



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.



How long do returning migrants stay in their home county: Evidence from rural China during 1998 to 2015

Y. Bai¹; W. Wang²; L. Zhang¹

1: Center for Chinese Agricultural Policy, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, , China, 2: Center for Chinese Agricultural Policy, CAS, , China

Corresponding author email: baiyl.11b@igsnrr.ac.cn

Abstract:

Return migration is an important part of rural labor mobility in China, and has been given growing concern recently by governments. However, research covering the duration of stay in their home county, a basic question of labor mobility and a precondition for policy making, is far from enough. The aim of this paper is to analyze the period of return for these migrants based on employment history data among rural laborers. The data was collected from a random, nationally representative sample of 100 rural villages in five provinces of China. We find that 22.3 percent of migrants returned from 1998 to 2015, and most returning migrants stay for a long time. Using the OLS, Tobit, and Heckman two-step methods, the results show that returning migrants who are old, more educated, unmarried, and with school-age children are more likely to stay longer in their home county. From a development perspective, returning migrants are expected to play an important role in the process of rural revitalization. Most importantly, the government should still gradually eliminate institutional limitations facing rural people and promote the free flow of labor resources in the process of realizing the integration of urban and rural areas.

Acknowledgment: The authors acknowledge the financial assistance of the National Natural Science Foundation of China (grant number 713300132).

JEL Codes: J68, J01

#1894



How long do returning migrants stay in their home county:

Evidence from rural China during 1998 to 2015

Abstract

Return migration is an important part of rural labor mobility in China, and has been given growing concern recently by governments. However, research covering the duration of stay in their home county, a basic question of labor mobility and a precondition for policy making, is far from enough. The aim of this paper is to analyze the period of return for these migrants based on employment history data among rural laborers. The data was collected from a random, nationally representative sample of 100 rural villages in five provinces of China. We find that 22.3 percent of migrants returned from 1998 to 2015, and most returning migrants stay for a long time. Using the OLS, Tobit, and Heckman two-step methods, the results show that returning migrants who are old, more educated, unmarried, and with school-age children are more likely to stay longer in their home county. From a development perspective, returning migrants are expected to play an important role in the process of rural revitalization. Most importantly, the government should still gradually eliminate institutional limitations facing rural people and promote the free flow of labor resources in the process of realizing the integration of urban and rural areas.

1. Introduction

Labor mobility is one of the most important factors for economic development worldwide. Mountford (1997) demonstrated that, in theory, the migration of skilled laborers increased average productivity and equality in the source economy, and the temporary possibility of emigration permanently increased the average level of productivity of an economy. Beine et al. (2001) found that migration prospects fostered investments in education because of higher returns abroad, which improved human capital and economic growth in source countries. Some studies also found that the effects of remittances on household welfare and economic development in source countries are significant (Catrinescu et al., 2008; Rao and Hassan, 2011; Mountford and Rapoport, 2011). Furthermore, the elimination of global restrictions on the mobility of skilled and unskilled laborers generates worldwide efficiency gains that could be of considerable magnitude (Iregui, 2005).

The migration of rural laborers in China also plays an important role in promoting the growth of the whole economy. On the one hand, rural laborers flow into cities to supply plenty of cheap labor resources and stimulate urban economic growth. On the other hand, plenty of studies have shown that the migration of rural laborers was met with an increased income and a decreased rural income gap (Li, 1999; Wang and Cai, 2006; Cai and Wang, 2009; Jia et al., 2016). Remittances not only increase the accumulation of assets for farmers and promote self-employment, but also increase consumption among them and have a short-term effect on reducing poverty (Rozelle et al., 1999; Taylor et al., 2003; Zhang and Song, 2003; Giles, 2006; Huang et al., 2011; Du et al., 2005; Zhu and Luo, 2008; Park and Wang, 2010; Zhao et al., 2012). Du et al. (2005) found that an increase of one migrant laborer in the household would improve the per capita income of that household by 8.5 to 13.1 percent. Zhao et al. (2012) found that labor migration reduced the grain output by 2 percentage points, but increased net income by 16 percentage points.

However, the hukou register system hinders most rural laborers who are permanent residents of a city. There exists labor market discrimination against rural hukou holders in cities (Démurger et al., 2009; Li, 2010; Huang et al., 2010; Leng, 2012; Song, 2014; Huang and Guo, 2016). More importantly, migrants with rural hukou working in big Chinese cities have little to no access to welfare programs provided by local city governments, such as education, healthcare, and pensions (Lai et al., 2011; Song, 2014). Even if cities attempt to extend urban welfare provisions to migrants, their participation in such programs remains relatively low due to hukou (Xu et al., 2011; Huang and Cheng, 2014). Qin et al. (2014) found that the current healthcare programs were not effective in alleviating the financial burden of healthcare and promoting formal medical utilization among migrant workers. This is possibly due to the lack of a systematic financing scheme for outpatient treatment and the segmentation between insurance platforms.

