GENDER DIFFERENCES AND SOCIAL CAPITAL AMONG TEMPORARY AND PERMANENT MIGRANTS IN CHINA

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ABSTRACT

Douglas Hopping: Gender Differences and Social Capital Among Temporary and Permanent Migrants in China
(Under the direction of Clark Gray)

Hukou, the Chinese household registration system, remains a significant barrier to Chinese internal migration. This paper uses panel data from the China Health and Nutrition Survey to look at individual, household, and community level predictors of temporary and permanent migration in China. I estimate discrete-time event history models of temporary and permanent migration between 1991 and 2011. Temporary migrants tend to be younger, come from less urban areas, and are more likely to be male or heads of household than permanent migrants. A gender-stratified model of migration shows distinct differences in the predictors of migration for men and women. Women are less responsive to educational attainment, more responsive to family role and household migration experience, and use social capital differently than their male counterparts. Differences in the reasons men and women provide for migrating help explain how the hukou system exercises control over male and female mobility differently.

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CHAPTER 1: INTRODUCTION AND BACKGROUND

China's household registration system, i.e. the hukou system, plays a unique role in regulating Chinese internal migration. While some migrants are able to change their household registration and undertake permanent moves to their destination, many more migrants are either unable or unwilling to overcome these institutional barriers and instead make temporary moves without changing their hukou status. Moving temporarily, away from one's place of hukou registration, cuts migrants off from essential state resources including access to state sector jobs, health care services, public schools, and housing (Solinger 1999, Chan and Buckingham 2008). Despite the disadvantages of moving without having obtained hukou in the destination, as of 2011, China had an estimated *floating population* of 200 million migrants who had left the counties where their hukou was located to seek economic opportunities in large urban centers (Chan 2013). The lack of access to resources and the full rights of citizenship faced by these temporary migrants in their destination make hukou an important mediator in determining migrants' economic success and opportunities after migrating (Fan 2002).

In recent years, studies have sought to compare the differences between temporary and permanent migrants in China by looking at differences in destination choices (Xiu and Lu 2015, Liang and Ma 2004), predictors of migrating (Hu et al. 2010, Sun and Fan 2011, Chan et al. 1999) and reasons for migrating (Liang and Ma 2004). This paper builds on this literature in four key ways. First, I introduce the use of longitudinal panel data for assessing individuals' likelihood of migrating either temporarily or permanently over time. Second, I differentiate

between the predictors of male and female migration. This approach treats gender as a central organizing principal for migration, rather than one of several independent variables (Pedraza, 1991). Third, I account for migrant social capital in the form of previous household migration experience, a variable I am able to construct from the panel design of the data. Finally, I am able to update previous work on the determinants of migration with more recent data that extends up until 2011, five years past the results of most previous studies.

This paper uses a cumulative causation framework (Massey 1990, Massey et al. 1993) to examine the relationship between temporary and permanent migration streams. Cumulative causation suggests that migration patterns develop into stable flows which are sustained by the accumulation of reciprocal ties between origins and destinations. In China temporary and permanent migrants often come from different communities, demonstrate different destination preferences, and have distinct demographic and socio-economic profiles (Liu and Xu 2015, Liang and Ma 2004, Chan et al. 1999). These two migration regimes represent separate sets of flow sustained by distinct socio-economic, institutional, and cultural forces. Labor market opportunities, institutional constraints, and social capital in the form of migrant networks, all may exercise different forms of selectivity on potential temporary and permanent migrants. These differences in selectivity could be particularly salient in the Chinese context, where social inequality has a notably geographic character (Xie and Zhou 2014, Fan and Sun 2008).

Hukou – The Chinese Household Registration System

Starting in the 1950's, the People's Republic of China has required all Chinese citizens to register under the population registration system, huji. Each person's registration consists of two

parts, a hukou type, hukou leibie, which could either be agricultural, nongye, or non-agricultural, fei nongye, and the place (city, town, rural area…) where the hukou is registered, hukou suozaidi (Chan and Buckingham 2008). It is important to point out that while these two aspects of hukou are often related, both large cities and small villages have residents with agricultural and non-agricultural hukou. While a person's hukou type was originally associated with his or her occupation, this has become increasingly obscured over time. As the Chinese economy and occupational structure have changed and more people with agricultural hukou are employed in either local or migrant off-farm work, the meanings of agricultural and non-agricultural hukou have changed to become more reflective of rural and urban divisions (Cheng and Selden 1994, Chan and Zhang 1999, Solinger 1999).

What has remained unchanged is the role that hukou type plays in defining different sets of rights for rural and urban citizens. While urban citizens with non-agricultural hukou are guaranteed access to resources and benefits including state-subsidized housing, employment in state sector jobs, and commodity grain (a long-time benefit which was eliminated in 1992), rural citizens are given little more than property rights to farmland and an expectation of self-sufficiency. These fundamentally different contracts with the state create a system where rural residents become second-class citizens, and form the basis for a rural-urban inequality that is at the heart of China's low-cost manufacturing industry (Chan 2010).

