

Destination Choices of Permanent and Temporary Migrants in China, 1985–2005

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ABSTRACT

Previous studies on internal migration in China have failed to capture both the heterogeneity of migratory behaviours and migration processes and the rapidly changing migration circumstances. Using microdata from China's 1990 population census and the 1% population sample survey of 2005, this paper examines whether and how destination choices differ between permanent migrants (with *hukou* at the destination) and temporary migrants (without *hukou* at the destination) and how such differentials change between 1985 and 2005. We use the conditional logit model to gauge the effect of the economic transition and *hukou* reforms and employ the mixed model to study how *hukou* restrictions are intertwined with migrants' socio-economic status to influence the destination choices. Temporary migrants are found to be increasingly concentrated in southeast coastal provinces with better employment opportunities, whereas permanent migrants tend to move in the opposite direction, to south-central and south-western provinces with a low entry barrier and numerous return migrants. Modelling results reveal that over time, both types of migrants are increasingly responsive to interregional wage differentials, and that the *hukou* system continues to matter in shaping destination choices. Moreover, the localisation of the *hukou* regulation and the commodification of *hukou* in recent years have resulted in an increased concentration of highly skilled migrants relative to low-skilled migrants in the most prosperous regions. Our findings suggest that state intervention is still

intertwined with market mechanism to influence migration in reform-era China, and that the state should not be seen as a unitary entity when understanding recent *hukou* reforms. Copyright © 2015 John Wiley & Sons, Ltd.

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Keywords: migration destination choices; household registration reform; economic transition; permanent migrants; temporary migrants; China

INTRODUCTION

The economic reform since the late 1970s has brought about an unparalleled surge of migration in China. The massive influx of rural migrants to cities has substantially elevated the proportion of urban population in China from 17.9% in 1978 to 51.3% in 2011 (Chan, 2012). Most of these rural–urban migrants still register their residency to their rural place of origin and are viewed as 'floating population', although they may have resided in their current host cities for years. While governments in China at all levels have initiated a series of reforms on the household registration (*hukou*) system, the *hukou* system remains powerful in denying rural migrants working and living in the city 'urban citizenship' (Chan & Buckingham, 2008; Sun & Fan, 2011; Zhang & Tao, 2012). Many researchers of China have so far argued the *hukou* status as an important factor shaping individuals' opportunities and well-being in a city (e.g. Fan, 2002; Chan & Buckingham, 2008). Nevertheless, with a few exceptions such as Chan *et al.* (1999), little research has been carried out to investigate how the *hukou* system mediates or constrains migration decisions

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and destination choice, and little effort has been devoted to examining how the effect of such institutional constraints changes over time.

Students of migration studies in China have examined the spatial patterns and determinants of internal migration by using various modelling approaches. Previous studies are mostly based on the macro-level analysis of aggregate migration flows (Shen, 1999, 2012; Li, 2004; Fan, 2005b), which may conceal the heterogeneity of migratory behaviours and migration processes. A few studies have probed into migration decisions and destination choices by using micro-level data analysis (Ma *et al.*, 1996; Liang & White, 1997; Liu & Shen, 2014). Nevertheless, these studies are based on cross-sectional data collected at a single point in time and consequently may fail to capture the rapidly changing migration circumstances in China. Therefore, a microdata analysis of migration decisions and destination choices at multiple time points may improve our understanding of the determinants and processes of internal migration in China.

Using microdata from China's 1990 national population census and 1% national population sample survey of 2005, this paper aims to investigate how destination choices differ between permanent migrants and temporary migrants and how such differentials have changed between 1985 and 2005. It particularly focuses on the effect of the economic transition and the *hukou* reform on the destination choices and how the *hukou* restrictions are intertwined with the socio-economic status of migrants themselves to influence the destination choices. It contributes to the existing literature on internal migration in China by simultaneously analysing both contextual and individual factors influencing the decision-making process related to migration and by situating these factors within an understanding of the changing migration circumstances and processes.

The next section provides an overview of the economic transition and the *hukou* reform in the post-reform era and their impacts on China's internal migration. This is followed by a clarification of the data and methods used in the analysis. After a descriptive account of the spatial patterns of permanent and temporary migration, we examine the factors underlying the destination choice of permanent and temporary migrants by using the conditional logit model and the mixed model. The paper concludes with a summary of key findings and a discussion of implications.

LITERATURE REVIEW

In contrast to self-initiated migration within capitalist market economies, migration within the socialist or transitional context is more subject to state regulation and less determined by the market mechanism and the choice of migrants themselves (Fan, 1999, 2002). In pre-reform (pre-1978) China, self-initiated migration was extremely constrained, as jobs, food, housing, and other necessities in cities were controlled by the state and were allocated based on recipients' *hukou* status (Chan & Zhang, 1999; Chan *et al.*, 1999; Fan, 1999). Therefore, people were bound to the place of residence registration by the *hukou* system, and they could not survive if they moved without the permission of the state.

The economic reforms since 1978 have given Chinese people impetus to undertake interregional or rural-urban migration induced by imbalanced regional development (Fan, 2005a; Shen, 2013). Owing to preferential governmental policies, large inflows of foreign investment and rapid development of non-state sectors, the coastal regions, especially the southeast coastal provinces, have subsequently experienced rapid industrialisation and urbanisation (Fan, 1995; Wei, 1999). The dramatic growth of labour-intensive and export-oriented manufacturing sectors as well as urban service and construction sectors has generated tremendous demand for cheap labour in coastal cities (Liang & White, 1997; Ma, 1999; Shen, 1999). Meanwhile, the improvement of agricultural productivity has led to the increasing magnitude of a rural surplus labour force (Shen, 1995; Xu & Tan, 2001). These push and pull forces along with the newly emergent urban labour market have triggered the surge of economy-driven migration in China.

While Chinese people are increasingly willing to move from rural to urban areas and from less developed to more developed areas for economic opportunity and betterment, they also gain increasing autonomy to make their own decisions. Having recognised that the strict migration control was not compatible with the rapid industrialisation and the emerging labour market, the state began to relax migration controls in the mid-1980s (Chan & Zhang, 1999; Solinger, 1999). A series of changes have been made by the government to the *hukou* system to promote population migration in China. For instance, the central state started to approve rural migrants to

work and live in cities with a 'temporary residence permit' in 1985, and it launched a nationwide programme to grant urban *hukou* in towns and small cities to eligible rural migrants in 2001. However, despite the relaxation of migration restrictions, the *hukou* system still influences one's opportunities in the city and determines one's access to welfare and services provided by the city government. Some scholars even argue that the *hukou* system remains a powerful gatekeeper that prevents rural migrants from settling down permanently in the city (Chan & Buckingham, 2008; Sun & Fan, 2011).

The economic transition and the relaxation of migration restrictions have resulted in a two-track migration system in the transitional era (Chan *et al.*, 1999; Fan, 2002; Sun & Fan, 2011). Some scholars have classified migrants into two categories: permanent migrants (or *hukou* migrants) and temporary migrants (or non-*hukou* migrants) (Chan *et al.*, 1999; Fan, 2002). Permanent migrants are officially approved and granted local *hukou* status, while temporary migrants are considered outsiders and officially denied local urban citizenship. Previous studies have indicated that permanent migrants are privileged and competitive in the urban labour market, while temporary migrants are inferior socially and institutionally (Fan, 2002; Sun & Fan, 2011). The dualism between permanent migration and temporary migration is the starting point to understand the migration system in our research.