Therefore return migration is an integral part of rural-to-urban labor migration in

China. Most studies believe that the modernization of industry and transfer of labor-intensive industries from coastal to inland areas were the major factors driving return migration after 2008 (Sheng et al., 2009; Chan, 2012; Niu, 2015). The demand for low-quality labor has been reduced in coastal areas because of this change. Additionally, with the development of the inland economy, rural migrants were able to find jobs in local areas. Though wages are lower, they can afford the lower cost of living and stay together with family members (Zhao, 2002; Chen, 2009).

Given this information, the Chinese government has been paying close attention to the latest round of return migration due to its large scale and the lower employment rate. The “no.1 document” of the central government in 2017 highlights the importance of supporting employment and entrepreneurship among returning migrants (The State Council, 2017). The five ministries enacted an entrepreneurship training plan for returning migrants (the *fanxiang chuangye peixun jihua*) from 2016 to 2020 (MOHRSS, 2016). The local governments also carried out a series of policies to encourage entrepreneurship among returning migrants (Sichuan Daily, 2015; NDRC, 2016).

Scholars examining recent labor trends in China have typically focused on return migration in two periods. Some of them analyze the status, causes, and economic behavior of return migration around the year 2000. The rest examine changes surrounding the financial crisis in 2008, and especially during years which followed. Most previous studies described individual characteristics of returning migrants and analyzed their impact on return migration (Hare, 1999; Zhang et al., 2001; Zhao, 2002; Wang and Fan 2006; Sheng et al., 2009; Niu, 2015). They found that individual characteristics (gender, age, and education) and household characteristics (household size and structure) were correlated with whether migrants returned or not. For example, Zhao (2002) found that returning migrants were more likely to be elder, married, and have their spouse at home. A few of them studied the employment and investment of migrants after their return (Murphy, 2002; Zhao, 2002; Démurger and Xu, 2011, 2015; Yu et al., 2016). Zhao (2002) found that one additional returning migrant in a household increased the value of consumer durable goods, house value, and productive assets by 39.3, 27.5, and 128.2 percent, respectively, which were much higher than those of non-returning migrants and non-migrants laborers¹. Démurger and Xu, (2011) also found that returning migrants were more likely to be self-employed.

Although scholars have conducted plenty of studies on return migration, two important problems remain. The first concerns how many migrants have returned in recent years and the trend of return migration. Most previous studies have not answered this question because they only used the cross-sectional data from villages after the migrants returned, which lacked the corresponding information for contemporaneous non-migrants. If information on migration and return migration were used together, we could describe the percentage of return migration accurately.

¹ Non-migrants means that those rural laborers who never emigrated.

Even Zhao (2002) studied this question before 1999, but the results did reflect the situation at the time due to its older data. Secondly, and most importantly, a vast majority of research has not yet focused on the period of return and which factors impact it. This is a basic question for labor mobility, while also being a precondition for policy, such as for providing employment services, healthcare, and pensions for returning migrants. Only Bai and He (2002) found that returning migrants felt more likely to migrate than those who had never migrated. However, due to a lack of data, they neither studied how many years the returning migrants stayed in their home county until their next migration nor which factors influenced this period.

As such, the aim of this study is to analyze the period of return to one's county and its influencing factors among returning migrants in recent years. With this goal in mind, we want to answer following three questions. First, what are the scale and trend of return migration in recent years? Second, how long do returning migrants stay in their home county? Third, which factors affect this period?

This paper is organized as follows. The next sections show the data and variables we used in this study. Then we introduce our empirical approaches in Section 3. Section 4 reports the results and the last section contains conclusions and discussions.

2. Data and variables

2.1 Data

This paper draws from panel data collected by the Center for Chinese Agricultural Policy of the Chinese Academy of Sciences. A multi-round survey was administered to households and village leaders of 100 villages in 25 counties across five provinces in 2004, 2008, 2012, and 2016. In the first round of the survey in 2004, each sample province was randomly selected from China's major agro-ecological zones. Five sample counties were then selected from each province in a two-step procedure. First, the enumeration team listed all the counties in each province in descending order of per capita gross value of industrial output (GVIO), which is a good predictor of standard of living and development potential, and often more reliable than net per capita income (Huang and Rozelle, 1996). Five counties per province were then randomly selected from the resulting list.

From each selected county, the team chose sample townships and villages. Two townships were chosen from each county, one from each of two groups per county comprising a "wealthier" group and a "poorer" group. Following the same procedure, two villages per township were chosen. Finally, the survey teams randomly chose 20 households from each village. This methodology in choosing samples was employed so that resulting data would be nationally representative. They also conducted two rounds of follow-up surveys in 2008, 2012, and 2016.

The survey team gathered detailed information from the household head's

immediate family members concerning demographic, family, and village characteristics in each wave of the survey. Individual demographic characteristics included gender, birth year, educational attainment, marriage year, and employment status. Specifically, in the block of employment, they also documented the employment history of three generations in the family in each year from 1998 to 2015, including whether they in off-farm labor, whether they participated in self-employment, occupation, and job county. Using this data helps us construct the status of return migration and its evolution.

According to the individual characteristics, we also are able to obtain family demographic information: for instance, household structure and so on. Despite this, due to the definition of the three generations in the survey, we did not collect information on children of individuals who were brothers or sisters of the household head. At the village level, we also obtained the migration status of laborers.

