the ability of people to migrate, it does not necessarily increase their desire to move.

4.4 Networks and information

Economists have long recognized that the availability of networks or information concerning alternative localities plays a prominent role in the potential migrant's decision regarding a destination. Greenwood (1997) points out that one reason for the finding that the number of migrants usually decreases with the distance of migration is that information decreases and hence uncertainty increase with increased distance. Lucau (1997) reviews the migration literature and summarize that friends and relatives at a place of destination may provide potential migrants with an important source of information and reduce the risk associated with the urban prospect. Moreover, such networks may contribute to diminish the psychic costs, to lower the financial costs of resettling, to speed the process of job search (see, for example, others in Yap, 1977; Taylor, 1986; Nelson 1959; Greenwood, 1997). Recent literature, such as Carrington et al. (1996) and Munshi (2003), argue that migration costs

decrease as the size of the relevant network at destination increases and thus migration costs become endogenous to the migration process.

Data from the 2003 Rural Household Survey conducted by MAC directly reflect the importance of networks and information in migration: with 57.6% of the 10,480 migrant workers arranged the move though friends and relatives; and about the question that "Why not migrate", 6.0% and 14.0% of the 40,644 non-migrants (including return migrants) selected "lack of information" as the first and second choice, respectively. Furthermore, the interview survey asked all respondents a question that "What kind of support do you hope the government will provide when you migrate". "Job information" wins the highest percentage of the first choice with a ratio of 54.5% (MAC, 2004).

The effect of network on rural migration in China is examined by economists. Using recent household survey data from rural China, Zhao (2003) investigate determinants of labor migration, paying special attention to the role of migrant networks. Results show that experienced migrants have a positive and significant effect on subsequent migration, but return migrants do not. This implies that migrant networks are important, and their effects materialize through practical assistance in the process of migration. Du et al. (2005) show that lagged village migrant network size increases the likelihood of household migration significantly. Specifically, an additional migrant per household in the village last year increases the probability of household migration by 26.8%. Wu (2008 a, b) consider the possibility that pioneer migrant in a household may confer a positive externality on (potential) future migrants, and the empirical results show that people are more likely to migrate if some other household members have already migrated.

4.5 The role of family in decision making

In many developing countries, rural-to-urban migration does not involve the movement of the entire family. Recent studies suggest that the migration of one or several members of a family is often a family decision and therefore it might be better to study migration in the context of the family as well (e.g. Stark 1978, 1980, 1981, 1991; Stark and Levhari, 1982, 1984; Stark and Bloom, 1985; Stark and Lucas, 1988; Taylor and Martin, 2001). As a representative of these studies, Stark (1991) establishes the theory of "New Economic of Labor Migration". He emphasizes that, especially in developing countries it is not the individual who is decision-maker but the individual and his/her family jointly. Although it is also possible to analyze migration as a family decision within the neoclassical framework (Mincer, 1978)[7], the perspective of the New Economics is a fundamentally different one. Two major points stand out from the New Economic of Labor Migration on explaining the role of family:

First, the relation between the migrant and the rest of his/her family are modeled through a cooperative contractual arrangement. Moving costs are shared by the whole family and the migrant send remittances back home. Thus the migration activity of an individual can mostly be explained not only by his/her endowments and characteristics, but also by the preferences and constraints of the

[7] Mincer's model assumes that migration involves the movement of the entire family.

family.

And second, the theory suggests that migration might be a family strategy of insuring income (through income diversification). This form of risk diversification is a particularly important aspect in developing countries where public social security is inadequate, and working private capital markets are rare. Risk-averse families may receive gain by the migration of one or more family members into a sector where earnings are either negatively correlated, statistically independent, or not highly positively correlated with earnings in the origin sector even in the absence of income gain. Stark (1984) shows that if aversion to risk exists and if family rather than individual is the relevant decision-making unit, then the predicted level of rural-to-urban migration will be higher than if the individual were making the decision on his own.

The theory provides useful insights on understanding the migration pattern in rural China. Migrant families usually place some members in other regions temporarily and remain others in home. It could be viewed as is a typical family strategy to maximize income and minimize risk. On the one hand, such a pattern makes it possible for migrant families to make full use of their resources such as land in the rural area of origin, to diversify and to maximize employment opportunities and total income, and to reduce expenses in the migration destination. On the other hand, such a migration form is an effective strategy for the families to treat urban unemployment risk and rural agricultural risk (for example, natural disaster).