The latest *hukou* reform since the late 1990s has led to the localisation of *hukou* management and the commodification of the *hukou* status (Chan & Buckingham, 2008; Zhang, 2010). The power to set admission criteria and quota for annually granted *hukou*, which used to be controlled by the central government, has been fully devolved to local governments. As *hukou* is still linked to the welfare and services provided by the local government, the local *hukou* status of large cities such as Beijing and Shanghai is definitely more valuable and more costly than that of smaller cities and towns (Zhang & Tao, 2012). Furthermore, the fiscal decentralisation and the development-oriented goals of local governments have made granting the local *hukou* status into an instrument to boost the local economy and increase local revenues (Zhang, 2010). For this reason, the permanent citizenship of large cities has become easier to obtain for skilled and entrepreneurial

migrants, whereas the barrier to entry of these cities is still insuperable for unskilled and poor rural migrants (Zhu, 2007; Chan & Buckingham, 2008; Zhang & Tao, 2012). Such selective relaxation of the *hukou* system is mainly due to the municipal government's aspirations of boosting economic growth and limiting social responsibilities (Zhang, 2010).

This paper attempts to unravel the impact of the aforementioned dramatically changing economic and institutional settings on internal labour migration during the period 1985–2005. Several working hypotheses are proposed to guide the empirical analysis of this paper. First, with the development of the market economy and the relaxation of migration control, imbalanced regional development and individual economic rationality may play an increasingly important role in migration decision-making processes over time. Second, as China's government has intensified the reform of the *hukou* system, the difference between permanent and temporary migrants in terms of destination choices is expected to narrow. Furthermore, against the backdrop of the devolution of *hukou* regulation and fiscal decentralisation, *hukou* controls may become more relaxed for highly skilled migrants but still be stringent for low-skilled migrants in large cities, while such restrictions may become more relaxed not only for highly skilled migrants but also for low-skilled migrants in less developed regions.

DATA AND METHODOLOGY

Our data mainly came from the microdata samples of the 1990 population census (hereafter, 1990 Census) and the 1% population sample survey of 2005 (hereafter, 2005 Survey). The 1990 Census sample and 2005 Survey sample contain 11,835,947 and 2,585,481 individual records, accounting for 1.05% and 0.20%, respectively, of the total population in China. In both datasets, a migrant is considered as a person whose usual place of residence on the date of enumeration is different from 5 years ago. Only interprovincial migrants were considered in this analysis as information on intra-provincial migration was not available in the 2005 dataset. This paper only considered migrants who on the census/survey day were aged 15–64 years and economically active, excluding retirees, students, housewives/househusbands, the disabled, and so on. We further restricted the sample to rural–urban and urban–urban migrants by

excluding those whose primary occupation was agricultural occupation within 1 week prior to the census/survey day. We divided the city-ward labour migrants into permanent migrants and temporary migrants (Sun & Fan, 2011). Permanent migrants are those whose place of *hukou* at the city/county level is the same as their place of usual residence on the date of enumeration, and temporary migrants otherwise. Our dataset eventually included 62,596 observations (23,874 permanent migrants and 38,722 temporary migrants) in 1985–1990 and 72,099 observations (3,134 permanent migrants and 68,965 temporary migrants) in 2000–2005.

This paper focuses on 30 province-level units in mainland China (Fig. 1). For the sake of simplicity, the term ‘province’ refers to the various kinds of province-level units throughout the paper. Tibet was omitted from the analysis because of the unavailability of migration data. It should be noted that Chongqing was separated from Sichuan in 1997. In order to make both datasets comparable, we combined Sichuan with Chongqing throughout

the analysis. The results of our analysis were weighted to ensure every province had the same sampling ratio.

This paper analysed the factors underlying migration destination choices based on the random utility maximisation framework (Cadwallader, 1989; Davies *et al.*, 2001). Specifically, 28 potential destination provinces in China can be considered a set of alternatives for potential migrants, and each migrant is assumed to have the preference over these 28 alternatives. The probability of choosing one specific province hinges on the attributes of possible destinations and the characteristics of migrants themselves. The utility of choosing province j for individual i can be specified as follows:

$$U_{ij} = \beta'x_{ij} + \alpha'z_i + \varepsilon_{ij}, j = 1, \dots, 28 \quad (1)$$

where x_{ij} contains the attributes of the possible destination, z_i contains the characteristics of the individual, β and α represent the coefficients for destination-specific variables and individual-

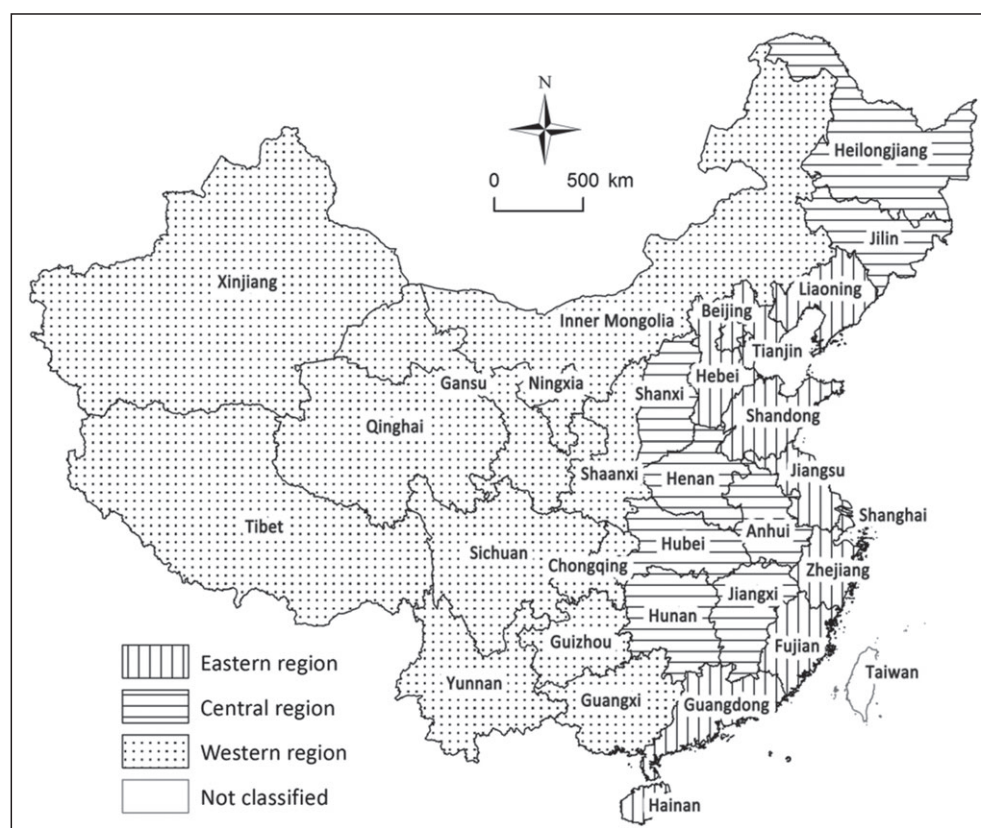


Figure 1. The provinces and regions of China.