2.2 Definition of variables

In order to answer the questions put forward in the first section, we separate the following indicators into three groups and give detailed definitions.

Group 1: Indicators for constructed variables

Rural labor: all men and women between 16 and 64 years old who had rural hukou, and who were not retired or disabled in the survey year. Students were also excluded from our sample.

Off-farm employment: those who were occupied in off-farm work or self-employment for at least 6 months of a year.

Migrants: those who were employed off-farm and worked outside of the county for more than 6 months in each year. There were 5,882 migrants between 1998 and 2015, including both continuous and temporary migrants

Returning migrants: those who had been migrants previously and returned to the county for more than 6 months in one year. For example, an individual who was a migrant in 1998, 1999, 2000 and 2001, but then he returned to his original county in 2002. We would call them a returning migrant in 2002.

Group 2: Dependent variable

Period of return: the number of years a returning migrant remained in their county following their return. For example, if a migrant returned the county in 2002, and migrated again in 2003, their period of return would be 0 years; if they returned to the county in 2002, and migrated again in 2004, their period of return would be 1 year, and so on.

Group 3: Independent variables

Age cohort: we collected the birth year of each family member. This allows us to

calculate their age between 1998 and 2015. We classify their ages into four groups: 16-25; 26-35; 36-45; and older than 45.

Occupation: we collected detailed information about occupation, including position and industry. For example, were they a worker in a shoe factory, service staff in a restaurant, a teacher in primary school, and so on. Though there were numerous types, we classified them in five groups: those without a job, manual laborers, service staff, professional staff, and other.

Other independent variables: educational attainment, marital status, location of job before return, number of school-aged children, and total migrants in village. Educational attainment is measured by whether the individual graduated from senior high or above. Using the marriage year, we can get the marital status for each year between 1998 and 2015. Location of job before return is further specified by either those returning from another province or those returning from another county within the province. Using the birth year of children, we also gain the number of school-aged children and their age in each year. The total migrants in village is used to measure the migration circumstances faced by returning migrants. In order to avoid endogenous problems, we use the number of migrants in each village in 1997. Table 1 shows the description of variables.

Table 1 is about here.

3. Empirical Approach

We use three types of analysis: ordinary least squares (OLS), Tobit regression, and the Heckman two-step procedure to explore the relationship between the period of return and the characteristics of returning migrants. The specification of our model is as follows:

$$Y_i = \alpha + \beta X_i + \gamma D_i + \delta T_i + u_i \quad (1)$$

Y_i represents the outcome variable of interest: the period of return. α describes a baseline period of return, other factors notwithstanding. X_i represents the vector of observable covariates. It includes the individual, household, and village characteristics showed in Table 1. D_i is a group of province dummy variables. T_i represents the dummy variable of the year that migrants return. u_i is the error term. In the absence of omitted variable bias, β , γ , and δ will be the vector of coefficients for the independent variables.

Heckman (1974) pointed out that workers will not enter the workforce if their reservation wage is higher than the wage offered. People do not only make a choice between off-farm labor and leisure; they can also choose to raise livestock or farm. Their individual reservation wage is therefore determined by other opportunities and tradeoffs between labor and leisure. If that reservation wage is higher than the wage offered for an individual's skill set, that person will not enter off-farm labor markets. However, from the analyst's perspective, we only observe wages for individuals who

are offered a wage higher than their reservation wage. If we do not correct for this selectivity bias, the estimators will be biased. As for our study, we may only observe the period of return among migrants who have already returned, which results in selection bias. Therefore, this paper uses the Heckman two-step model to conduct a robustness check.

To account for this potential bias, we first estimate a Probit for all rural laborers who were migrants at any point during 1998 to 2015, where the dependent variable is one if the migrants returned and zero otherwise. Using the results from the Probit estimation, we compute an inverse Mills ratio that corrects for possible truncation of the dependent variable in estimation of equation (1). In the Probit equation, we include the marketization index of each province where the migrants worked before returning, as explained below.

The marketization index has been calculated by Gang Fan et al. (2010, 2017) year-by-year since 1997. In the index report, we can find the marketization index of all the provinces in mainland of China over the years from 1997 to 2014. They obtained the index from five aspects: the relationship between the government and the market, the development of the private economy, the development of factor and product markets, and the development of intermediary agencies and the legal environment. The higher the marketization index, the stronger the province's inclusiveness, and the easier it is for migrants to integrate into cities. We believe this variable can identify the return effect since it should affect the period of return, but not a migrant's decision about whether or not to return. The index of 2015 is absent due to lack of data. We use the average index from 2012 to 2014 to replace the marketization index of 2015.

4. Results

4.1 Returning migrants and their period of return from 1999 to 2015

Of our 5,882 migrants, 22.3 percent returned between 1999 and 2015. The percentage of returning migrants varies among the five sample provinces (Figure 1). In Jiangsu province, one of the most developed areas in China, the rate of return was smaller than 7 percent between 1999 and 2015. In Sichuan province, one of the provinces with the most labor emigration, the financial crisis had a significant impact on labor return compared to other provinces. The rate of return was around 32.6 percent from 1999 to 2015. The rate of return in Shaanxi, another western province, was 2 percentage points lower than that of Sichuan. The rate of return migrants in Jilin was about 26.7 percent, which is the smallest in all five provinces. Lastly, the rate of return in Hebei was similar to that of Jilin.