Many surveys and empirical studies on China's migration offer evidences that rural households participate in making labor-allocation choices. For example, NSB's 2006 survey on the life quality condition of rural migrants shows that 81.22% rural migrants sent home remittances (NSB, 2006). In the study of Rozelle et al. (1999), of the 534 sample household, 109 participated in migration and 77 received remittances. They trace the linkage between migration and remittances and find that constrains in the operation of on-farm labor and capital or insurance markets provide households with a motivation to migrate. Zhao (1999b) find that the shortage of farmland and the abundance of household labor are among the most important determinants of labor migration. Giles (2006) shows that both migrant and local off-farm employment reduce vulnerability to agricultural production shocks faced by farm households. de Brauw and Rozelle (2008) find that migration is associated with investment in housing and other consumption.

5 Closing Remarks

Rural migration is a hallmark of Chinese economic development. The massive flow of labor away from countryside has intensified research interest in China's migration in recent years. This paper reviews the history of the institutional arrangements relating to migration and gives a brief profile of rural migrants. It also explains that why the majority of the migrants are temporary migrants: which results not only from the policy factors, but is bound up in households' economical considerations. By reviewing the current literature on explanations of migration, we highlight the causes and key determinants of migration and come to understand many issues surrounding rural migration in China.

However, there are still many issues that require further study, for example, the interactions among household members and within household migration decision, the influence of life cycle changes on migration decision, the dynamics between migration and labor market evolution.

References

Axelsson, Roger and Westerlund, Olle (1998). A Panel Study of Migration, Self-Selection and Household Real Income. Journal of Population Economics 11, 113-126.

Au Chung-Chung and Henderson J. Vernon (2006). How Immigration Restrictions Limit Agglomeration and Productivity in China. Journal of Development Economics 80, 350-388.

Bhattacharya Prabir C. (1993) Rural-urban Migration in Economic Development. Journal of. Economic Surveys 7: 243-281.

Borjas George J. (1987), Self-selection and the Earnings of Immigrants. American Economic Review 77, 531-553.

Borjas George J. (1991). Immigration and Self-Selection. In: J.Abowd and R.Freeman, eds., Immigration, Trade and the. Labour Market. Chicago: University of Chicago Press, 27-96.

Cai Fang (1996). Laodongli qianyi he liudong de jingjixue fengxi [An economic analysis for labor migration and mobility]. Zhongguo shehuikexue jikan (Spring), 120-135.

Carrington W J, Detragiache E, Vishwanath T. (1996). Migration with Endogenous. Moving Costs. American Economic Review 86, 909-930.

Chan, Kam Wing and Zhang Li (1999). The Hukou System and Rural-urban Migration in China: Processes and changes, The China Quarterly 160, 818-855.

Cheng Tiejun and Mark Seldon (1994). The Origins and Consequences of China's hukou System. The China Quarterly 139, 644-668.

de Brauw Alan and Rozelle Scott (2008). Migration and Household Investment in Rural China. China Economic Review 19, 320-335.

de Brauw Alan, Huang Jikun, Rozelle Scott, Zhang Linxiu and Zhang Yigang (2002). The Evolution of China's Rural Labor Markets During the Reforms, Journal of Comparative Economics 30, 329-353.

Du Yang, Albert Park and Wang Sangui (2005). Migration and Rural Poverty in China. Journal of Comparative Economics 33, 688-709.

Dubin, J. A. and D. L. McFadden (1984). An Econometric Analysis of Residential Electric Appliance Holdings and Consumption. Econometrica 52, 345-362.

Fleisher, Belton M. and Yang, Dennis T. (2003). Labor Laws and Regulations in China, China Economic Review 14, 426-433.

Greenwood, Michael J. (1975). Research on Internal Migration in the United States: A Aurvey. Journal of Economic Literature 13, 397-433.

Greenwood, Michael J. (1997). Internal Migration in Developed Countries, In Handbook of Population and Family Economics, edited by M. Rosenzweig and O. Stark. Vol. 1B. Amsterdam:

North Holland.