Hukou and Migration

Before the 1980's, without the employment opportunities offered by local non-agricultural hukou, it was virtually impossible for migrants to find the necessities for survival,

work, food, and housing in cities (Fan 2008). With the opening up of the Chinese economy in the 1970's and 1980's this began to change. Private sector employers started hiring non-local workers willing to work at lower wages than the local population. Employment in non-state enterprises provided opportunities to work and live in cities without obtaining local hukou (Liang 2001). Between the 1982 and 2000 census, this *floating population* of migrants without local hukou grew from 7 to 79 million migrants (Liang and Ma 2004). Recent estimates as of 2011 count more than 200 million migrants living outside the county where their hukou is located (Sun and Fan 2011). Most of these migrants are settling in cities, and from 1978 to 2011 the percent of China's population living in urban areas increased from 17.9% to 51.3% (Liu and Xu, 2015).

Still, without local hukou, temporary migrants remain cut off from vital state resources including access to state sector employment, public schools, and subsidized housing opportunities (Solinger, 1999). Temporary migrants have reduced access to health care services in cities with respect to their local counterparts (Zeng et al. 2016, Hu et al. 2008); they face lower school enrollment for their children (Liang and Chen 2007); and they face reduced employment and housing opportunities (Fan 2002, Shen 2002). The litany of structural disadvantages faced by temporary migrants has led to what K.W. Chan would call a two-class urban society (Chan 1996).

Beginning in the 1990's the hukou process began undergoing a series of reforms which began to allow more people to acquire local hukou and migrate permanently. Permanent migrants did not face the same institutional disadvantages as temporary migrants and in many cases are better off than local residents (Fan 2002, Liang and Chen 2007). Chan's two-class urban society had become a three-class society with temporary migrants without local hukou at

the bottom, local residents in the middle, and those privileged enough to migrant permanently after obtaining local hukou at the top.

The 1990's hukou reforms broadly had two components. First, the management of the hukou system was delegated to local governments and the processes for obtaining local hukou were placed in the hands of local authorities. Second, certain cities and provinces began relaxing the process of changing hukou type from agricultural to non-agricultural, a process known as nongzhuangfei (Chan and Buckingham 2008, Fan 2008). This localization of hukou management has led to a heterogeneous landscape of hukou policies and complicated sets of reforms that vary from municipality to municipality.

While these reforms have made it easier for some migrants to obtain local hukou, they are generally in the best interest of the city or province devising them (Chan 2013). As a result many of these policies are selective, designed to allow desirable migrants in, while keeping the undesirable out. The availability of local hukou is often tied to the ability to invest in a local business, buy property, and pay taxes, or offered to those migrants who already possess a high level of human capital either in the form of desired skills or a college degree (Chan and Buckingham 2008, Fan 2008). Some reforms have been more inclusive though. While marriage has long been a source of local hukou, reforms in some places have made local hukou available for migrants seeking to unite with family member who have local hukou. In other places, such as Wuhan province, temporary migrants who have been living within the area for a certain period of time are can now acquire local hukou. Still the large majority of these policies are targeted at a small already upwardly mobile subset of potential migrants and do nothing to help the majority of people looking to make the move to cities obtain local hukou (Sun and Fan 2011).

Reasons for Migrating – Education, Labor, and Family

The literature's focus on labor migration has neglected many of the different reasons people move. Men and women migrate for a number of reasons aside from work. People move to attend school, to get married or join family members, or when they have been displaced from their homes. Because the heterogeneous set of policies for obtaining local hukou often treat these moves differently, they provide an important framework for understanding the hukou system's control over population mobility. In the 2000 Chinese census both temporary and permanent migrants were asked to provide a reason for migrating. The list of possible responses includes: manual labor or business, job transfer, job assignment, education or training, demolition of old residence or change of residence, marriage, joining dependents, joining relatives or friends, and other (PCO 2001). Liang and Ma (2004) observed that the most common reasons for migrating were related to work, education, and family. However, when they divided up respondents by gender, age, and local hukou status, they observed distinct profiles of responses from each of these different groups. Temporary intercounty migrants most often responded that they had moved for manual labor, while permanent intercounty migrants tended to move for education. While this was true for both men and women, women were also much more likely to move for social/family reasons such as marriage and joining family members who could provide support. This tendency for women to move for marriage or support from family members was even more stark amongst intracounty migrants (Liang and Ma 2004).

In fact, men rarely listed marriage as a reason for migrating while marriage was the first or second most common reason all types of female migrants gave for moving. Marriage in China has historically been patrilocal. When women get married they join their husband's family and

contribute their labor to the resources of the house in exchange for a bridesprice (Croll 1984). Marriage has traditionally been arranged by matchmakers who have matched men and women from the same village, or villages not too far away, keeping the distance that women moved for marriage short. Recently though some women have begun moving much farther distances for marriage. Many of these women, moving from poor rural areas to more developed regions may be marrying over longer distances as a means of socio-economic mobility in the face of geographic inequality (Fan and Huang 1998).