Figure 1 is about here.

Figure 2 presents the increasing trends of return migration in rural China. The number of returning migrants was only 28 in 1999, and accounts for only 3.4 percent

of migrants in that year. In 2015, the number of returning migrants increased to 124, which amounted to 5.6 percent of all migrants. It is important to note that the number of returning migrants and the percentage among all migrants were not always increasing during this period.

There were three big dips in return from 1999 to 2015. In the beginning, the number of returning migrants continuously increased, reaching to 50 in 2001. This was met with a 10 percentage point dip in 2002. Following this drop, the number of returning migrants continued to increase until 2006. In 2007, another decline in the number of returning migrants occurred, this time by about 20 percentage points. In view of the financial crisis, the number of returning migrants increased dramatically from 2008 to 2011. There was the third drop in 2012, and the number of returning migrants decreased by 26 percentage points from its level in 2011. These three drops nearly mirrors the trajectory of the economy at large. In previous studies, they found that the economic cycle was about six years during over the period of 1980 to 2000 (Zhang et al., 2004). In our study, the cycle for returning migrants is about five years.

Figure 2 is about here.

Of the 1,190 returning migrants², most of them stayed in their home county for a considerable amount of time (Table 2). For example, for those who returned in 1999, 57.1 percent of them were still within the county in 2015. Among those who returned in 2000, 71.1 percent of were still within the county in 2015. For those who returned in 2008 and 2009, 70.1 percent and 71.4 percent of them stayed in their home county by 2015, respectively.

On the whole, returning migrants were more likely to remain in their home county following 2008. The percentage of returning migrants who emigrated again within 1 year were 27.5, 19, 21.6, and 23.8 in the return years of 2004, 2005, 2006 and 2007, respectively (sum of columns 1 and 2). However, percentage of returning migrants who emigrated again within 1 year declined to 10.4 in 2008, and around 14 percent from 2009 to 2013. If we consider those migrants whose period of return was 5 years, rather than 1, the result was similar.

Table 2 is about here.

4.2 Results of the regression model

According to the results of the OLS analysis, a male returning migrant had a shorter period of return than a female by 0.027 years, but this effect was not significant (Table 3, row 1, column 1). The period of return for those aged between 26 and 35 years was not significantly different from those aged between 16 and 25 years (Table 3, row 2, column 1). On the other hand, a returning migrant aged between 36 and 45 was likely to stay in their home county for 0.639 years longer than one aged

² There were 1,314 returning migrants in total during 1999 to 2015. However, of those who returned in 2015, we do not know whether they emigrated again.

between 16 and 25, and this effect is significant at the 10 percent level (Table 3, row 3, column 1). For returning migrants over the age of 45, their period of return was 1.408 years longer than for those aged between 16 and 25, and this effect was significant at the 1 percent level (Table 3, row 4, column 1).

Interestingly, educational attainment does increase one's period of return (Table 3, row 5, column 1). Returning migrants who graduated from senior high or above stayed in their home county for 0.408 years longer than others. Generally, returning migrants had lower educational attainment, but more years of schooling than non-migrants. Perhaps due to the experience they accumulated when working outside the county, they may have had the capacity to earn as much outside the county as at home. This would have allowed them to avoid both the risks associated with migration and the costs of being separated from their families.

Married returning migrants were more likely to have a shorter period of return than that of unmarried returning migrants (Table 3, row 6, column 1). In our sample, the average age of unmarried migrants before their return was 22.9 years old, which is just about the age of marriage in the Chinese countryside. It is possible that unmarried returning migrants may have spent more time in their home preparing for marriage. Although migrants who returned from other province were likely to stay in their hometown for a shorter period, the effect was not significant even at the 10 percent level (Table 3, row 7, column 1). Compared to returning migrants who had no job before their return, the occupation of those who had been employed before returning did not significantly affect the period of return (Table 3, row 8 to 11, column 1).

Having school-aged children had significant effect on the period of return. Specifically, a returning migrant with children aged between 4 and 5 years old was likely to stay in their home county for 0.848 years longer than one who did not have children from this cohort ($p<0.1$, Table 3, row 13, column 1). If a returning migrant had children between 6 and 12 years old, corresponding to primary school, they would stay in their home county for 0.836 years longer than one without children in this cohort ($p<0.05$, Table 3, row 14, column 1). A returning migrant with children between 13 and 15 years old, corresponding to junior high school, would stay in their home county for 1.771 years longer than one who did not have children in this cohort ($p<0.01$, Table 3, row 15, column 1). Returning migrants in Sichuan province were likely to stay in their home county for a shorter period than those in other provinces.

The results of Tobit regression tell a similar story (Table 3, column 2). Returning migrants aged between 36 and 45 stayed in their home county for 0.725 years longer than those between 16 and 25 years old (Table 3, row 3, column 2). Returning migrants over 45 years old stayed in their home county 1.682 years longer than those aged between 16 and 25 years (Table 3, row 4, column 2). More educated returning migrants were likely to stay in their home county for a longer period. Unmarried returning migrants stayed in their home county longer than others. Returning migrants with children aged between 4 and 15 were likely to stay for a longer period (Table 3, row 13 to 15, column 2). The Tobit model thus demonstrates results similar to and

consistent with the OLS regression.