Hare Denise (1999). “Push” versus “Pull” Factors in Migration Outflows and Returns: Determinants of Migration Status and Spell Duration among China’s Rural Population. The Journal of Development Studies 35, 45-72.

Harris, J. R. and M. P. Todaro (1970). Migration, Unemployment and Development: A Two-Sector Analysis, American Economic Review 60, 126-142.

Heckman, J. J. (1976). The Common Structure of Statistical Models of. Truncation, Sample Selection, and Limited Dependent Variables and a Simple. Estimator for such Models. Annals of Economic and Social Measurement 5,. 475-492.

Heckman, J.J. (1979). Sample Selection Bias as a Specification Error. Econometrica 47, 153-161.

Heckman James and Bo Honoré (1990). The Empirical Content of the Roy Model. Econometrica 58, 1121-1149.

Huang Ping and Frank N. Pieke (2003). China Migration Country Study. Paper presented at the Regional Conference on Migration, Development and Pro-Poor Policy Choices in Asia, Dhaka, June 21-24, 2003.

Knight John and Lina Song (1999). The Rural-Urban Divide. Economic Disparities and Interactions in China, Oxford UK: Oxford University Press.

Kung, James Kai-sing (2002). Introduction: Transforming rural China. Journal of Comparative Economics30, 325-328.

Lanzona, Leonardo A. (1998). Migration, Self-selection and Earnings in Philippine Rural Communities. Journal of Development Economics 56, 27-50.

Lee, Lung-Fei (1983). Generalized Econometric Models with Selectivity. Econometrica 51, 507-512.

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

Lin Justin Yifu, Cai Fang and Li Zhou (1996). The China Miracle: Development Strategy and Economic Reform. The Chinese University Press. Hongkong.

Lucas, Robert E.B. (1997). Internal Migration in Developing Countries, In Handbook of Population and Family Economics, edited by Rosenzweig M. , Stark O., Vol. 1B. Amsterdam: North Holland.

Munshi, Kaivan. (2003). Networks in the Modern Economy: Mexican Migrants in the U.S. Labor Market. The Quarterly Journal of Economics 118, 549-599.

National Bureau of Statistics of China (1995, 2005). China Statistical Yearbook. China Statistics Press, Beijing.

National Bureau of Statistics of China (2008). Investigation Reports on the Life Quality Condition of the Farmer Workers in Cities. http://www.stats.gov.cn/

Nelson, Phillip (1959). Migration, real income and. Information. Journal of Regional Science 1, 43-74.

Poncet Sandra (2006). Provincial Migration Dynamics in China: Borders, Costs and Economic Motivations. Regional Science and Urban Economics 36, 385-398.

Root, B.D. and G.F. De Jong (1991). Family Migration in a Developing Country. Population Studies 45, 221-233.

Roy, Andrew D. (1951). Some Thoughts on the Distribution of Earnings. Oxford Economic Papers 3, 135-146.

Rozelle Scott, Taylor J. Edward and Alan de Brauw (1999). Migration, Remittances, and Agricultural Productivity in China, American Economic Review 89, 267-271.

Schwartz, Aba (1976). Migration, Age and Education. Journal of Political. Economy 84, 701-720.

Shi Xiaoping, Nico Heering and Qu Futian (2007), Choices Between Different Off-farm Employment Sub-categories: An Empirical Analysis for Jiangxi Province, China. China Economic Review 18, 438-455.

Song Hongyuan, Huang Huabo and Liu Guangming (2006). An Analysis on the Policy of the Flow of Rural Labor Force. In Labor Migration in transition China, edited by Fang Cai and Nansheng Bai. Social Sciences Academic press. China.

Stark, Oded. (1984). A Note on Modelling Labour Migration in LDCs. Journal of Development Studies 20, 318-322.

Stark, Oded and Levhari David (1982). On Migration and Risk in LDCs. Economic Development and Cultural Change 31, 191-196.

Stark, Oded. (1978). Economic Demographic Interactions in Agricultural Development: the Case of Rural-to-urban Migration. Bar Ilan University, Israel.

Stark, Oded. (1980). On the Role of Urban-to-rural Remittances in Rural Development. Journal of Development Studies 16, 369-374.