specific variables, respectively, and ε_{ij} represents a set of random errors. Individual i will choose destination j on the condition that the utility of destination j (U_{ij}) exceeds that of any other destination (U_{ik}):

$$P_{ij} = \Pr[U_{ij} > U_{ik}] \quad \forall k, \text{ where } k = 1, \dots, 28, k \neq j \quad (2)$$

This study applied the **conditional logit model** to analyse how a potential migrant chose his or her final destination based on the attributes of possible destinations (McFadden, 1974; Long & Freese, 2005). Assuming the disturbance ε_{ij} are independently and identically distributed with the Weibull distribution, the probability of individual i choosing province j is given by:

$$P_{ij} = \exp(\beta'x_{ij}) / \sum_{j=1}^{28} \exp(\beta'x_{ij}) \quad (3)$$

We also used the **mixed model**, which combined the conditional logit model and the multinomial logit model to fit how the choice among possible destinations is affected by the characteristics of both alternatives (i.e. possible destinations) and individuals (i.e. migrants) (Long & Freese, 2005). The probability of individual i choosing province j is given by:

$$P_{ij} = \exp(\beta'x_{ij} + \alpha'z_i) / \sum_{j=1}^{28} \exp(\beta'x_{ij} + \alpha'z_i) \quad (4)$$

In order to use the aforementioned models, we converted the individual-specific data to alternative-specific data (Long & Freese, 2005). In the models, the dependent variable was coded one if the province was selected by a migrant as the final destination and zero otherwise. The independent variables are listed in Table 1. We carried out a Variance Inflation Factor (VIF) test and found no evidence of multi-collinearity in the set of independent variables. The gravity variables included the total population at the destination (POP) and migration distance between the origin and the destination (DIST) (Greenwood, 1975). Average annual wage (WAGE), GDP annual growth rate (GDPGROW) and foreign direct investment per capita (FDIPER) were used to capture the effect of employment opportunities and were expected to have positive coefficients (Greenwood, 1975; Davies *et al.*, 2001; Fotheringham *et al.*, 2004). Two control variables, the cost of living (COST) and

migration stock (MSTOCK), were included in the models. The former may have a deterrent effect on in-migration, while the latter is a proxy for social networks and is expected to have a positive impact on in-migration (Greenwood, 1969; Fan, 2005b; Gottlieb & Joseph, 2006). Given that destination choice is normally based on the comparison between potential destinations and the origin, the variables of WAGE, GDPGROW, FDIPER, and COST took the form of the ratio of destination-to-origin.

To capture unobservable regional attributes (e.g. amenities and the barrier to entry) that affect migrants' destination choices, a set of regional dummy variables for potential destinations were adopted (Davies *et al.*, 2001; Gottlieb & Joseph, 2006; Dennett & Stillwell, 2010; Stillwell & Dennett, 2012). These dummy variables function as constant terms in the conditional logit model (Davies *et al.*, 2001). Theoretically, we can create 27 regional dummies. However, this will lead to the failure of model convergence and the problem of severe multi-collinearity because of a large number of parameters to be estimated and a high correlation between these dummy variables and our observable destination-specific variables. For this reason, we combined some provinces with similar geographical, economic, and cultural characteristics, thus creating a total of nine regional dummies, with Beijing as the omitted choice. Beijing, Shanghai, Tianjin, and Guangdong were separate from other coastal provinces because they have played a prominent role in absorbing migrants from elsewhere over the past 30 years (Liu *et al.*, 2014).

A series of variables related to age (with those aged 15–29 years as the reference group), education (with those with junior high school education or below as the reference group), and occupation (with those with industrial/commercial occupation as the reference group) were used to capture the variation of destination choices among migrants with different individual characteristics. Note that these individual-specific variables must be interacted with regional dummy variables in the mixed model because individual characteristics are constant across destination choices.

The demographic and socio-economic characteristics of migrants in our analysis are summarised in Table 2, which indicates substantial differences between permanent migrants and temporary migrants in terms of their socio-economic status. While permanent migrants were more concentrated in the education level of college or above,

Table 1. Description of independent variables in the models.

Variable	Description
Regional attributes	
POP	Total population at the destination in 1987 and 2000 (in log) ^{a,b}
DIST	Railway distance between the origin and the potential destination (km, in log) ^c
WAGE	Average annual wage in 1985 and 2000 (the ratio of destination to origin) ^d
GDPGROW	GDP annual growth rate in 1980–1990 and 1995–2005 (the ratio of destination to origin) ^d
FDIPER	Foreign direct investment per capita in 1985 and 2000 (the ratio of destination to origin) ^d
COST	Proportion of living expenses to income of urban household in 1985 and 2000 (the ratio of destination to origin) ^e
MSTOCK	Percentage of persons born in the origin and living in the destination in the total population in the destination in 2000 (%) ^b
SH	=1 if potential destination is Shanghai
TJ	=1 if potential destination is Tianjin
GD	=1 if potential destination is Guangdong
NCOAST	=1 if potential destination is Liaoning, Hebei, or Shandong
SCOAST	=1 if potential destination is Jiangsu, Zhejiang, Fujian, or Hainan
NCENT	=1 if potential destination is Jilin or Heilongjiang
SCENT	=1 if potential destination is Hunan, Jiangxi, Hubei, Anhui, Henan, or Shanxi
NWEST	=1 if potential destination is Shaanxi, Gansu, Ningxia, Inner Mongolia, Qinghai, or Xinjiang
SWEST	=1 if potential destination is Sichuan, Guizhou, Yunnan, or Guangxi
Personal attributes	
Age3039	=1 if aged 30–39 years
Age4049	=1 if aged 40–49 years
Age5064	=1 if aged 50–64 years
SeniorH	=1 if with senior high school education
College+	=1 if with college education or above
ManPro	=1 if in a managerial or professional occupation
Clerk	=1 if in a clerical occupation

Data sources:

^a1987 one percent population sample survey.^b2000 national population census.^cDu, 2008.^dNEGSDNBS, 2010.^eNBS, 1986, 2001.

the occupational categories of managerial, professional and clerical, temporary migrants were more represented in low-educated and manual workers. However, the gaps between permanent and temporary migrants narrowed over time, owing mainly to temporary migrants' improvement in the educational and occupational attainment.

SPATIAL PATTERNS OF PERMANENT AND TEMPORARY MIGRATION

Table 3 shows the spatial patterns of permanent and temporary migration at the regional level in 1985–1990 and 2000–2005. In the early stage of economic reform (1985–1990), the eastern region absorbed 1.2 million permanent migrants and

2.2 million temporary migrants, which accounted for 52.8% and 60.4% of the total permanent and temporary in-migration, respectively, while the central and western regions as a whole experienced a net loss of 331,000 permanent migrants and 638,000 temporary migrants. With regard to a specific subregion, Shanghai, Guangdong, and Tianjin exhibited the largest net gain of permanent migrants, while the north-central region and the northwestern region displayed the largest net loss of permanent migrants. Guangdong, Shanghai, Tianjin, and Beijing, along with Northwest China, had a net gain of more than 200,000 temporary migrants, while other parts of the coastal region, the south-central region, and the southwestern region had a large net loss of temporary migrants.

Table 2. Demographic and socio-economic characteristics of migrants, 1985–1990 and 2000–2005.

