Migration and Remittances in Rural China*

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ABSTRACT

This paper examines patterns of remittances among migrants from rural China. We draw on data from the 2003 China Rural Household Survey (for Guizhou in southwestern part of China). We estimated Tobit model of amount of remittances among migrants from Guizhou province and take into account characteristics at the individuals, household, as well as village level. Our results show that migrant remittances behavior is responsible to family life cycle, i.e. families with dependents are more likely to receive remittances. As we expected, migrants with high earnings tend to remit larger amount compared to migrants with lower earnings. Contrary to our prediction, migrants' remittances behavior is not responsive to household relative economic standing in the village. We did find some evidence of "culture of remittances" in these villages. Namely, migrants who are from villages with high average remittance norms are likely to remit a larger amount than otherwise.

Introduction

Since the early 1980s, a new demographic reality in China has attracted increasing attention in academic journals, newspapers, and magazines. The "floating population" *(liudong renkou*), refers to the massive number of migrants without local household registration (*hukou*) status. Estimates from national survey/census data suggest that cross-county floating population was below 10 million in 1982 and has risen to 80 million by 2000 (Liang and Ma, 2004). The size of this population was about 144 million if intra-county floating population is included, clearly the largest of migrants in human history (NBS, 2002).[1] With the rise of migrant population in China, a large social science literature is also quickly emerging. So far researchers from disciplines of sociology, demography, economics, geography, and anthropology have studied many aspects of this migration process: migration and earnings (Zhao, 1999); major patterns and characteristics of the floating population (Liang, 2001, Liang and Ma, 2004; Poston and Mao, 1998), gender and migration (Gaetarno and Jackson, 2004; Fan, 2000; Huang, 2000; Roberts at al. 2000; Wang et al., 2003); the role of *hukou* in migration process (Chan and Zhang, 1999; Wu and Treiman, 2004); migration and health consequences (Smith and Yang, 2005; Yang, 2002); comparative studies of migration in China with undocumented Mexican migrants to the United States (Roberts, 1997), and migration and educational consequences for children (Liang and Chen, 2007; Ye and Murray, 2005).

To date, these studies have significantly improved our understanding of the causes and consequences of China's massive migration population. One common characteristic of these earlier studies is that they focus primarily on migrants themselves and how they fare in places of destinations and how migrants contributed to the transformation of destination communities, particularly urban China. Given the fact that migration involves both places of destination and origin, it is equally important to examine how migration has changed migrant-sending communities, i.e. rural communities in China. With few exceptions (Ma, 1999; Murphy, 2002; and Taylor et al., 2003), social science knowledge of how China's massive migrant flow has affected rural migrant-sending communities is rather limited. This lack of sufficient attention from scholarly community is surprising in light of China's large rural population. According to the result from the 2005 China 1% Population Sample Survey, 57% of the Chinese population (about 741 million people) still live in countryside. How the lives of 741 million rural Chinese residents are affected by migration and return migration is of an enormous level of importance for the future of Chinese society.

In this paper, we address one aspect of this research agenda by focusing on remittances flows from migrants to their rural households. Using data from the 2003 China Rural Household Survey, we consider a variety of

Background and Hypotheses

[1] The number rose to 147 million in 2005 (NBS, 2006).

With the rise of migration in China, the amount of remittances has been rising as well. Earlier report from Sichuan province—one of the provinces that has sent the largest number of migrants, suggests that remittances in 1997 were as high as 20 billion Yuan (1US$=roughly 8 Yuan in 2006) (Chen, 1997). This amounts to the total revenue of Sichuan in that year. Economist Cai Fang's calculation suggests that on average migrants remit about 2000 Yuan per year (Cai and Bai, 2006). If we assume the size of inter-county migration of 80 million, then the remittances per year can be as high as 160 billion Yuan. The infusion of such huge amount of money to migrant-sending villages has tremendous potential for improving the standard of living of rural households as well as for economic development.

Our analysis of remittance behavior is guided by recent studies of remittances by economists and sociologists (Durand et al., 1996; Rozelle, 1999; Sana and Massey, 2005; Stark, 1991; Taylor et al. 2003). The most recent advancement in the economics of migration is the new economics of labor migration (NELM) pioneered by Oded Stark and followed by others such as Edward Taylor among others. There are two fundamental insights from NELM. One is the idea that migration occurs not as a way to maximize the individual migrant's well being but as a family strategy to overcome market failure and to minimize risks/uncertainties. When a family sends a migrant to work in a city, the household makes an investment that will receive a return when remittances are sent back or when the migrants return home with savings (Sana and Massey, 2005). Second, this arrangement is often made through implicit contract between migrants and migrant-sending households. The key mechanism of reinforcement of this implicit contract is the migrant's sense of altruism toward his/her household, i.e. his/her concern of the well-being and standard of living of household members who are left behind.