Stark, Oded. (1981). On the Optimal Choice of Capital Intensity in LDCs with Migration. Journal of Development Economics 9, 31-41.

Stark, Oded. (1991). The Migration of Labor, Cambridge, Mass.: Basil Blackwell.

Stark, Oded and Yitzhaki Shlomo (1988). Labour Migration as a Response to Relative Deprivation. Journal of Population Economics 1, 57-70.

Stark, Oded and T Taylor, Edward, J. (1989). Relative Deprivation and International Migration. Demography 26, 1-14.

Stark, Oded and T Taylor, Edward, J. (1991). Migration Incentives, Migration types: the Role of Relative Deprivation. The Economic Journal 101, 1631-1178.

Taylor, J. Edward. (1986), Differential Migration, Networks, Information and Risk. In: Oded. Stark, ed., Migration, Human Capital and Development , JAI Press, Greenwich, CT.

Taylor J. Edward, Scott Rozelle and Alan de Brauw (2003). Migration and Incomes in Source Communities: A New Economics of Migration. Perspectives from China. Economic Development and Cultural Change 52, 75-101.

Todaro, Michael P (1969): A Model of Labor Migration and Urban Unemployment in Less Developed Countries, American Economic Review 69, 486-499.

Todaro, Michael P. (1976). Internal Migration in Developing Countries: A Review of Theory, Evidence, Methodology, and Research Priorities. Geneva: International Labor Office.

Wang Feng and Zuo Xuejin (1999). Inside China's Cities: Institutional Barriers and Opportunities for Urban Migrants. American Economic Review, Papers and Proceedings 89, 276-280.

Wang, Guixin (2000). "Zhongguo jingji tizhi gaige yilai shengji renkou qianyi quyu moshi jiqi bianhua" [The Pattern and Changes of Inter-province Migration Since the Economic Reform in China]. Renkou yu jingji 3, 8-16.

Whalley John and Zhang Shunming (2007). A Numerical Simulation Snalysis of (Hukou) labour Mobility Restrictions in China. Journal of Development Economics 83, 392-410.

Williamson Jeffrey G. (1988). Migration and Urbanisation. In: Chenery and Srinivasan, ed., Handbook of Development Economics, North-Holland : Amesterdam.

Wu Zhongmin and Yao Shujie (2003). Inter-migration and Intra-migration in China: A Theoretical and Empirical Analysis. China Economic Review 14, 371-385.

Wu Zheren (2008a). Relative Income Positions and Labor Migration: A Panel Study Based on a Rural Household Survey in China. Discussion Papers in Economics and Business from Osaka University, No 08-24.

Wu Zheren (2008b). Self-selection and Earnings of Migrants: Evidence from Rural China. Discussion Papers in Economics and Business from Osaka University, No 08-25.

Yao Shujie and Zhu Liwei (1998). Understanding Income Inequality in China: A Multi-angle Perspective, Economics of Planning 31, 133-150.

Yap, Lorene Y. L. (1977). The Attraction of Cities: A Review of the Migration Literature, Journal of Development Economics 4, 239-264.

Zai Liang (2004). Patterns of Migration and Occupational Attainment in Contemporary China: 1985-1990. Development and Society 33, 251-274.

Zhan Shaohua (2005) Rural Labour Migration in China: Challenges for Policies, UNESCO http://unesdoc.unesco.org/images/0014/001402/140242e.pdf

Zhao Yaohui (1999a). Labor Migration and Earnings Differences: The Case of Rural China. Economic Development and Cultural Change 47, 767-782.

Zhao Yaohui (1999b). Leaving the Countryside: Rural-to-Urban Migration Decision in China, American Economic Review, Papers and Proceedings 89, 281-286.

Zhao Yaohui (2000), Rural-to-Urban Labor Migration in China: The Past and the Present, in Rural Labor Flows in China, eds, Loraine A. West and Yaohui Zhao, Institute of East Asian Studies, University of California, Berkeley.

Zhao Zhong (2005), Migration, Labor Market Flexibility, and Wage Determination in China: A Review. The Developing Economies 43, 285-312.

Zhu Nong (2002). The Impact of Income Gaps on Migration Decisions in China, China Economic Review 13, 213-230.