	1985–1990			2000–2005		
	All	PM	TM	All	PM	TM
Gender (%)						
Male	63.45	43.00	32.10	54.58	62.44	54.22
Female	36.55	57.00	67.90	45.42	37.56	45.78
Age (years)						
15–29	68.27	60.41	73.11	60.64	53.06	60.98
30–39	18.95	22.89	16.53	27.52	32.13	27.31
40–49	9.16	13.10	6.73	9.03	11.93	8.90
50–64	3.62	3.60	3.63	2.81	2.88	2.81
Education (%)						
College or above	10.97	25.99	1.70	7.91	19.99	7.01
Senior high school	21.19	35.44	12.41	16.86	11.09	17.29
Junior high school or below	67.84	38.57	85.89	75.23	68.92	75.70
Occupation (%)						
Managerial	2.90	5.66	1.24	1.83	3.21	1.77
Professional	14.41	32.60	3.49	5.31	24.38	4.49
Clerical	6.73	15.42	1.51	4.66	8.96	4.47
Commercial workers	17.59	12.20	20.82	26.77	22.88	26.94
Industrial workers	58.37	34.12	72.94	61.43	40.57	62.33
N	62,596	23,874	38,722	72,099	3,134	68,965

All: permanent migrants plus temporary migrants; PM: permanent migrants; TM: temporary migrants.

Table 3. In-migration, out-migration and net migration of PM and TM, 1985–1990 and 2000–2005.

	1985–1990						2000–2005					
	PM			TM			PM			TM		
	IM (‘000)	OM (‘000)	NM (‘000)	IM (‘000)	OM (‘000)	NM (‘000)	IM (‘000)	OM (‘000)	NM (‘000)	IM (‘000)	OM (‘000)	NM (‘000)
Eastern	1,183	852	331	2,172	1,534	638	742	1,143	–401	22,291	4,269	18,022
Beijing	108	72	36	225	8	217	38	88	–50	1,625	125	1,500
Tianjin	121	31	90	236	8	228	9	21	–12	647	45	602
Shanghai	194	51	143	459	18	441	52	115	–63	2,551	120	2,431
Guangdong	167	59	108	642	75	567	109	445	–336	7,677	374	7,303
NCOAST	351	359	–8	275	568	–293	115	139	–24	1,255	1,674	–419
SCOAST	242	280	–38	335	857	–522	419	335	84	8,536	1,931	6,605
Central	547	762	–215	738	1,046	–308	594	346	248	828	12,513	–11,685
NCENT	65	230	–165	162	111	51	17	67	–50	161	889	–728
SCENT	482	532	–50	576	935	–359	577	279	298	667	11,624	–10,957
Western	512	628	–116	685	1,015	–330	410	257	153	1,411	7,748	–6,337
NWEST	211	376	–165	408	155	253	64	107	–43	697	1,130	–433
SWEST	301	252	49	277	860	–583	346	150	196	714	6,618	–5,904

IM: the number of in-migrants; OM: the number of out-migrants; NM: net migration balance. $NM = IM - OM$. Figures based on the 1990 Census 1.05% sample and the 2005 Survey 0.20% sample have been multiplied by the sampling ratio of each destination province in 1990 and 2005.

In the first 5 years of the 21st century, the eastern region experienced a surge in the inflow of temporary migrants, with a net gain of 18.0

million, and an increase in the outflow of permanent migrants, with a net loss of 401,000. Guangdong turned out to be the largest donor

of permanent migrants and the second largest recipient of temporary migrants among all subregions. Beijing, Tianjin, Shanghai, and other provinces of the south coastal region also experienced a net loss or a small net gain of permanent migrants and received a remarkable number of temporary migrants. Meanwhile, the central and western regions exhibited a substantial loss of temporary migrants (11.7 million and 6.3 million, respectively) but a net gain of permanent migrants (248,000 and 153,000, respectively). South-central China and southwest China together absorbed 52.9% of total permanent migrants but contributed 74.4% of total temporary migrants. In general, temporary migrants increasingly tilted towards the coastal region when choosing migration destinations, whereas permanent migrants tended to migrate in the opposite direction from the coastal region to the interior.

Figures 2 and 3 depict the 30 largest migration streams for permanent and temporary migrants in 1985–1990, which accounted for 29.2% and 52.1% of all permanent migrants and temporary migrants, respectively. There were several prominent features in Figure 2. First, a considerable

number of permanent migrants moved away from frontier provinces such as Heilongjiang, Jilin, and Xinjiang to populous coastal and interior provinces such as Shandong, Liaoning, and Henan. These migrants included a large proportion of return migrants who had been sent to frontier regions by the state in the period 1950 to 1970 (Chan *et al.*, 1999; Fan, 1999). Second, most prominent migration streams occurred over a short distance and between adjacent provinces, and some of these streams were accompanied by a large counter-stream (e.g. Sichuan-Yunnan and Jiangsu-Anhui). Compared with permanent migration, temporary migration was predominantly unidirectional and more towards the coastal region (Fig. 3). Temporary migrants who moved mostly for employment reasons primarily migrated away from densely populated and relatively less developed provinces such as Sichuan, Hunan, and Hebei to more developed coastal provinces. Our results also indicated that Beijing, Shanghai, Tianjin, and Guangdong were major destinations for both permanent and temporary migrants.

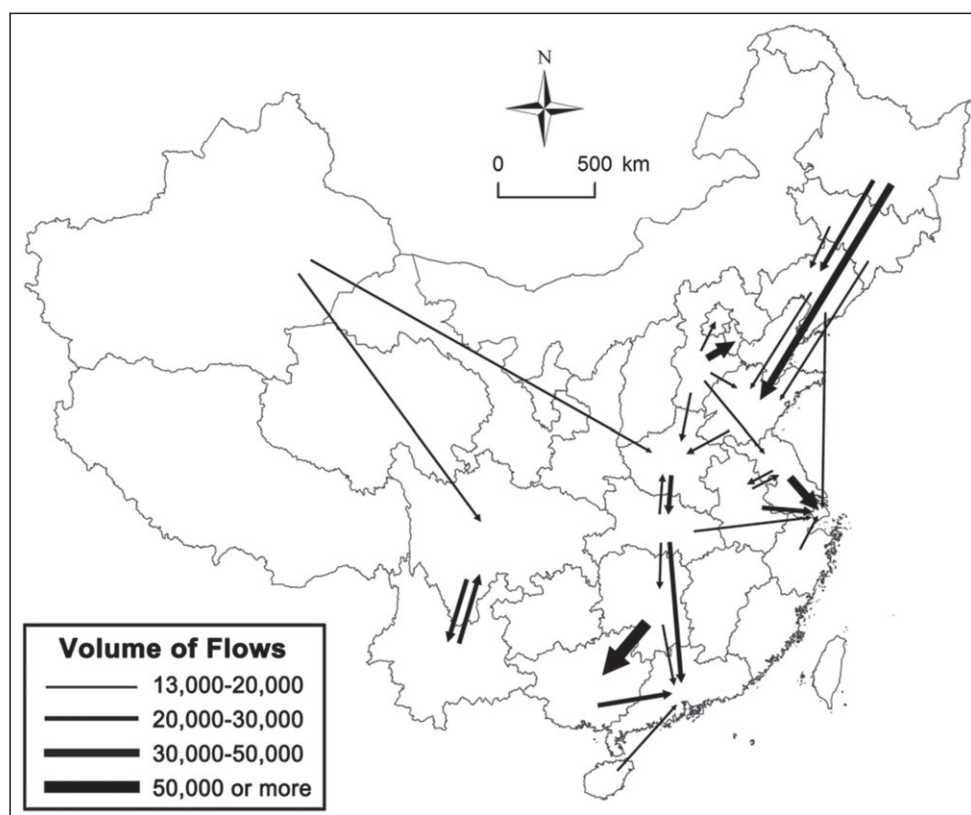


Figure 2. The 30 largest interprovincial flows of permanent migration in 1985–1990.