Given the assumption of altruism of migrants, we can generate the following hypotheses. Since migrants are concerned with the well-being of household members left behind, we expect that, other things being equal, migrants are more likely to remit to a household with a poor standard of living than otherwise. Households with a poor standard of living can be measured by household income, ownership of land and productive assets. In addition, remittance behavior is also positively related to the migrant's ability to remit (can be measured either by migrant earnings or by the migrants' individual characteristics such as education and occupation at destinations). Moreover, migrants who work in large cities tend to receive higher salaries as compared to those in small cities or towns. To the extent that migrants earn higher salaries, they are likely to remit a higher amount.

Remittance behavior also depends on the migrants' life cycle stage: age, location of spouse, and dependency ratio (Durand et al., 1996). The dependency ratio measures the consumption needs of the household. Thus, high consumption needs in households in migrant-sending communities would lead to high amounts of remittances. In addition to general consumption needs in migrant-sending households, we also pay attention to the location of children, specifically whether they are in the migrant origins or places of destinations. Likewise, migrants are less likely to remit if their spouse is in the migrant

destination rather than the place of origin. The amount of remittances also varies by destination of migrants.

Previous studies of remittances behavior found support of NELM. Studies done by Massey and his colleagues using data from the Mexican Migration Project support predictions from NELM. As predicated from NELM, in the Mexican case, cohesive patriarchal family ensures the flow of remittances as part of a household strategy of risk diversification (Sana and Massey, 2005). They also found that migrants respond to the dependent burden in their origin households and remit less as the land owned by the origin households increases (Massey and Basem, 1992).

We argue that the case of China is particularly suited for the application of NELM. NELM describes a rural setting where there are no well-functioning market institutions. In rural China, most rural households do not have access to credit. Thus, migrants "can play the role of financial intermediaries, enabling rural households to overcome credit and risk constraints on their ability to achieve the transition from familial to commercial production (Taylor et al., 2003, p.80)." Another important factor is the institutional barrier in China that prevents rural migrants from settling permanently in cities. The household registration (*hukou*) system, though weakened significantly in recent years, nevertheless continues to function in such a way that makes the long term settlement of rural migrants difficult. For example, migrant children without local *hukou* are required to pay high "endorsement fees" to be enrolled in public schools in cities and as a result, large number of migrant children are enrolled in migrant sponsored schools (Liang and Chen, 2007). Moreover, given China's well-known patriarchal family structure (Davis and Harrell, 1993), the implicit social contract between migrants and households are likely to be honored.

Indeed, recent work in rural China produced results consistent with predictions from NELM (Taylor et al., 2003). The flow of remittances also has implications for the well-being of household members and has the potential for changes in consumption and investment patterns (Taylor et al., 2003). Taylor et al.'s (2003) work focused on identifying the important impacts of remittances in contributing to household income. We ask a more policy-relevant question of how remittances contribute to the alleviation of poverty, especially in the context of western China where poverty rates are high (Du and Park, 2006). We are also interested in examining changes in investment behaviors such as investment in education of children and production tools and assets. Our hypothesis is that migrant households are more likely than non-migrant households to invest in children's education and productive assets. The increased investment in education of children should not be surprising, because through many anecdotal accounts, we know that the majority of migrants leave rural areas precisely for the future well-being of their children (Ye and Murray, 2005).

Data and Methods

The 2003 China Rural Household Survey (CRHHS) was conducted by China National Bureau of Statistics (NBS) and is the rural portion of the NBS' annual household survey (NBS, 2002b). It is a multi-stage probability sample survey of rural households. Data from rural and urban household surveys have been used in several important studies of household income in China (Khan et al., 1992; Khan et al., 1998; Riskin et al., 2001). For this paper, we use rural household survey data for Guizhou province in southwest China (see Map 1). Guizhou is considered to be one of the poor province in China. One of the reasons for focusing on Guizhou province is to explore links between migration and development and develop future strategies for poor provinces in China and in other developing countries.