The results of the Heckman two-step procedure are also about the same as those from the OLS regression. However, the magnitudes of the coefficients are larger than those in the OLS and Tobit models, and are much more significant (Table 3, column 3).

Table 3 is about here.

5. Conclusion and Discussion

Using data concerning employment history among rural laborers in five provinces in rural China, this paper analyzes the period of return for returning migrants by tracking their mobility. To our knowledge, this is the first paper to focus on this issue for this demographic. Based on the results, we expound our conclusions below.

First, according to the results, only 22.3 percent of migrants returned between 1998 and 2015, meaning that emigration is still the dominant direction of migration for rural laborers. Compared to the results of Zhao in 2002, who measure about a 38% rate of return before 1999, the percentage of returning migrants is also lower than before. Additionally, the percentage of returning migrants in developed provinces is much lower than that in developing provinces, in which employment opportunities are limited. Therefore, increasing the employment in developing province appears beneficial not only for returning migrants, but also for non-migrants laborers.

Second, most returning migrants stay in their home county for a long period. More than half of returning migrants stayed continuously through 2015, and only one third of returning migrants emigrated again within five years of return. After 2008, more returning migrants were likely to stay in their home counties, which further highlights the importance of employment at the county level within recent years.

Third, returning migrants aged over 36 were likely to stay longer in their home county than others. As for returning migrants in this age cohort, they often have both children and elderly family members. This probably means they face heavier social and familial constraints. Ensuring their employment after returning home thus would become a burdensome proposition with considerable time pressure. For those returning migrants aged over 45, their pensions probably bear consideration. This is because pension insurance must be continuously paid for from at least 15 years before turning 60, and plenty of migrants have no pension insurance when they work in other cities.

Fourth, returning migrants who are more educated are likely to stay longer in their home county. The 19th National Congress of CPC has put forth the strategy of rural revitalization in order to realize the integration of urban and rural areas. From a development perspective, more attention should be paid to the power of educated returning migrants, since they have more human and social capital.

In addition, migrants with school-aged children are more likely to return and stay longer. Due to the restrictions of the current hukou system and the relatively high costs of living and education in cities, it is difficult for rural migrants to bring their children to cities. Therefore, the government should gradually eliminate the institutional limitations faced by rural people and promote the free flow of labor resources in the process of urbanization.

This paper analyzes both a basic question on labor mobility and the period of return for returning migrants. We do our best to yield consistent results through different estimation approaches. Despite this, the mechanisms that affect the period of return are still unclear, and worth investigating more closely in future research.

Acknowledgements

The authors acknowledge the financial assistance of the National Natural Science Foundation of China (grant number 713300132).

References

1. Bai, N. & He, Y. (2002). Return or migrate: the study on return migrants in Anhui and Sichuan Provinces. *Sociological Studies*, (3), 64-78. (In Chinese)
2. Beine, M., Docquier, F. & Rapoport, H. (2001). Brain drain and economic growth: theory and evidence. *Journal of Development Economics*, 64(1), 275-289.
3. Cai, F. & Wang, M. (2009). Why labor mobility didn't narrow the income gap between rural and urban area? *Economic Perspectives*, (8), 4-10. (In Chinese)
4. Catrinescu, N., Leon-Ledesma, M., Piracha, M., & Quillin, B. (2009). Remittances, institutions, and economic growth. *World Development*, 37(1), 81-92.
5. Chan, K. W. (2012). Migration and development in China: trends, geography and current issues. *Migration and Development*, 1(2): 187-205.
6. Chen, G. F. & Hamori, S. (2009). Solution to the dilemma of the migrant labor shortage and the rural labor surplus in China. *China & World Economy*, 17(4): 53-71.
7. Dénurger, S., Gurgand, M., Shi, L. & Yue, X. (2009). Migrants as second-class workers in urban China? A decomposition analysis. *Journal of Comparative Economics*, 37(4), 610-628.
8. Dénurger, S. & Xu, H. (2011). Return migrants: the rise of new entrepreneurs in rural China. *World Development*, 39(10), 1847-1861
9. Dénurger, S. & Xu, H. (2015). Left-behind children and return migration in China. *Iza Journal of Migration*, 4(1), 10.
10. Du, Y., Park, A. & Wang, S. (2005). Migration and rural poverty in China. *Journal of Comparative Economics*, 33(4): 688-709.
11. Fan, G., Wang, X. & Zhu, H. (2010). NERI index of marketization of China's Provinces 2011 report. *Economic Science Press*. (In Chinese)
12. Fang, L., Liu, C., Luo, R., Zhang, L., Ma, X., & Bai, Y., et al. (2014). The education of China's migrant children: the missing link in China's education system. *International Journal of Educational Development*, 37(37), 68-77.
13. Giles, J. (2006). Is life more risky in the open? Household risk-coping and the opening of China's labor markets. *Journal of Development Economics*, 81(1): 25-60.
14. Hare, D. (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(3): 45-72.