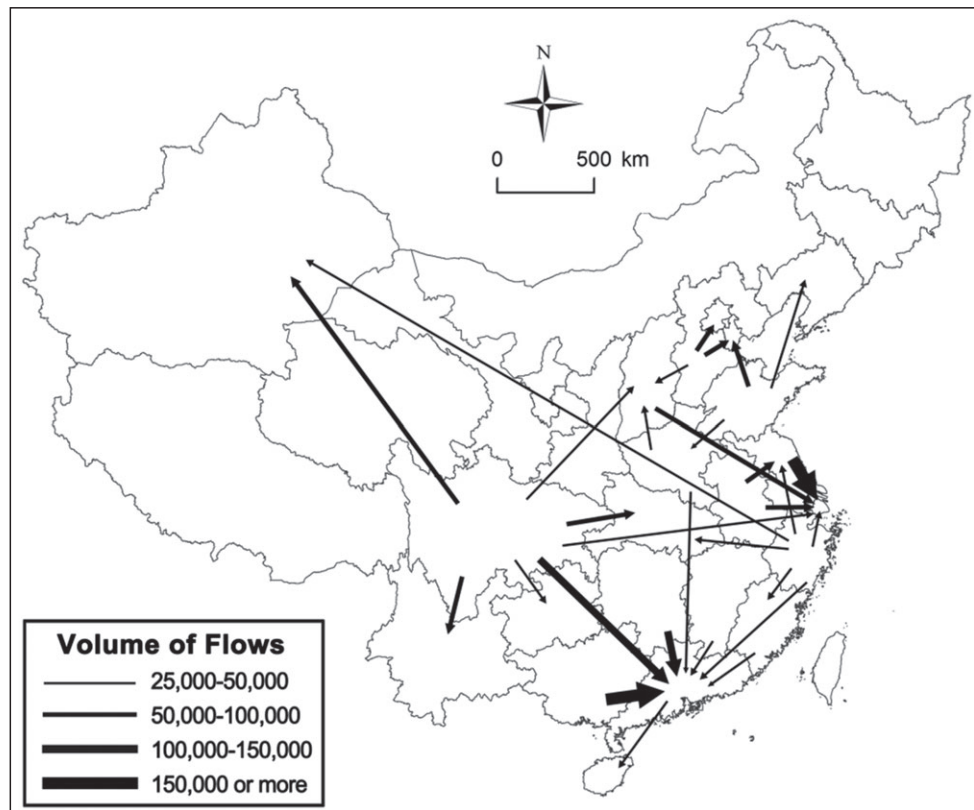


Figure 3. The 30 largest interprovincial flows of temporary migration in 1985–1990.

In 2000–2005, the 30 largest migration flows accounted for 46.9% and 63.7% of total permanent migrants and temporary migrants, respectively, which suggests that both types of migration streams were more concentrated in a few destinations in the first half decade of the 21st century (Figs. 4 and 5). For permanent migration, most large flows were from the southeastern coastal provinces such as Guangdong and Zhejiang to provinces of southwestern and south-central China. Some of these inland-ward flows were accompanied by a smaller but still large counter-stream (e.g. Guangxi-Guangdong and Hunan-Guangdong). The very reason behind the large inland-ward flows of permanent migrants is that local urban *hukou* of inland provinces was easier to attain (Zhang & Tao, 2012) and that in this study, return migrants who moved back to their place of *hukou* and whose previous moves were not accompanied by the change of *hukou* location were also counted as permanent migrants.¹ Such returnees may include university graduates, job transferees, and migrant workers who had previously studied or worked in the coastal region and then moved back

to their interior home city/county. As for the temporary migration, all large streams were from southwestern and south-central China toward five southeastern coastal provinces (Guangdong, Fujian, Zhejiang, Shanghai, and Jiangsu) along with Beijing and Tianjin. This suggests that temporary migration was increasingly driven by regional economic disparities.

MODELLING THE DESTINATION CHOICES OF PERMANENT AND TEMPORARY MIGRANTS

The results from the conditional logit models predicting the destination choices of permanent and temporary migrants are shown in Table 4. Given that the data about migration stock were not available until 2000, the variable of MSTACK was not included in Models 1–4 for the sake of comparison. The McFadden R^2 s, which are 0.165 and 0.180 in Models 1 and 2, increase to 0.192 and 0.382 in Models 3 and 4, respectively. This implies that not only temporary migrants but also permanent migrants became increasingly

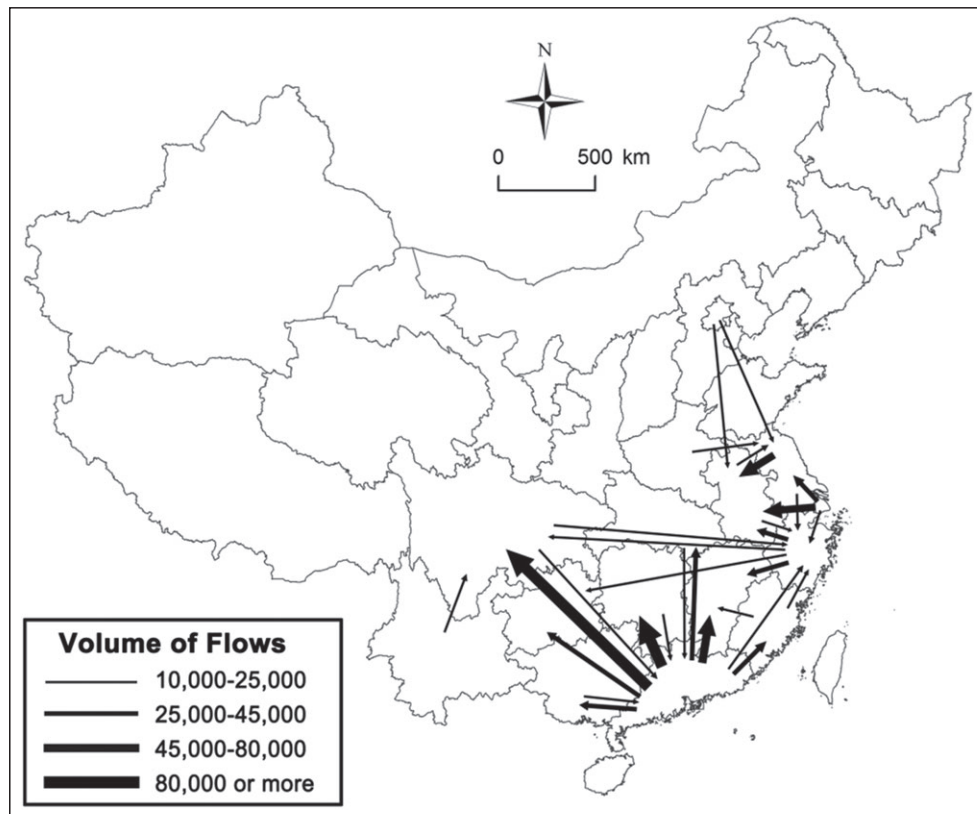


Figure 4. The 30 largest interprovincial flows of permanent migration in 2000–2005.

responsive to the place-based factors over time. Models 5 and 6 include the variable *MSTOCK*, and its addition results in an increase in the McFadden R^2 to 0.195 and 0.397.