Aside from rich information on income and its sources, the 2003 CRHHS added a module of the rural labor force. Some scholars have remarked that large national studies based on massive samples gathered by official state agencies such as the Chinese Household Income Project (by NBS) permit detailed analysis of income of rural households, but have limited information for other characteristics (Walder and Zhao, 2006). This changed in 2002 with the addition of the labor force module. Three parts of the survey are particularly relevant. Basic socio-demographic information is collected for each member of the household. Then, the labor force population (contained in the Labor Force Module) is divided into two groups: one group is the labor force population who remain in the village and the other group refers to the labor force population who are currently working outside of township or town. For the first group, questions asked include: current and last year's occupation, whether employed through town enterprises and duration of work, and whether individual migrated out during the survey year or the previous year. For the second group, 14 questions were asked about their migration experience: if migration was arranged by the local government (or relatives and friends), type of migrant destination, duration of migration, total earnings, and the amount of remittances (either sent or brought back). Also important to our analysis is the information on whether a household contains a cadre.

During CRHHS, NBS also collected rich information at the village level. There are a total of 31 questions at the village level. The most relevant questions for our purposes are access to paved road, distance to the nearest elementary/middle school, distance to nearest medical clinic, distance to post office, and number of TVEs. For each province, roughly about 27 to 30 counties were selected and within each county about 5 to10 villages were surveyed. This survey design generated about 135 to 300 villages for each province, which will allow us to conduct multi-level modeling. This paper will use only household survey data.

Our analysis so far consists of two steps. First, our analysis begins with description of the sample on variety of socio-demographic characteristics. Second, we apply a Tobit model to estimate remittances amount during last year and take into account several kinds of characteristics. Standard OLS regression is not appropriate for handing situation that involves censored observations. Tobit model is particularly

appropriate for our analysis because it takes into account of censoring problem for our data because migrants who did not remit at the time of survey are considered censored (Long, 1997, p. 187). The first group of characteristics include socio-demographic characteristics, household size, dependency ratio, and household income rank in village. In addition, our models also take into account migration related variables: duration of migration, income from migration, living expenses while in destination, and type of destination. Finally, we consider village level characteristics and evaluate their impact on patterns of remittances.

Preliminary Results

Table 1 compares the socio-demographic characteristics between two groups. Migrants who remit tend to differ from migrants who do not on a variety of characteristics. Migrants who remit are more likely to be male, with middle school level education, mainly working outside of Guizhou province. It is not surprising to see that migrants who remit tend to have much higher income (5195 Yuan) than migrants who do not (4221 yuan), although migrants who remit also tend to have higher living expenses. Migrants who remit also tend to have stayed in destination for a longer period of time (8 months) than migrants who do not remit.

In Table 2, we compare characteristics of migrants who were introduced by relatives for the migration journey and migrants who make the trips on their own. We notice several differences between the two groups. One is that migrants who are introduced by relatives tend to migrate to other provinces (75%) than migrants who made the trips on their own (69.6%). Another difference is that migrants who are introduced by relatives are also less likely to remit and if they remit, they tend to remit less amount than self motivated migrants. We suspect one main reason is that migrants who are introduced to the migrant destinations by relatives are likely to have more relatives in the new destinations, therefore they do not have as much family members to support back in the villages.

Table 3 shows results from Tobit regression models of amount of remittances. We have estimated three sets of models, one with only individual level characteristics, another with both individual level characteristics as well as migration related variables. In the last model, we add village level characteristics. There are three major findings from these results. One is that remittance is driven by household demand. Thus households with high dependency ratio receive more remittances than otherwise. Three migration related variables show significant impact. The more money migrants make in destinations, the more money they will remit back to rural households. Related to this, the higher the living expenses in the destinations, the small the amount they will send back home. One surprising result is that the longer migrants stay in the destination, the MORE likely they are to remit larger amount. In the literature on remittances, the most consistent result has been that the longer migrants stay in destinations, the more likely they are taking roots in the new location, and the less likely they will remit or remit larger amount (Liang and Morooka, 2008; Sana, 2008). We offer two possible explanations

here. One is that our duration of stay variable measures only duration with a maximum of 12 months. Thus the impact of duration may be different if we had a longer interval of observation. Another factor is that because of China's rigid hukou system, it is hard for migrants to think about settling down unless they have stayed in destination for a longer period of time.

Perhaps the most interesting result coming from the village level variables is impact of mean remittance at the village level. Here we use mean amount of remittances from pervious year (before the survey of 2003) to predict the impact on remittance behavior for migrants. The results show that the higher the remittances from previous year, the higher the amount of remittances migrants will send a year later. This is an important finding. Previous literature has identified a phenomenon as "culture of migration". The idea is that as migration becomes increasingly accessible as a strategy of economic advancement and as migration prevalence ratio in a community creases, a norm of migration is emerging in these communities. In such communities, migration is seen as rite of passage and is very much expected for young people (Massey et al., 1994). In our case, we suggest that a new culture of remittances is emerging in China's migrant-sending villages. As more peasants participate join the army of migrant labor and as more migrants send remittances to their families back the villages, a norm of remittances is emerging that is driving up the amount of remittances. A higher remittances not only help household economic status in the village, but also elevates a household social status in the village. A household with high level of remittances can be manifested in terms of newly remolded houses, newly added farming equipment, and new appliances, all items that make migrant household proud and others envy.