15. Huang, J. & Rozelle, S. (1996). Technological change: rediscovering of the engine of productivity growth in China's rural economy. *Journal of Development Economics*, 49(2), 337-369.
16. Huang, J., Zhi, H., Huang, Z., Rozelle S. & Giles, J. (2011). The impact of the global financial crisis on off-farm employment and earnings in rural China. *World Development*, 39(5): 797-807.
17. Huang, Y. & Guo, F. (2016). Welfare program participation and the wellbeing of non-local rural migrants in metropolitan China: a social exclusion perspective. *Social Indicators Research*, 132, 1-23.
18. Huang, Y., Guo F. & Tang, Y. (2010). Status and social exclusion of rural-urban migrants in transitional China. *Journal of Asian Public Policy*, 3(2), 172-185.
19. Huang, Y. & Cheng, Z. (2014). Why are migrants not participating in welfare programs? Evidence from Shanghai, China. *Asian & Pacific Migration Journal*, 23(2), 183-210.
20. Iregui, A. M. (2003). Efficiency gains from the elimination of global restrictions on labour mobility. *Borradores De Economia*, 32(32), 13-20.
21. Jia, P., Du, Y. & Wang, M. (2016). Rural labor migration and poverty reduction in China. *Studies in Labor Economics*, 4 (06):69-91. (In Chinese)
22. Leng, L. (2012). Decomposing wage differentials between migrant workers and urban workers in urban China's labor markets. *China Economic Review*, 23(2), 461-470.
23. Li, S. (1999). The labor mobility, improving income and income distribution in rural China. *Social Science in China*, (2), 16-33. (In Chinese)
24. Li, S. (2010). The economic situation of rural migrant workers in China. *China Perspective*, (4), 4-15.
25. Mountford, A. (1997). Can a brain drain be good for growth in the source economy? *Journal of Development Economics*, 53(2), 287-303.
26. MOHRSS et al. (2016). The five years plan of implementing the training on return migrants for their entrepreneurship.
http://www.mohrss.gov.cn/gkml/xxgk/201606/t20160621_242190.html
27. Murphy, R. (2002). How migrant labor is changing rural China, Cambridge University Press.
28. NDRC. (2016). The notice on the approval of implementing the pilots of supporting return migrants to create business in 116 counties of Hebei.
http://www.ndrc.gov.cn/zcfb/zcfbtz/201701/t20170105_834439.html
29. Niu J. (2015). Human capital and returning decision of migrant workers in the era of emerging urban labor shortage, *Population Research*, 39 (2), 18-31. (In Chinese)

Chinese)

30. Park, A. & Wang, D. W. (2010). Migration and urban poverty and inequality in China. *China Economic Journal*, 3(1): 49-67.
31. Qin, X., Pan, J. & Liu, G. G. (2014). Does participating in health insurance benefit the migrant workers in China? An empirical investigation. *China Economic Review*, 30, 263-278.
32. Rao, B. B. & Hassan, G. M. (2011). A panel data analysis of the growth effects of remittances. *Economic Modelling*, 28(1-2), 701-709.
33. Rozelle, S., Taylor, J. E. & de Brauw, A. (1999). Migration, remittances, and agricultural productivity in China. *American Economic Review*, 89(2), 287-291.
34. Sheng, L. Y., Wang, R. and Yan, F. (2009). The impact of financial crisis in 2008 on the migrants. *Chinese Rural Economy*, 9: 4-14. (In Chinese)
35. Sichuan Daily. (2015). Return migrants and farmers to promote the entrepreneurship in Sichuan.
<http://epaper.scdaily.cn/shtml/scrb/20151026/114057.shtml>
36. Song, Y. (2014). What should economists know about the current Chinese hukou system?. *China Economic Review*, 29, 200-212.
37. Taylor, J. E., Rozelle, S. & de Brauw, A. (2003). Migration and incomes in source communities: A new economics of migration perspective from China. *Economic Development and Cultural Change*, 52(1), 75-101.
38. The State Council. (2017). The suggestions on improving structural reform of agricultural supply side and accelerate the development of new kinetic energy in agricultural and rural development.
http://www.gov.cn/zhengce/2017-02/05/content_5165626.htm
39. Wang, D. & Cai, F. (2006). The labor mobility and poverty reduction in rural China, *China Labor Economics*, (3), 46-70. (In Chinese)
40. Wang, W. W. & Fan, C. C. (2006). Success or failure: selectivity and reasons of return migration in Sichuan and Anhui, China. *Environment and Planning A*, 38(5): 939-958.
41. Wang, X., Fan, G. & Yu, J. (2017). Marketization index of China's province: NERI report 2016. *Social Science Academic Press*. (In Chinese)
42. Xu, Q., Guan, X. & Yao, F. (2011). Welfare program participation among rural-to-urban migrant workers in China. *International Journal of Social Welfare*, 20(1), 10-21.
43. Yu, L., Yin, X., Zheng, X. & Li, W. (2016). Lose to win: entrepreneurship of returned migrants in China. *Annals of Regional Science*, 58(2), 1-34.
44. Zhang, K. & Song, S. (2003). Rural-urban migration and urbanization in China:

Evidence from time-series and cross-section analyses. *China Economic Review*, 14(4), 386–400.