With regard to the two gravity variables, as expected, the variables of *POP* have significant and positive coefficients, and the variables of *DIST* display significant and negative coefficients in both periods. This result indicates that both permanent and temporary migrants were significantly more likely to move to more populous provinces, and their decisions were subject to economic costs and psychological costs associated with long-distance migration.

With respect to the effect of employment opportunities, the *WAGE* variable consistently has significant and positive coefficients, showing that both types of migrants tended to move to destinations with relatively higher average annual wages. Specifically, a one-unit increase in the destination-to-origin wage ratio increases the odds of permanent and temporary migrants moving to a particular destination by 21.58 times and 1.63

times, respectively, in 1985–1990 (Models 1 and 2) and by 28.52 times and 11.09 times, respectively, in 2000–2005 (Models 3 and 4).² This suggests that not only temporary migration but also permanent migration are increasingly driven by interregional wage differentials over time.

With regard to the *GDPGROW* variable, in 1985–1990, increasing the destination-to-origin GDP growth rate ratio by one unit increases the odds of permanent and temporary migrants moving to a given destination by 3.14 times and 5.87 times. However, the coefficients associated with the relative GDP growth rate ratio have a negative sign in 2000–2005, which is consistent with the fact that some less developed provinces enjoyed GDP growth rates above the national average throughout the 2000s, while migration magnets such as Beijing and Shanghai experienced relatively low GDP growth rates during that period (Fan & Sun, 2008). As income levels better reflect long-term economic prospects and economic growth rates better reflect short-run economic fluctuations (Ishikawa & Liaw, 2009), our results suggest that over time,

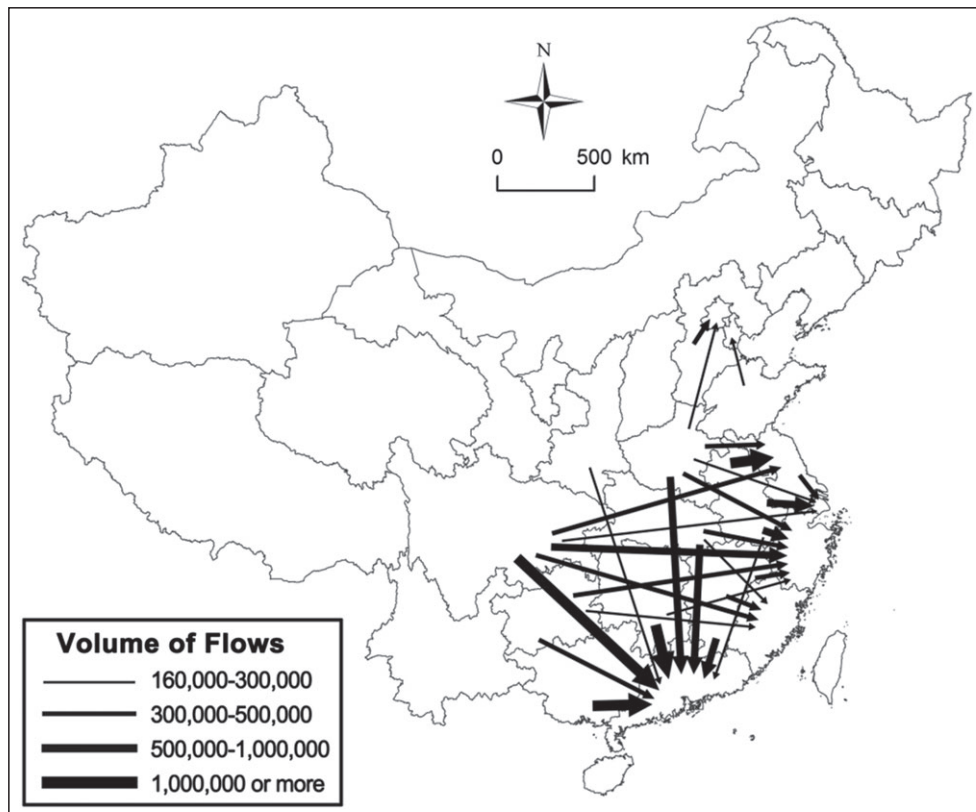


Figure 5. The 30 largest interprovincial flows of temporary migration in 2000–2005.

both permanent and temporary migrants increasingly care about the long-term economic outlook rather than the short-run employment situation of their possible destinations.

The variables related to the destination-to-origin FDI per capita ratio have positive and significant coefficients for temporary migrants in 1985–1990 and for permanent migrants in 2000–2005. This indicates that foreign investment became less important in driving temporary migration but more important in driving permanent migration over time. The control variables of COST have an unanticipated positive sign in 1985–1990 but an expected negative sign in 2000–2005 for both types of migrants. This could be in part because the regional variation of the cost of living was rather small in 1985–1990, and in part because living expenses were not important in migration decisions during that period. The positive and significant coefficients of MSTACK in Models 5 and 6 suggest that both permanent and temporary migrants tended to rely on social networks when choosing the final migration destination.

Nine regional dummy variables were included to capture unobservable place-based factors influencing destination choices. After controlling for gravity variables, employment opportunities, the cost of living, and the migration stock, Tianjin, Shanghai, and Beijing were most likely to be the final destination for permanent migrants in the early stage of the economic reform. This could be because these regions received a large number of university graduates whose jobs were assigned by the state, professionals and skilled workers employed by the state sector, and return migrants from previous planned migration in the socialist period (Fan, 1999). Meanwhile, Guangdong, Shanghai, and Tianjin appeared to be relatively more attractive than other regions to temporary migrants, even though variables associated with employment opportunities were controlled for, and coastal regions (other than Beijing, Shanghai, Tianjin, and Guangdong) along with south-central China were the least attractive to temporary migrants because of their poor economic performance and their geographical proximity to migrant magnets (i.e. Guangdong, Shanghai, and Tianjin).

Table 4. Conditional logit model predicting the destination choice of PM and TM migrants, 1985–1990 and 2000–2005.