Next Step: In next few months, we plan to continue the project in the two directions. One is to estimate models that linking migration networks (migration through introduction of relatives vs. otherwise) to remittance behavior. Second step is to link remittances to alleviation of rural poverty.

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Map 1. Location of Guizhou Province in China

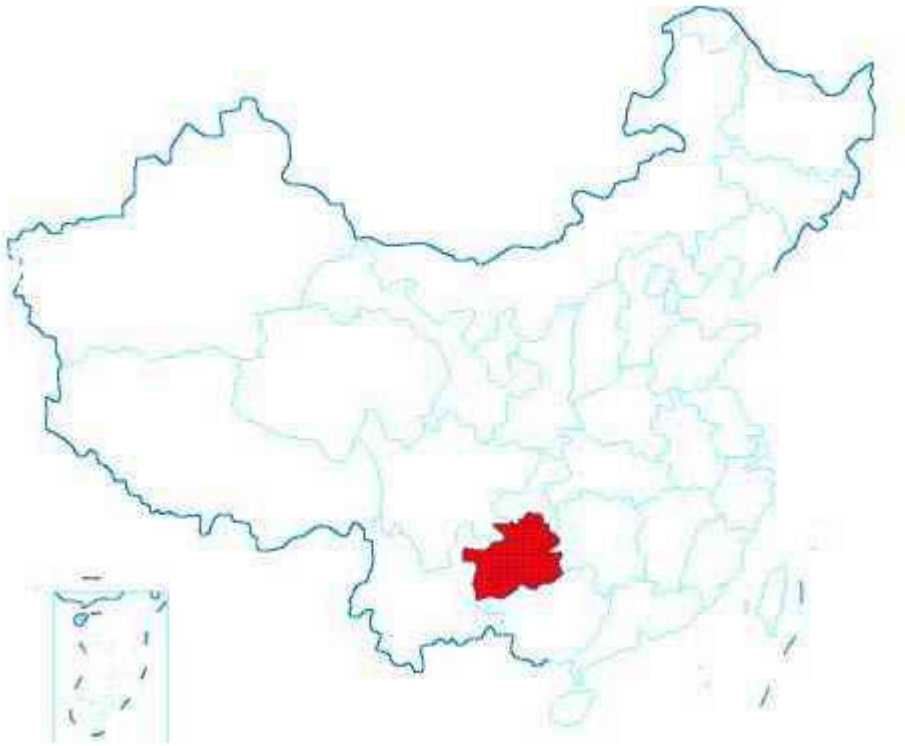

Table 1 Compare Socio-demographic characteristics of two groups (whether remit or not)

	Remit	Not remit
Sex		
Male	272 (67.7)	60 (55.6)
Female	130 (32.3)	48 (44.4)
Average age	28.74	26.58
Education		
Illiteracy	28 (7.0)	5 (4.6)
Primary School	138 (34.3)	39 (36.1)
Middle School	214 (53.2)	57 (52.8)
High School	18 (4.5)	7 (6.5)
Vocational and Technical School	2 (.5)	0
College and above	2 (.5)	0
Receive skill training		
Yes	26 (6.5)	10 (9.3)
No	376 (93.5)	98 (90.7)
The first time to migrate for job this year		
Yes	138 (34.3)	48 (44.4)
No	264 (65.7)	60 (55.6)
Main working area		
Intra-country	15 (3.7)	0
Inter-country and intra-county	45 (11.2)	7 (6.5)
Inter-county and intra-province	48 (11.9)	29 (26.9)
Within China but outside Guizhou Province	294 (73.1)	72 (66.7)
International	0	0
Migration Approach		
Organized by government	6 (1.5)	0
Introduced by relatives	130 (32.3)	48 (44.4)
Self-motivated	266 (66.2)	60 (55.6)
Type of destination		
Municipality	8 (2.0)	1 (.9)
Provincial capital	47 (11.7)	17 (15.7)
Prefecture-level city	137 (34.1)	45 (41.7)
County-level city	111 (27.6)	32 (29.6)
Town	62 (15.4)	12 (11.1)
Other areas	37 (9.2)	1 (.9)
Average length of migration (month)	8.47	7.98
Average income of migrant work (yuan)	5193.27	4221.02
Average living expenses (yuan)	2589.96	2496.44
Total N	402	108