CHAPTER 2: DATA

The China Health and Nutrition Survey (CHNS) has collected panel data from approximately 4,400 households and 19,000 individuals from 9 provinces and 3 direct-controlled municipalities in nine separate waves in the 22 year period from 1989-2011. The CHNS was designed to look at health behaviors and public health outcomes in the face of socio-economic change in post-reform China. This the longest running longitudinal survey of its type in China, with information about demographic characteristics, sources of household income, assets and other topics including the date and destination of out migrants, and whether previously interviewed individuals were still registered with the household (Popkin et al. 2010). The data were collected by the Carolina Population Center at the University of North Carolina and Chinese Center for Disease Control. The initial sample was drafted using a multi-stage process designed to include urban and suburban neighborhoods as well as rural towns and villages across eight provinces Liaoning, Shandong, Henan, Jiangsu, Hubei, Hunan, Guizhou and Guangxi. Heilongjiang was added in 1997 and Beijing, Shanghai, and Chongqing were added in 2011. A multistage random cluster process was used to select four counties and two cities in each province. Within these, villages, townships, and urban and suburban neighborhoods were selected at random. Finally, twenty households were selected at random in each community and all household members were interviewed. The original sample was collected in 1989 and only interviewed pre-school age children and adults age 20-45. Additional rounds were conducted in 1991, 1993, 1997, 2000, 2004, 2006, 2009, and 2011 with survey teams returning to the same

households and interviewing all household members. While there are no sampling weights and the sample is not nationally representative, the provinces in CHNS are economically and geographically diverse and individual and household characteristics are similar to those in nationally representative datasets (Chen 2005, Chen et al. 2015).

Both individual and household attrition have been moderately low, with an 88% individual follow-up rate and 90% household follow-up rate from wave to wave. Over the course of the study, the size of the sample has been maintained by replacing households lost to a lack of follow up with the addition of households formed by individuals who had been in the initial set of households as well as new households from the same community which had not been previously surveyed. Occasionally entire communities were lost and replaced with a community randomly selected from the same multistage random cluster process used to construct the initial sample. In 1997 the entire Liaoning prince was unable to participate because of flooding and Heilongjiang province was added to the sample. Liaoning province was added back to the sample in the next wave, while Heilongjiang continued to remain in the sample. As of 2009, 216 communities were included in the sample with 36 urban neighborhoods, 36 suburban neighborhoods, 36 towns, and 108 villages (Popkin et al 2010).

Structured household questionnaires in each wave collected information on household demographics, assets, work activities and income, and other household data. From 1991 on, individual questionnaires were administered to all household members asking questions about time use, personal demographic history, and labor force participation. Household members provided individual data on dietary, body composition, blood pressure, health history, and health-related behaviors. Detailed individual and household food consumption was monitored and collected over a three day period for all participants. While the detailed consumption data are

not used in this paper, they represent a high cost to participating in the survey which may have impacted attrition. A community level questionnaire administered to a knowledgeable respondent in the community collected community level data in each wave providing information on infrastructure, public services and amenities, and population.

Previous migration publications using data from the CHNS have looked at migration selectivity and the impacts of migration on families and communities, mostly relating to health. Notable results from CHNS include contributions to migration decision-making in light of family health and risks (Giles and Mu 2007, Ward and Shively 2011), migration and health selectivity (Tong and Piotrowski 2012), and the impacts of migration on left-behind family members' health outcomes and time-use (Chen et al. 2015, Chang et al. 2011). This study is the first study using CHNS data to explicitly account for both temporary and permanent migrants. By comparing the determinants of whole-household attrition to the determinants of migration, I also help contribute to the understanding of the relationship between migration and attrition in CHNS.

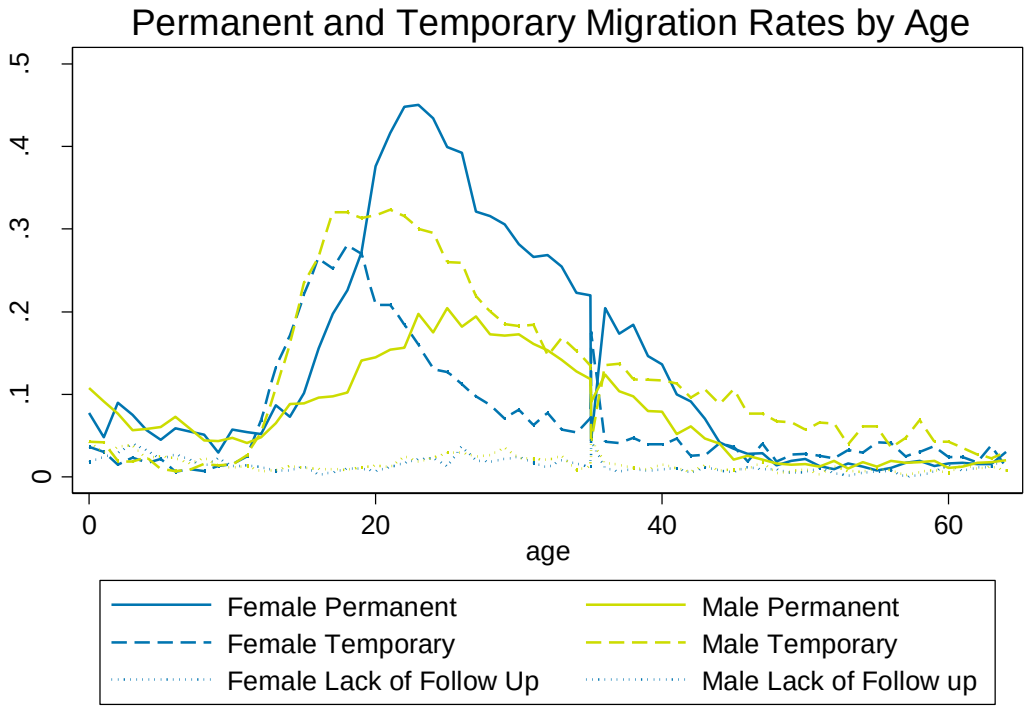
Constructing a Person-period Dataset

This project uses data from the 1991 through 2011 waves of CHNS to construct an event history analysis of both temporary and permanent migration. Predictors from one wave are used to project the likelihood of migrating by the next wave. A person-period dataset was constructed, with observations being merged on the individual for each period. Periods were defined as the time between one wave and the subsequent wave. Each person-period contained individual, household, and community level predictors collected at the beginning of the period, wave *t*, and

migration outcomes (a four-part categorical variable with values - non-migrant, permanent migrant, temporary migrant, and lack of follow up) collected at wave *t+1*, the end of the period.