	1985–1990				2000–2005				2000–2005			
	Model 1 (PM)		Model 2 (TM)		Model 3 (PM)		Model 4 (TM)		Model 5 (PM)		Model 6 (TM)	
	Estimates	<i>t</i> values	Estimates	<i>t</i> values	Estimates	<i>t</i> values	Estimates	<i>t</i> values	Estimates	<i>t</i> values	Estimates	<i>t</i> values
Gravity variables												
POP	1.275***	(52.98)	0.045***	(3.17)	1.316***	(17.09)	0.779***	(33.01)	1.260***	(16.85)	0.652***	(30.57)
DIST	−1.149***	(−109.41)	−1.264***	(−144.62)	−1.292***	(−37.34)	−1.513***	(−145.56)	−1.117***	(−28.01)	−0.962***	(−75.23)
Employment opportunities												
WAGE	3.117***	(20.91)	0.967***	(12.09)	3.385***	(17.66)	2.492***	(44.81)	3.268***	(16.93)	2.342***	(45.95)
GDPGROW	1.420***	(15.16)	1.927***	(20.14)	−3.941***	(−11.46)	−1.543***	(−10.83)	−3.802***	(−11.27)	−1.139***	(−8.86)
FDIPER	0.000*	(−1.69)	0.002***	(22.82)	0.003**	(2.20)	−0.006***	(−22.20)	0.004***	(2.91)	−0.002***	(−8.99)
Control variables												
COST	0.819***	(6.32)	2.312***	(19.85)	−9.069***	(−12.88)	−6.186***	(−14.90)	−8.768***	(−12.71)	−4.955***	(−13.19)
MSTOCK									0.055***	(10.07)	0.078***	(70.11)
Regional dummy variables												
SH	0.860***	(19.10)	0.781***	(21.53)	−2.405***	(−12.53)	−1.139***	(−15.85)	−2.371***	(−12.60)	−0.995***	(−15.63)
TJ	0.941***	(18.30)	0.402***	(11.53)	−1.265***	(−6.20)	−0.235***	(−4.49)	−1.066***	(−5.23)	0.013	(0.27)
GID	−1.492***	(−20.39)	1.227***	(22.14)	−0.001	(−0.01)	1.238***	(21.04)	−0.449**	(−2.14)	0.288***	(5.06)
NCOAST	−1.466***	(−23.62)	−0.434***	(−8.61)	−0.804***	(−2.93)	−0.985***	(−10.72)	−0.648**	(−2.37)	−0.557***	(−6.60)
SCOAST	−1.358***	(−23.86)	−0.658***	(−15.22)	−0.155	(−0.67)	0.192**	(2.36)	0.007	(0.03)	0.495***	(6.73)
NCENT	−1.571***	(−26.04)	0.071*	(1.74)	−1.087***	(−3.41)	−1.599***	(−16.07)	−1.120***	(−3.44)	−1.346***	(−13.81)
SCENT	−1.385***	(−24.07)	−0.435***	(−9.75)	0.428	(1.57)	−2.095***	(−21.51)	0.654**	(2.39)	−1.476***	(−16.52)
NWEST	−0.894***	(−16.72)	−0.014	(−0.34)	0.886***	(4.07)	−0.579***	(−10.83)	0.927***	(4.16)	−0.338***	(−6.38)
SWEST	−1.052***	(−16.67)	−0.140***	(−2.79)	0.921***	(3.46)	−1.291***	(−14.17)	1.057***	(3.96)	−0.787***	(−9.31)
McFadden's R^2	0.165		0.180		0.192		0.382		0.195		0.397	
N	23874 × 28		38722 × 28		3134 × 28		68965 × 28		3134 × 28		68965 × 28	

PM: permanent migrants; TM: temporary migrants

***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively. Sampling weights and robust variance estimator were used.

In 2000–2005, when the state no longer allocated labour directly, provinces of the southern part of the interior along with Northwest China were most likely to be the final destination for permanent migrants. By contrast, Shanghai, Tianjin, and the north-central region were least likely to be the final destination for permanent migrants, holding all province-specific variables constant (Model 5). During this period, temporary migrants were most likely to move to south-coastal China (including Guangdong, but not Shanghai) and least likely to choose the central region as the final destination. Shanghai was less attractive to temporary migrants, probably because of its proximity to another two major recipients of temporary migrants, Zhejiang and Jiangsu, which reduced its relative attraction.

The mixed model was further used to examine how the characteristics of a migrant and the attributes of potential destinations jointly affected his or her destination choice.³ The coefficients of destination-specific variables estimated by the mixed model are almost the same as those estimated by the conditional logit model in terms of the magnitude and the significance level. The interaction terms between province-specific variables and individual-specific variables included in the mixed model illustrate how likely a particular socio-economic and life-cycle group is to choose a particular region as opposed to Beijing as the final destination upon the condition that all province-specific variables are controlled for.

As there are a total of 45 possible comparisons between any two regions (say, Shanghai versus Beijing) and eight individual-level variables, it is very tedious to interpret all the comparisons between any two regions for each of the individual-level variables. Given that the educational qualification and skill level become increasingly important in determining one's qualification to urban *hukou* status at the destination (Fan *et al.*, 2009; Zhang, 2010; Sun & Fan, 2011), we particularly focus on how the *hukou* system is intertwined with migrants' human capital to shape their destination choices. Therefore, we only make the comparison between highly skilled migrants (with college education or above or in a managerial/professional occupation) and low-skilled migrants (with junior high education or below or in an industrial/commercial occupation) in terms of their odds of moving to a particular region relative to Beijing.

Table 5 shows the odds ratios of highly skilled migrants relative to low-skilled migrants moving to one of the nine regions relative to Beijing, holding all destination-specific variables constant. With regard to permanent migrants, highly skilled migrants relative to low-skilled migrants became more concentrated in Beijing and Shanghai over time and were most likely to move to these two areas in 2000–2005. For example, the odds ratios of college-educated migrants relative to low-educated migrants moving to Beijing instead of other regions except Shanghai were between 1.3 (BJ/GD) and 10.0 (BJ/NCENT and BJ/SWEST) in 1985–1990 and between 2.9 (BJ/GD) and 50.0 (BJ/SCENT) in 2000–2005, while those moving to Shanghai instead of other regions except Beijing were between 0.56 (SH/GD) and 4.4 (SH/NCENT) in 1985–1990 and between 3.2 (SH/GD) and 54.0 in 2000–2005 (SH/SCENT). Likewise, the odds ratios of managerial/professional migrants relative to industrial/commercial migrants also suggest the same conclusion.

As for temporary migrants, highly skilled migrants relative to low-skilled migrants do not show a clear trend of increased concentration in Beijing and Shanghai over time. In 1985–1990, compared with their junior-high school-educated counterparts, college-educated migrants were most likely to choose Beijing, Shanghai, and Guangdong as the final destination, and the corresponding odds ratios were between 0.8 (BJ/GD) and 8.3 (BJ/SCENT) for moving to Beijing and between 0.8 (SH/GD) and 8.6 (SH/SCENT) for moving to Shanghai. Meanwhile, the odds ratios of managers/professionals relative to industrial or commercial workers were between 1.0 (BJ/SCOAST) and 1.4 (BJ/GD) for moving to Beijing and between 0.9 (SH/SCOAST) and 1.2 (SH/GD) for moving to Shanghai. In 2000–2005, college-educated migrants relative to low-educated migrants were most likely to move to Beijing and southwest China, and the corresponding odds ratios were between 0.9 (BJ/SWEST) and 7.7 (BJ/NCENT) for moving to Beijing and between 0.6 (SH/SWEST) and 5.6 (SH/NCENT) for moving to Shanghai. As for the odds ratios of managers/professionals relative to industrial/commercial workers, the north-central region became the most attractive region, and the corresponding odds ratios were between 0.5 (BJ/NCENT) and 2.2 (BJ/SCOAST) for moving to Beijing and between 0.4 (SH/NCENT) and 1.6 (SH/SCOAST) for moving to Shanghai.

Table 5. Odds ratios of highly skilled migrants relative to low-skilled migrants moving to one of nine regions relative to Beijing, 1985–1990 and 2000–2005.