Table 2 Compare Socio-demographic characteristics of two groups with different migration network

	Introduced by Relatives	Self-motivated
Sex		
Male	112 (62.9)	214 (65.6)
Female	66 (37.1)	112 (34.4)
Average age	26.89	28.99
Education		
Illiteracy	15 (8.4)	18 (5.5)
Primary School	57 (32.0)	119 (36.5)
Middle School	96 (53.9)	170 (52.1)
High School	8 (4.5)	17 (5.2)
Vocational and Technical School	2 (1.1)	0
College and above	0	2 (.6)
Receive skill training		
Yes	13 (7.3)	23 (7.1)
No	165 (92.7)	303 (92.9)
The first time to migrate for job this year		
Yes	73 (41.0)	110 (33.7)
No	105 (59.0)	216 (66.3)
Main working area		
Intra-country	2 (1.1)	13 (4.0)
Inter-country and intra-county	16 (9.0)	35 (10.7)
Inter-county and intra-province	26 (14.6)	51 (15.6)
Within China but outside Guizhou Province	134 (75.3)	227 (69.6)
International	0	0
Remit or not		
Yes	130 (73.0)	266 (81.6)
No	48 (27.0)	60 (18.4)
Type of destination		
Municipality	4 (2.2)	5 (1.5)
Provincial capital	31 (17.4)	32 (9.8)
Prefecture-level city	73 (41.0)	107 (32.8)
County-level city	43 (24.2)	98 (30.1)
Town	21 (11.8)	53 (16.3)
Other areas	6 (3.4)	31 (9.5)
Average length of migration (month)	8.58	8.25
Average income of migrant work (yuan)	5291.53	4790.71
Average living expenses (yuan)	2706.77	2489.19
Average remittance (yuan)	**1256.58**	**1429.87**
Total N	178	326

Table 3 Multi-level models predicting amount of remittance in Guizhou

	Model 1		Model 2			Model 3		
	B	SE	B		SE	B		SE
FIXED EFFECTS								
Constant	673.8614	672.6139	-572.3696		839.5325	492□931 9		877.2626
Level 1								
Socio-demographics								
Male	262.6838	200.7975	232.0259		175.0803	287.2616		166.8989
Age (10 years group)	104.9272	98.94758	138.2031		87.62086	131.0265		82.97883
Education								
Illiteracy (reference)	-----	-----	-----		-----	-----		-----
Primary School	-92.8065	391.6179	-331.3278		336.5119	-231.3445		314.8704
Middle School	-75.3961	388.0116	-145.0662		333.4857	-145.2753		312.4463
High School	36.34043	546.4096	-253.3245		467.8313	-225.6748		451.4555
Vocational and Technical School	120.365	1420.646	53.01872		1216.593	183.4615		1117.118
College and above	2589.27	1432.661	2265.388		1231.955	841.2859		1252.96
Household size	-15.18882	72.09091	-39.76997		63.32066	-36.76542		61.6129
Dependency ratio	255.6076	179.1024	330.5712	*	157.8126	347.2663	*	149.9638
Household income rank	-31.0945	81.65538	48.20412		70.80014	9.658388		76.84123
Level 2								
Migration experience								
Length of migration this year			139.5988	***	30.6033	125.7145	***	29.4295
Total income of migrant work			.2488526	***	.0264246	.0222452		.036439
Total living expenses			-.3558596	***	.0645361	-.394448	***	.0623557
Type of destination								
Municipality (reference)			-----		-----	-----		-----
Provincial capital			-274.7933		603.4939	-612.6373		621.5051
Prefecture-level city			-294.8667		582.8894	-506.3107		602.4091
County-level city			-316.459		584.6727	-512.8014		605.7706
Town			-442.7612		600.2855	-495.1759		621.7533
Other areas			267.016		633.2403	-92.42671		650.9113

To be continued

Table 3 Multi-level models predicting amount of remittance in Guizhou (continued)

	Model 1		Model 2		Model 3		
	B	SE	B	SE	B		SE
Level 3							
Village characteristics							
Average remittance					.5170003	***	.1316748
The distance of village from the nearest county					2.487097		3.56035
The distance of village from the nearest middle school					42.68071	**	14.60133
Average remittance*migrant income (interaction)					.0001313	***	.0000173
Log likelihood	-3710.1562		-3643.9434		-3383.6134		
Pseudo R^2	0.0016		0.0194		0.0296		
□Log likelihood(□df)	10		18		22		
Number of observations	510		510		470		