The first wave, 1989, was excluded from the analysis due to concerns about the consistency of data collection compared with future waves. We restricted our sample to individuals who were age 15-39 at the start of the period, the ages at which most migration occurs, and migration rates were highest (see Figure 1). Since this is a survival analysis,

Figure 1



individuals also needed to be living in the household at the start of the period. Individuals who died over the period were excluded from the sample. Individuals who left the household, but did not leave the village or township were counted as non-migrants and excluded in subsequent panels. Individuals whose communities were not revisited in the following wave were excluded

for that wave. This was relevant for many communities throughout the survey, most notably in 1997 when the entire province of Liaoning was left out of the sample, only to be re-included in the year 2000. In total 25,193 individual person-periods were included over the study period.

Migration outcomes were constructed from questions asked on the household questionnaire. In each wave the head of the household was asked questions about each household member on the previous household roster as well as any new household members. Two questions were used to capture permanent and temporary migration. Permanent migrants were defined as those individuals who were in the household in the previous wave but were no longer registered in the household during the following wave and had neither died nor stayed within their township or village. Temporary migrants were defined as those individuals who were in the household in the previous wave and were still registered in the household, but were not currently living in the house and had been gone for a period of one month or more. Individuals were designated as providing a "lack of follow up" if they were found to be missing at the end of the period and an effort had been made to re-interview their household.

Individual, household, and community level measures of socio-economic and demographic factors were constructed as predictors for each person-period. Individual-level predictors included age, gender, whether or not the individual was in school, highest level of educational attainment, and relation to the head of household. Household-level measures of consumer and commercial assets, household size, whether the household had a female head, the percent of women and adults of working age in the household, and temporary and permanent household migration experience were included, as was a community-level measure of urbanicity. A wave indicator was included to control for national-level change over the course of the study period. Assets were used as measures of household socioeconomic status that was more

consistent year to year than income and could be divided into consumer and commercial assets, which have been shown to interact with migration differently (De Brauw and Rozelle 2006, Mendola 2012, Garip 2014). Asset indices were constructed using principal component analysis (Filmer and Pritchett 2001). The first two components, which were found to correspond respectively to consumer and commercial assets, were used in the analysis. Efforts were made to impute the values of missing covariates including, age, educational attainment, relation to the head of household, whether the individual was in school, household assets, and household size. Missing values for age, educational attainment, relation the head of household, household assets, and household size were all imputed to be the median value for these variables. Whether or not an individual was in school was imputed to be true if the individual was younger than 17 and false if the individual was 17 or older. Dummy variables to indicate imputed variables were also included into models and tested for significance. The rates of missing values were at or below 3% for all covariates except education and whether the individual was enrolled in school, which were 10% and 14% respectively.

A Note on Attrition

Many factors contribute to make calculating attrition complicated in CHNS. New households were recruited in later waves and many households and communities which left the sample in one year, rejoined in later years. In one case an entire province left and came back. While attrition has been low from round to round, wave to wave response rates were 88% at the individual level and 90% at the household level, attrition is compounded across waves, and by 2006 only 68.9% of households and 62.9% of individuals in the original sample were still in the

survey. Since event history models look at survival from one wave to the next, wave to wave attrition is the most significant for our analysis. In most cases where individuals have left the household or no longer wish to participate in the survey, household members are able to provide basic demographic information. This still leaves the CHNS vulnerable to whole household attrition, and if whole households migrate, they are lost to a lack of follow up. We therefore include a category for attrition in our dependent variable for migration outcomes in order to explore whether the predictors of migration also influence attrition in our sample. Communities for which no attempt was made to follow up have been left out of our analytical dataset since they did not have the opportunity to be included in the sample.

CHAPTER 3: DESCRIPTIVE STATISTICS

Descriptive statistics for all predictors across the entire population used in the analysis are included in Table 1. Figure 2 shows the rates for permanent migration, temporary migration and lack of follow up throughout the study period. Both permanent and temporary migration increased throughout the study period, while lack of follow up stayed low and relatively