	Bj	SH	TJ	GD	NCOAST	SCOAST	NCENT	SCENT	NWEST	SWEST
College + versus JuniorH	1.00	0.44***	0.33***	0.79*	Permanent migrant, 1985–1990					
ManPro versus Industrial	1.00	0.62***	0.71***	1.02	0.18***	0.20***	0.10***	0.17***	0.25***	0.10***
College + versus JuniorH	1.00	1.03	0.18***	1.23	0.85	0.95	0.97	0.81*	0.71***	1.45***
ManPro versus Industrial	1.00	0.89	0.76*	0.72***	Temporary migrant, 1985–1990					
College + versus JuniorH	1.00	1.08	0.16***	0.34**	0.29***	0.48***	0.24***	0.12***	0.32***	0.28***
ManPro versus Industrial	1.00	0.60	0.42*	0.50**	0.79*	1.04	0.84	1.01	0.92	0.92
College + versus JuniorH	1.00	0.73***	0.22***	0.43***	Permanent migrant, 2000–2005					
ManPro versus Industrial	1.00	0.71***	0.56***	0.63***	0.14***	0.09***	0.15***	0.02***	0.12***	0.03***
College + versus JuniorH	1.00	0.73***	0.22***	0.43***	0.27***	0.30***	0.12***	0.21***	0.22***	0.37***
ManPro versus Industrial	1.00	0.71***	0.56***	0.63***	Temporary migrant, 2000–2005					
College + versus JuniorH	1.00	0.73***	0.22***	0.43***	0.56***	0.23***	0.13***	0.72**	0.58***	1.17
ManPro versus Industrial	1.00	0.71***	0.56***	0.63***	0.52***	0.45***	1.94***	1.23	0.78*	1.01

College+: college education or above; JuniorH: junior high education or below; ManPro: managerial or professional occupation; Industrial: industrial or commercial occupation.
 ***, **, * denote statistical significance at 1%, 5%, and 10% level, respectively.

CONCLUSION AND DISCUSSION

Using the conditional logit model and the mixed model, this paper has examined whether and how destination choices differ between permanent and temporary migrants and how such differentials have changed between 1985 and 2005. We have particularly focused on the effects of the economic transition and the *hukou* reform on the migration destination choices as well as on the spatial variation of *hukou* restrictions over highly skilled and low-skilled migration. While temporary migrants were increasingly concentrated in the southeast coastal region, permanent migrants tended to move in the opposite direction to south-central and southwestern China. The results from the models have revealed that over time, both types of migrants were increasingly responsive to regional economic disparities, especially interregional wage differentials, and that the effect of the *hukou* system on migration persisted. Specifically, when regional differences in employment opportunities, the cost of living and the migration stock were controlled for, permanent migrants were most likely to move to inland provinces with a low entry barrier and a large number of return migrants, while temporary migrants were most likely to migrate to southern-coastal China where labour-intensive and export-oriented industries proliferated. In addition, a comparison between highly skilled and low-skilled migrants has shown that the localisation of the *hukou* regulation and the commodification of the *hukou* status in recent years have resulted in an increased concentration of highly skilled migrants relative to low-skilled migrants in the most prosperous regions such as Beijing and Shanghai.

Our results have confirmed our first hypothesis that regional disparities and individual rationality became increasingly important in shaping migration decisions over time. The increasing responsiveness of not only temporary migrants but also permanent migrants to interregional wage differentials has hinted at the penetration of market forces into the migration system. The surge of temporary migration and the increase in the explanatory power of our models have suggested that migrants had more and more freedom to make their own choices to move in the post-reform era. All of these results indicate that migration theories derived from experiences of

market economies are increasingly relevant to internal migration in China (Chan *et al.*, 1999; Fan, 2005a, 2005b; Shen, 2013).

This study has provided no evidence to support our second hypothesis that the gaps in destination choices between permanent and temporary migrants have narrowed over time. On the contrary, our findings have supported Sun and Fan's (2011) argument that *hukou* reforms have not lowered the barriers to urban citizenship and have indicated that the *hukou* system still mattered in shaping the destination choices. This study has further extended previous research on the effect of the *hukou* system on migration by differentiating between highly skilled and low-skilled migration and by comparing their odds of moving to a particular region. Not inconsistent with our last hypothesis, *hukou* controls in the most developed regions have been found to be selectively relaxed to highly skilled migrants but still restrictive toward low-skilled migrant workers, while such *hukou* restrictions over low-skilled migrants have become less stringent in relatively less developed regions.

Our results have suggested that it is oversimplified to take China's recent *hukou* system reforms as a process of the retrenchment of the state and a linear progression towards a market economy. In fact, while the central government no longer determines and regulates the annual quota on the intake of permanent migrants for each city, the local governments have taken over the management of the *hukou* system and now have discretionary power to determine the number of new *hukou* awardees (Chan & Buckingham, 2008). Under such circumstances, most local governments set their own admission criteria and take the granting of *hukou* as a means of attracting desirable migrants and generating revenues (Zhang, 2010; Zhang & Tao, 2012). Overall, our findings have supported the notions that state intervention is still intertwined with the market mechanism to influence migration in reform-era China, and that the state should not be seen as a unitary entity when understanding recent *hukou* reforms.

It should be noted that this study merely focused on interprovincial migrants because of the limitation of the census data and therefore did not intend to understand how the effect of the *hukou* system varied from one city to another. Given that the barrier to entry may vary greatly among different cities within the same province

(say, Shenzhen and Meizhou in Guangdong province), a finer geographical scale is needed to study the destination choices of permanent and temporary migrants in future research endeavours. Another limitation of this study is that our definition of migration may treat return migrants who leave and return to the place of origin within the past 5 years as non-migrants, therefore causing an underestimate of the total number of migrants. This problem can be mitigated by defining migrants as those whose current usual residence is different from 1 year ago. Given the scope and length, this paper focused on migration destination choices only and therefore devoted less attention to the factors underpinning migrants' decisions to leave the place of origin. The next step in our research is to model jointly the decision to move and the choice of destination of permanent and temporary migrants.

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NOTES

- (1) The 1990 Census and 2005 Survey do not provide any information about the place of *hukou* 5 years ago. Therefore, it is impossible to know whether or not a migrant changed his or her place of *hukou* during the past 5 years and consequently to differentiate between migrants who were awarded local *hukou* status of the destination place during the past 5 years (i.e. *de facto* permanent migrants) and return migrants whose previous moves occurred more than 5 years ago and were not accompanied by the change of their *hukou* location (i.e. return migrants who just went back to their place of *hukou*). However, given that both types of migrants have indeed changed their place of usual residence within a 5-year interval and hold the local *hukou* status of the destination place, we followed Chan *et al.* (1999) and Sun and Fan (2011)'s definition and classified the second type of migrants as permanent migrants as well.
- (2) In 1985–1990, for a one-unit increase in the destination-to-origin wage ratio, the odds of permanent migrants moving to a particular destination increases by $\exp(3.117) - 1 = 21.58$, and the odds of temporary migrants increases by $\exp(0.967) - 1 = 1.63$. The percent change

in the odds of moving to a particular province by a one-unit change in other regional variables can be computed in a similar way.

- (3) The coefficients of the mixed model can be found in Appendix I. They are available upon request from the authors.

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