45. Zhang, L., Rozelle, S. & Huang, J. (2001). Off-Farm Jobs and On-Farm Work in Periods of Boom and Bust in Rural China. *Journal of Comparative Economics*, 29(3), 505–526.
46. Zhu, N. & Luo, X. (2008). The impact of remittances on rural poverty and inequality in China. Policy Research Working Paper 4637, World Bank.
47. Zhao, R., Liu, Y. & Yan, Y. (2012). Labor migration choice and its impacts on households in rural China. The Agricultural and Applied Economics Association's 2012, AAEA Annual Meeting. Seattle, Washington.
48. Zhao, Y. (2002). Causes and Consequences of Return Migration: Recent Evidence from China. *Journal of Comparative Economics*, 30(2), 376–394.

Figures and Tables

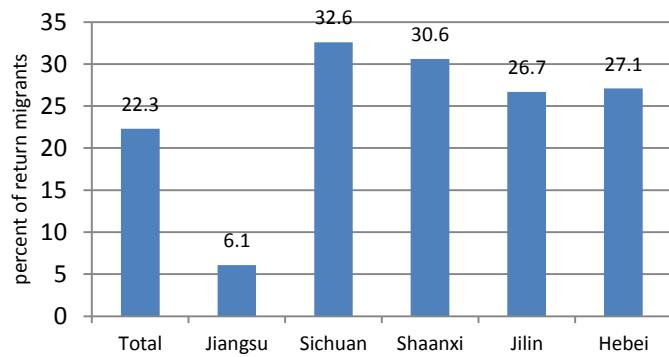


Figure 1 Percent of return migrants in sample provinces during 1999 to 2015

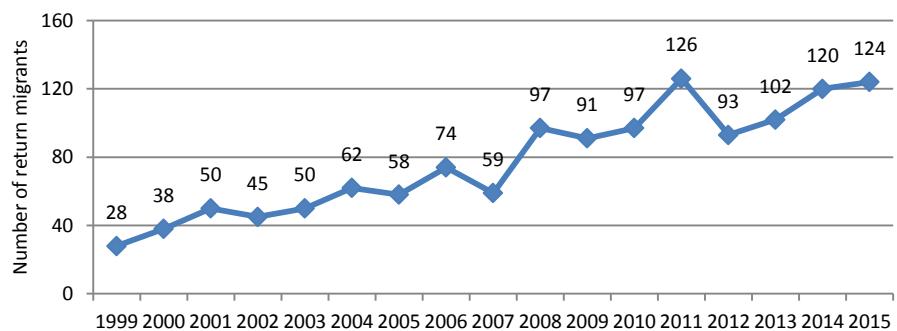


Figure 2 Percent of return migrants in sample provinces during 1999 to 2015

Table 1 Description of variables

Variables	Define/Measurement	Obs.	Mean	Std. Dev.	Min	Max
Period of return	Years staying in the county after return	1190	5.09	4.22	0	16
Male	1=yes;0=no	1190	0.53	0.50	0	1
Aged 16-25	Aged 16-25 before the year of return (1=yes;0=no)	1190	0.52	0.50	0	1
Aged 26-35	Aged 26-35 before the year of return (1=yes;0=no)	1190	0.23	0.42	0	1
Aged 36-45	Aged 36-45 before the year of return (1=yes;0=no)	1190	0.14	0.35	0	1
Aged above 45	Aged above 45 before the year of return (1=yes;0=no)	1190	0.10	0.31	0	1
Educational attainment	1=senior high and above; 0=otherwise	1190	8.57	2.98	0.	16
Married	Have married before the year of return (1=yes;0=no)	1190	0.57	0.50	0	1
Location of job before return	Other province (1=yes; 0=no)	1190	0.65	0.48	0	1
Without a job	Have no job before the year of return (1=yes;0=no)	1190	0.01	0.07	0	4
manual laborers	Manual laborers before the year of return (1=yes;0=no)	1190	0.57	0.50	0	1
Service staff	Service staff before the year of return (1=yes;0=no)	1190	0.30	0.46	0	1
Professional staff	Professional staff before the year of return (1=yes;0=no)	1190	0.06	0.25	0	1
Other occupation	Other occupation before the year of return (1=yes;0=no)	1189	0.06	0.24	0	1
Children0_3	Having child aged 0-3 years old before the year of return (1=yes;0=no)	985	0.12	0.33	0	1
Children4_5	Having child aged 4-5 years old before the year of return (1=yes;0=no)	985	0.06	0.24	0	1
Children6_12	Having child aged 6-12 years old before the year of return (1=yes;0=no)	985	0.17	0.37	0	1
Children13_15	Having child aged 13-15 years old before the year of return (1=yes;0=no)	985	0.05	0.22	0	1
Migrants in village	No. of migrants in village	1190	70.09	78.7	0	420

Table 2 Distribution of period of return by return year (% of returning migrants)