Figure 2

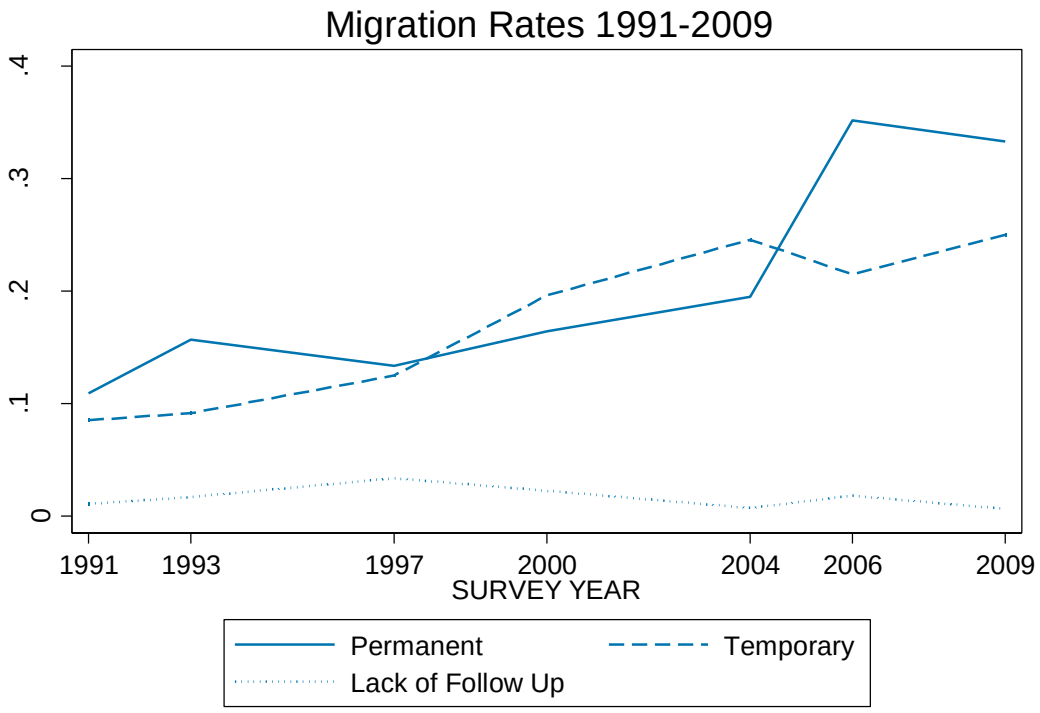


Table 1 - Descriptive Statistics for Predictors

	Total Sample				
	Type	Mean	SD	Min	Max
Individual Variables					
Age	Integer	27.10	7.68	15	39
No Education	Binary	0.08	0.27	0	1
Primary Education	Binary	0.16	0.37	0	1
Lower Middle School Education	Binary	0.52	0.50	0	1
Upper Middle School Education	Binary	0.16	0.36	0	1
Technical Degree	Binary	0.05	0.22	0	1
College Degree	Binary	0.03	0.17	0	1
Head of Household or Spouse	Binary	0.36	0.48	0	1
Child	Binary	0.53	0.50	0	1
Other Household Member	Binary	0.11	0.31	0	1
Female	Binary	0.48	0.50	0	1
In School	Binary	0.13	0.34	0	1
Household Variables					
Household Size	Integer	4.30	1.45	1	12
Female Headed Household	Binary	0.14	0.35	0	1
Percent of Women in the House	Binary	0.50	0.17	0	1
Percent of Dependents in the House	Binary	0.25	0.21	0	1
Percent of Working Age Women in the House	Binary	0.38	0.16	0	1
Consumer Assets	Continuous	5.11	1.78	0.39	9.61
Commercial Assets	Continuous	3.13	1.25	0.00	9.59
Temporary Migration Experience	Integer	0.21	0.55	0	6
Permanent Migration Experience	Integer	0.26	0.69	0	8
Community Variables					
Urbanicity	Continuous	5.37	1.92	1.67	10.65
Wave					
1991	Binary	0.21	0.41	0	1
1993	Binary	0.16	0.37	0	1
1997	Binary	0.13	0.33	0	1
2000	Binary	0.16	0.36	0	1
2004	Binary	0.12	0.33	0	1
2006	Binary	0.13	0.34	0	1
2009	Binary	0.10	0.30	0	1
Observations			25193		

constant. Table 2 shows the migration outcomes for both the total population and broken down by gender, whether the community was rural or urban, and the relationship of the individual to the head of the household. Our study population is largely rural (72.41% rural) and has slightly more men than women (51.73% male, 48.27% female). Rates of permanent migration are similar for rural and urban dwellers, while the rural population is much more likely to engage in temporary migration. Women have much higher rates of permanent migration than men, while temporary migration is the opposite. This matches results from previous studies which have looked at rate of temporary and permanent migration without focusing specifically on labor migration (Liang and Ma 2004). Looking back at Figure 1 we see that temporary migration tends to peak at younger ages than permanent migration for both genders, with temporary migration spiking reaching a peak in the late teens. Temporary migration has a longer tail for men than women though, as female permanent migration takes off in the early twenties as women enter ages of marriage. These results suggest a different set of circumstances and behaviors surrounding male and female migrants, which will be investigated further in a gender-stratified model.

Table 2 - Migration Outcomes 1991-2009

	Non-Migrant	Permanent	Temporary	Lack of Follow Up	Total
Gender					
Male	9,559 (73.35%)	1,209 (9.28%)	2,039 (15.65%)	225 (0.02%)	13,032
Female	8,995 (73.97%)	1,893 (15.57%)	1,117 (9.19%)	156 (1.28%)	12,161
Rural/Urban					
Urban	5,474 (78.76%)	928 (13.35%)	434 (6.24%)	114 (1.64%)	6,950
Rural	13,080 (71.7%)	2,174 (11.92%)	2,722 (14.92%)	267 (1.46%)	18,243
Relation to Head of Household					
Head/Spouse	8,598 (94.02%)	91 (1%)	397 (4.34%)	59 (0.65%)	9,145
Child	8,084 (60.75%)	2,558 (19.22%)	2,441 (18.34%)	224 (1.68%)	13,307
Other Relation	1,872 (68.3%)	453 (16.53%)	318(11.6%)	98 (3.58%)	2,741
Total Population	18,554 (73.65%)	3,102 (12.31%)	3,156 (12.53%)	381 (1.51%)	25,193

CHAPTER 4: MODELS AND RESULTS

To examine the predictors of migrating between waves I estimate two sets of multinomial logistic regression models to perform discrete-time event history analyses (Allison, 1984). The dependent variable is the four category migration outcomes variable described above with one equation for each categorical outcome beyond the reference outcome of not migrating. These three equations take the following form, where the log odds of observing a given migration outcome relative to not migrating are:

$$log(\frac{\pi_{rit}}{\pi_{sit}}) = \beta_r X_{it}$$

where π_{rit} is the odds of migration outcome *r* for individual *i* at time *t*,π_{sit} is the odds of the reference outcome, X_{it} is a vector of predictors, and β_r is a vector of parameters for the effects of the predictors on migration outcome *r*. Errors were clustered at the community level to account for the use of community level variables and the non-independence of households within the community (Angeles et al. 2005).

I first estimated a multinomial model to look at migration outcomes for the entire study population using all predictors. The results of this model are presented in Table 3 with the coefficients presented as odds ratios, the change in odds of that form of migration relative to no migration for a unit increases in the predictor. The predictors of temporary and permanent migration display many similarities. Both temporary and permanent migrants are most likely to

Table 3 - Multinomial Logistic Model of Migration Outcomes

	Permanent Migants		Temporary Migants		Lack of Follow up	
Individual Variables						
Ages 15-19	0.44	***	1.07		0.33	***
Ages 25-29	0.83	*	0.54	***	1.63	**
Ages 30-34	0.54	***	0.46	***	1.63	*
Ages 35-39	0.60	***	0.43	***	1.32	
Primary Education	1.05		1.87	***	1.16	
Lower Middle School Education	1.24	*	1.99	***	1.17	
Upper Middle School Education	1.70	***	2.02	***	1.25	
Technical Degree	2.01	***	2.27	***	0.67	
College Degree	2.54	***	2.61	***	0.76	
Head of Household or Spouse	0.04	***	0.33	***	0.32	***
Other Household Member	0.54	***	0.71	***	1.61	**
Female	2.76	***	0.77	***	0.78	*
In School	0.76	***	0.84	*	1.55	+
Household Variables						
Household Size	1.12	***	1.03		1.27	***
Female Headed Household	0.95		0.95		0.61	*
Percent of Women in the House	0.70		0.90		0.22	*
Percent of Dependents in the House	0.56	*	1.16		0.81	
Percent of Working Age Women in the House	1.03		0.98		2.80	
Consumer Assets	1.00		0.91	***	0.97	
Commercial Assets	0.86	***	0.88	***	1.05	
Temporary Migration Experience	1.17	***	1.33	***	1.33	**
Permanent Migration Experience	1.20	***	1.06	+	1.24	**
Community Variables						
Urbanicity	0.95	+	0.83	***	1.04	
Wave						
1993	1.83	***	1.32	*	2.86	***
1997	1.53	***	2.24	***	7.52	***
2000	2.45	***	4.69	***	5.51	***
2004	1.38	*	4.67	***	1.44	
2006	1.78	***	4.60	***	3.11	**
2009	1.24		5.40	***	0.72	

25193 Observations. Reference Categories Include: Age 20-24, No Education, 1991 Wave, and Child of the Household Head

+ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

migrate in periods beginning when they are between the ages of 20 and 24. The likelihood of migration spikes in this period and then declines rapidly for future age groups. Teenagers are less likely to become permanent migrants than their 20-24 year-old counterparts. For the purpose of interpretation, it is important to note that periods are defined as the time-span between waves and that values collected at the beginning of the period are predicting migration outcomes two to four years later. This means that a person who is age 17 at the beginning of the period may be 19-21 when migration outcomes are measured.

Educational attainment increases the odds of both temporary and permanent migration, although the degree to which it does so varies for each type of migration. Any education greatly increases the likelihood of temporary migration with slightly larger effects as the level of educational attainment increases, while the likelihood of permanent migration only begins to increase at higher levels of educational attainment beginning in upper middle school. This suggests that in many cases the barrier to entry for permanent migration opportunities may be higher than for temporary migration opportunities. Being in school at the beginning of the period reduces the likelihood of both permanent and temporary migration, but the effect is smaller and less significant effect for temporary migration. Children were the most likely members of a household to migrate and while heads of household and their spouses were less likely to migrate both permanently and temporarily, and permanent migration for heads and spouses was much less likely.

Household size and composition, the percentage of dependents, women, and working age women in the house, as well as whether or not the household had a female head, had no effects on migration, aside for a small increase in permanent migration from household size. Household commercial assets reduced the odds of both temporary and permanent migration. These assets

may increase the demand for household labor and act as a deterrent to migration. Consumer assets also reduce the odds of temporary migration, but show no significant effect on permanent migration. Temporary and permanent migration display major differences with regards to gender and network effects. Women are nearly 3 times more likely to become permanent migrants than men, and men are about 30% more likely to become temporary migrants than women. Household temporary migration experience increases the odds of both permanent and temporary migration, but has a stronger effect on temporary migration. Household permanent migration experience only increases the odds of future permanent migration.