	0 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years	11 years	12 years	13 years	14 years	15 years	16 years
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	1999	3.6	14.3	3.6	3.6	0	0	0	3.6	0	0	3.6	0	3.6	0.0	3.6	(57.1*)
(2)	2000	0	7.9	5.3	2.6	2.6	0	0	2.6	0	0	0	0	5.3	2.6	0.0	(71.1*)
(3)	2001	10	10	2	6	0	0	4	4	2	4	0	0	2	2	(54*)	
(4)	2002	11.1	2.2	4.4	0	4.4	2.2	4.4	2.2	2.2	2.2	6.7	2.2	0	(55.6*)		
(5)	2003	4	12	6	4	8	0	2	0	0	4	4	0	(56*)			
(6)	2004	8.1	19.4	1.6	3.2	1.6	4.8	1.6	0	0	3.2	3.2	(53.2*)				
(7)	2005	12.1	6.9	8.6	5.2	3.4	1.7	1.7	1.7	6.9	6.9	(44.8*)					
(8)	2006	5.4	16.2	4.1	1.4	4.1	1.4	8.1	1.4	6.8	(51.4*)						
(9)	2007	13.6	10.2	1.7	1.7	3.4	0	1.7	3.4	(64.4*)							
(10)	2008	5.2	5.2	3.1	4.1	7.2	1.0	4.1	(70.1*)								
(11)	2009	5.5	8.8	1.1	5.5	3.3	4.4	(71.4*)									
(12)	2010	8.3	6.2	7.2	5.2	5.2	(68.0*)										
(13)	2011	4	10.3	5.6	6.4	(73.8*)											
(14)	2012	7.5	7.5	4.3	(80.7*)												
(15)	2013	7.8	5.9	(86.3*)													
(16)	2014	14.2	(85.8*)														

* indicates total returning migrants who remained in their home county

Table 3 Impact of individual, household, village characteristic on the period of return

Variables	Dependent variable: period of return (years)			
	OLS (1)	Tobit (2)	Selection equation (3)	period of return (4)
<i>Individual characteristic</i>				
(1) Male	-0.027 (-0.131)	-0.061 (-0.272)	0.076 (1.304)	-0.065 (-0.310)
(2) Aged 26-35	0.025 (0.080)	-0.010 (-0.029)	-1.051*** (-11.443)	0.380 (0.917)
(3) Aged 36-45	0.639* (1.651)	0.725* (1.750)	-1.904*** (-19.182)	1.394** (1.994)
(4) Aged above 45	1.408*** (3.418)	1.682*** (3.835)	-1.879*** (-17.616)	2.193*** (3.014)
(5) Educational attainment	0.408* (1.684)	0.493* (1.912)	-0.206*** (-3.050)	0.486* (1.948)
(6) Married	-1.074*** (-4.095)	-1.190*** (-4.255)	-0.672*** (-7.541)	-0.930*** (-3.208)
(7) Return from other provinces	-0.152 (-0.662)	-0.181 (-0.737)	0.356*** (5.836)	-0.211 (-0.913)
(8) Worker	-0.325 (-0.276)	-0.276 (-0.217)	1.399*** (6.355)	-0.874 (-0.712)
(9) Service staff	-0.391 (-0.331)	-0.349 (-0.274)	1.046*** (4.696)	-0.848 (-0.701)
(10) Professionals	0.175 (0.140)	0.352 (0.262)	0.998*** (4.041)	-0.313 (-0.247)
(11) Other occupation	-0.759 (-0.616)	-0.694 (-0.522)	0.819*** (0.076)	-1.059 (-0.863)
<i>Household characteristic</i>				
(12) Children0_3	0.499 (1.470)	0.521 (1.434)	-0.924*** (-10.704)	0.913** (1.982)
(13) Children 4_5	0.848* (1.915)	1.030** (2.180)	-0.689*** (-7.148)	1.212** (2.343)
(14) Children 6_12	0.836** (2.565)	1.002*** (2.872)	-0.473*** (-6.492)	1.098*** (2.898)
(15) Children 13_15	1.771*** (3.570)	1.985*** (3.764)	-0.220** (-2.227)	1.893*** (3.821)
<i>Village characteristic</i>				
(16) Migrants in village	-0.001 (-0.971)	-0.002 (-1.089)	-0.001*** (-2.856)	-0.001 (-0.648)
(17) Sichuan	-1.244*** (-3.114)	-1.366*** (-3.218)	0.479*** (5.228)	-1.656*** (-3.242)
(18) Shaanxi	0.357 (0.836)	0.390 (0.859)	0.157 (1.486)	0.067 (0.141)
(19) Jilin	-0.142	-0.117	0.046	-0.367

	(-0.298)	(-0.231)	(0.397)	(-0.729)
(20) Hebei	0.477	0.508	0.230**	0.195
	(1.096)	(1.100)	(2.191)	(0.409)
(21) Dummies of year	Yes	Yes	No	Yes
(22) Marketization index			-0.134***	
			(-8.789)	
(23) Inverse Mills Ratio				-0.720
				(-1.273)
(24) Constant	12.173***	—	1.001***	12.980***
	(8.821)		(3.558)	(8.721)
(25) Observations	984	984	4352	984

Note: a) statistics in parentheses;

b) marginal effect is reported in column 2;

c) *** p<0.01, ** p<0.05, * p<0.1