While the predictors of lack of follow up were mostly dominated by wave effects and the presence of missing predictors (not shown), there were some similarities to the predictors of migration. Household migration experience slightly increased the odds of lack of follow up suggesting that one of the stronger household level predictors of migration increased the odds that a household would be lost in future waves.

I then estimated a pair of multinomial models stratified by gender to look at the impact of predictors on migration outcomes for women and men separately. These are presented in Table 4. While there are still similarities between the predictors for each gender, there are also clear differences in the selection of male and female migrants.

Many findings from the first model are slightly different in the gender stratified model. Temporary migration continues to peak for both genders from ages 20-24, but permanent migration only peaks for women. Men who begin the period in their teens are less likely to migrate permanently, but there are no significant differences for other ages. Higher educational attainment continues to increase the odds of temporary and permanent migration for both men and women, however the effects on permanent migration are much stronger for men than women

Table 4 - Gender Stratified Multinomial Logistic Model of Migration Outcomes	Women			Men		
	Permanent Migants	Temporary Migants	Lack of Follow up	Permanent Migants	Temporary Migants	Lack of Follow up
Individual Variables						
Ages 15-19	0.33 ***	0.97	0.43 *	0.56 ***	1.07	0.30 ***
Ages 25-29	0.72 **	0.43 ***	1.26	1.18	0.64 ***	1.87 **
Ages 30-34	0.41 ***	0.42 ***	1.51	0.90	0.51 ***	1.59 +
Ages 35-39	0.38 ***	0.34 ***	0.97	1.16	0.50 ***	1.56
Primary Education	1.01	1.76 **	1.48	1.32	1.81 ***	0.87
Lower Middle School Education	1.22	2.09 ***	1.33	1.58 **	1.75 **	0.98
Upper Middle School Education	1.69 ***	2.06 ***	1.60	2.04 ***	1.76 **	0.99
Technical Degree	1.62 **	2.04 **	0.56	2.99 ***	2.08 ***	0.66
College Degree	1.82 **	2.28 **	1.30	3.72 ***	2.42 **	0.45
Head of Household or Spouse	0.03 ***	0.17 ***	0.46 *	0.06 ***	0.50 ***	0.28 ***
Other Household Member	0.38 ***	0.63 ***	2.00 *	1.54 *	0.73 *	1.45
In School	0.59 ***	0.89	1.31	1.09	0.80 **	1.72 +
Household Variables						
Household Size	1.16 ***	1.08 *	1.30 ***	1.10 **	1.01	1.24 ***
Female Headed Household	0.98	1.04	0.71	0.91	0.95	0.56 *
Percent of Women in the House	0.95	0.97	0.25 +	0.51 +	0.90	0.20 *
Percent of Dependents in the House	0.49 *	1.38	0.56	0.51 +	0.70	0.82
Percent of Working Age Women in the House	1.01	0.84	1.34	0.54	0.50 +	4.23
Consumer Assets	0.98	0.89 **	0.90	1.02	0.92 **	1.01
Commercial Assets	0.89 ***	0.87 ***	1.02	0.83 ***	0.89 ***	1.05
Temporary Migration Experience	1.23 ***	1.40 ***	1.70 ***	1.11	1.32 ***	1.04
Permanent Migration Experience	1.29 ***	1.10	1.34 **	1.13 **	1.05	1.17 +
Community Variables						
Urbanicity	0.90 ***	0.83 ***	1.13 +	1.00	0.83 ***	0.99
Wave						
1993	2.39 ***	2.08 ***	4.72 ***	1.36 *	1.01	2.10 *
1997	2.00 ***	3.66 ***	12.11 ***	1.20	1.72 ***	5.71 ***
2000	3.63 ***	7.09 ***	6.87 ***	1.76 ***	3.81 ***	4.81 ***
2004	1.56 **	6.71 ***	2.56 +	1.23	3.93 ***	0.95
2006	2.33 ***	6.23 ***	5.02 ***	1.34	3.96 ***	2.20 +
2009	1.78 **	6.82 ***	0.99	0.84	4.81 ***	0.59
Observations		12161			13032	

Reference Categories Include: Age 20-24, No Education, 1991 Wave, and Child of the Household Head

+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

and start at lower levels of education. Heads and their spouses continue to be at a reduced risk of migrating, but female heads/spouses are much less likely to migrate temporarily than male heads/spouses who migrate somewhat regularly. Household size continues to have a weak positive influence on migration for both genders. Commercial assets still reduce the likelihood of both types of migration equally, and the effect of consumer assets on temporary migration is similar for bother men and women.

In the gender stratified model, it becomes clear that household migration experience has very different effects for men and women. For men, household migration experience is segregated; access to temporary household migration experience increases the odds of temporary migration, and permanent household migration experience increases the odds of permanent migration, but neither affects the other. For women access to permanent household migration experience is similar to men, and increases the likelihood of permanent migration with no effect on temporary migration. However, temporary household migration experience increases the likelihood that women will migrate both temporarily and permanently in the future. This suggests that there is either a difference in the type of social capital available to men and women from temporary migration experience or there is a difference in their ability to apply this information to permanent migration.

In order to better describe the process of permanent migrants I estimated an ordinal logistic regression model for the distance that permanent migrants moved. Ideally I would have examined the distance of moves for temporary migrants as well, but this information was only available for permanent migrants. Distance serves both as a metric in its own right as well as a proxy for the different opportunities available to migrants in their destination. Migrants who traveled different distances have been shown to give substantially different sets of reasons for

Table 5 - Ordinal Logit Model of Migration Distance for Permanent Migrants

	Destination Distance	
Individual Variables		
Ages 15-19	1.83	***
Ages 25-29	0.86	
Ages 30-34	1.06	
Ages 35-39	0.71	+
Primary Education	0.87	
Lower Middle School Education	0.89	
Upper Middle School Education	0.96	
Technical Degree	0.73	
College Degree	0.95	
Head of Household or Spouse	1.78	*
Other Household Member	1.10	
Female	0.63	***
In School	1.91	***
Household Variables		
Household Size	1.00	
Female Headed Household	1.06	
Percent of Women in the House	1.07	
Percent of Dependents in the House	0.29	**
Percent of Working Age Women in the House	0.42	
Consumer Assets	1.03	
Commercial Assets	0.87	**
Temporary Migration Experience	0.97	
Permanent Migration Experience	0.88	*
Community Variables		
Urbanicity	1.10	*
Wave		
1993	1.40	*
1997	1.93	***
2000	1.73	***
2004	2.04	***
2006	1.43	+
2009	1.60	*

2943 Observations. Reference Categories Include: Age 20-24, No Education, 1991 Wave, and Child of the Household Head

+ $p<0.10$, * $p<0.05$, ** $p<0.01$, *** $p<0.001$

migrating (Liang and Ma 2004). Migrants who moved shorter distances, staying within their own county, were found to be much more likely to list social reasons such as marriage or joining family members as their reason for migrating in the 2000 census, while over 50% of intercounty migrants listed work related reasons for moving (Liang and Ma 2004).

Distance was derived from a question about where permanent migrants were at the time of the survey which had categorical outcomes for staying in the same county, same prefecture, same province, or leaving the province. Predictors were the same as before. The model was run for both the whole sample and stratified by gender. Results were similar for the gender stratified model and the full sample model. The full sample model is shown in Table 5.

There are two major findings from this model. The first is that women are less likely to move far away than men. This bears itself out with descriptive statistics as well. 43.48% of women stay within their county, compared to only 30.96% of men. The rate of male permanent migrants leaving their home province (22.28%) is nearly twice the rate for women leaving their province (11.26%). If shorter moves are associated with family and socially-driven migration, it's possible that this is a sign that female permanent migrants are making more mover for family/social reasons than their male counterparts. This is also consistent with Liang and Ma 2004's tabulations of reasons for female permanent migration. Liang and Ma found nearly half the female permanent moves were related to family reasons including marriage, joining dependents, or joining relatives.

Second, while both being in school and being between the ages of 15 and 19 reduced the likelihood of migrating permanently in our earlier models, it appears those individuals move farther when they do migrate. Liang and Ma found that nearly 40% of interprovincial permanent migrants listed education as their reason for migration. These predictions seem to support that

result, as permanent migrants who were in school at the beginning of the period are likely to be continuing their education.

CHAPTER 5: DISCUSSION AND CONCLUSION

The main objective of this paper has been to determine the differences between the predictors of Chinese temporary and permanent migration. I find that temporary and permanent migrants are part of two distinct migratory flows, with different sets of structural forces motivating participation in each. I also argue that gender plays a central role in understanding the effects of the hukou system on migration. Much of the previous research on migration and hukou has either lumped female movers together with men as labor migrants, or ignored them entirely. This approach neglects the different reasons why women move and the different socio-cultural context in which they do so.

The findings indicate that temporary and permanent migration by men and women are distinct processes. The differential effects that age, education, and social capital have for male and female migrants are representative of the distinct reasons that men and women move and the different social, economic, and institutional constraints they face when they do so. The segregation of temporary and permanent migrant social capital for men in particular supports the hypothesis that temporary and permanent migration consist of separate flows. That migrant social capital is not transferable to different types of migration for men suggests that temporary and permanent migration experiences are distinct enough from each other that social capital and information relating to either one is not helpful for the other.

On the other hand, women are more likely to migrate permanently regardless of whether the migrants they know migrated temporarily or permanently. The result that social capital

operates differently for men and women is an important result. While gender differences in the importance of social networks has been shown in Mexico and Thailand (Curran and Rivero-Fuentes, Curran et al. 2005) this represents a new finding in the Chinese context. While male migrants move mostly for work and education, women move for work and education as well as social and family reasons, such as marriage or family reunification (Liang and Ma 2004, Roberts 2002). Marrying into the community has traditionally been one of the easiest ways to obtain local hukou. While marriage moves have traditionally been over short distances to nearby villages, recently some women have begun to migrate longer distances for marriage (Fan and Huang 1998), and in some case studies labor migration may play a role in expanding long distance marriage opportunities (Fan and Li 2002). Given the context of our study, I suggest that women who are able to use their migrant connections to make permanent moves may be doing so by expanding their network of potential marriage partners outside of local contexts.

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