Double Selections and Split Living among Migrants in China

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Abstract: While migrant family tends to reunite in receiving societies as the duration of stay lengthens, many migrants separate from nuclear family members in China. This paper explores the associates of living apart with double selections, being selected by public policies and structural constraints, and self-selection due to structural barriers. Findings of representative data illustrate strong selection effects such that the *hukou* institution and economic structure in receiving cities prevent migrants from being reunited with nuclear family members. Being selected effect is more pronounced for migrants with a rural *hukou*, inter-province *hukou*, and moving to coastal and more economically advanced areas, while self-selection effect is more salient in less developed areas with less economic and educational opportunities. Such findings reveal that economic advancement does not necessarily bring about more inclusive public policies for family reunion, and less development has no attraction motivating migrants to bring family members to host society.

Introduction

In family sociology studies, research on living apart tends to focus on incarceration (e.g., Geller et al. 2006) or marital disruption, or treat family members as living in geographic proximity, ignoring those living in different locations. Similarly, in recent scholarship from migration studies, research on the effect of migration largely attend to the economic consequences by treating the household as a single, homogeneous unit, ignoring differential impacts that migration can have on the family. The relationship between migration and living arrangements of family members has gained little attention inside and outside of China. To the extent that internal migration has substantially facilitated urban development and economic escalation, however, it has also reshaped family context by changing residential patterns between couples, and between parents and children. Institutional demarcation (i.e., the *hukou* system) and structural constraints (e.g., access to public schools for migratory children) in receiving societies present substantial barriers for migrants to achieve family reunion. Studies have found that a high proportion of family members live apart, facing unique challenges in maintaining family ties over great distances.

Hence, while in the west, family reunion is regarded as a basic human right and is vitally important for migrants' life, life planning, family stability and thus cohesive society, separation between spouses and between parents and children has been common in the era of unprecedented scale of internal migration in China. Although migration may improve family economic condition, it may also incur undesirable consequences. In the summer of 2013, 2014 and 2015, for example, numerous reports on drowning and other fatal incidents involving left-behind children due to parental migration have caught great societal attention. Hot debates have aroused, exploring how to remove institutional and structural barriers for family reunion in receiving societies.

Who are more likely to achieve family reunion and who are more likely to live apart? What is the pattern of living apart? How may institutional discriminations and structural barriers in receiving societies affect the separation among nuclear family members? Living apart does not simply reflect individual and family wellbeing, but

also mirrors the exclusiveness or inclusiveness of public policies, the reallocation of public resources, and economic development levels. It also echoes the quality of New-Type Urbanization that aims to facilitate a human-centered and equalized right and welfare for rural-urban migrants as local urbanites since 2014.

This paper examines the way by which nuclear family members, is split among migrants, and explores the potential reasons by highlighting the interplay and intersection of two types of selection due to institutional and structural factors. It describes the current status and patterns of living apart of migrants from family members, and analyzes the correlation of such living arrangements. It emphasizes the effects of migration on development by focusing on 'the family' and in particular on the different factors involved in living arrangements. In particular, we attend to spouse separation, parent-children separation, and spouse and children separation. An increasing number of families are living apart-together. On one hand, rapid pace of urbanization and convenient transportation make migrating in search for higher paying jobs attractive and accessible for many more people than was previously the case 20 years ago. On the other hand, barriers in the availability of public resources, particularly housing and schooling, have led to families 'splitting' with some core family members. Living apart between spouses and/or between parents and children presents challenges to migrants in family stability and long-term wellbeing.

Based on multidisciplinary research that explores the consequences of migration on the wellbeing of left-behind family in China, this study expands current literature by testing the associations of selection incurred by institutional and structural factors with living apart of migrants from other nuclear family members, using nationally representative and large-scale data. The associative pattern of both self selection and being selected with the living arrangement is largely ignored or simply based on reasoning in the Chinese literature. Our approach would further the understanding of the patterns of living apart of migrants and the potential determinants of such living arrangements beyond individual and family scopes. We expect that findings emerging from this analysis will inform policy makers in reformulating public policies favorable for the enhancement of family reunion of migrants. Since these issues are

not unique to China, but shared by countries undergoing dramatic population redistribution, the challenge is global even when the particular circumstances are local. Hence, this analysis is an important response to understand the link between migration and family wellbeing that might be intervened by macro contexts.

The remainder of the article is structured as follows. It first provides a background of internal migration in China, and discusses structural and institutional barriers related to selection for family reunion of migrants at destination. It then describes data and methods, which is followed by analytical findings. The final section concludes and discusses major findings, and provides policy implications to better promote family reunion in receiving societies for those who have such intention.

Migration, double-dual properties of *hukou* system, and the family in China
Size of migrants

In the process of China's economic reform, numerous peasants migrate to cities for better economic opportunities. On one hand, land reform in rural areas initiated in 1978 has improved the efficiency of productive activities, which has liberated many laborers from the land to search for non-farming work. On the other hand, the market-oriented reform in urban areas and opening to the outside policy have fueled economic development, brought in foreign or joint enterprises, initially in coastal areas and large cities, and created numerous job vacancies in the low end that urbanites are unwilling to undertake, but are profitable and attractive to rural surplus laborers. Tremendous disparities between urban, rural and cross-regional areas have motivated people in the countryside, less developed regions, and the Midwest to move to urban areas, more advanced regions, and the East. The size of migrants has increased rapidly. In 1982, migrants enumerated less than seven million, and was over 20 million, 100 million, and 221 million in 1990, 2000 and 2010, accounting for 0.7 percent, 1.9 percent, 7.7 percent, and 16.5 percent in each census year, respectively. The rise is substantial in both absolute and relative terms: the size of migrants has increased by over 33 times between 1982 and 2010 (see Figure 1), while China's total

population increased by only 0.3 times. In 2014, the size of migrants reached 245 million.
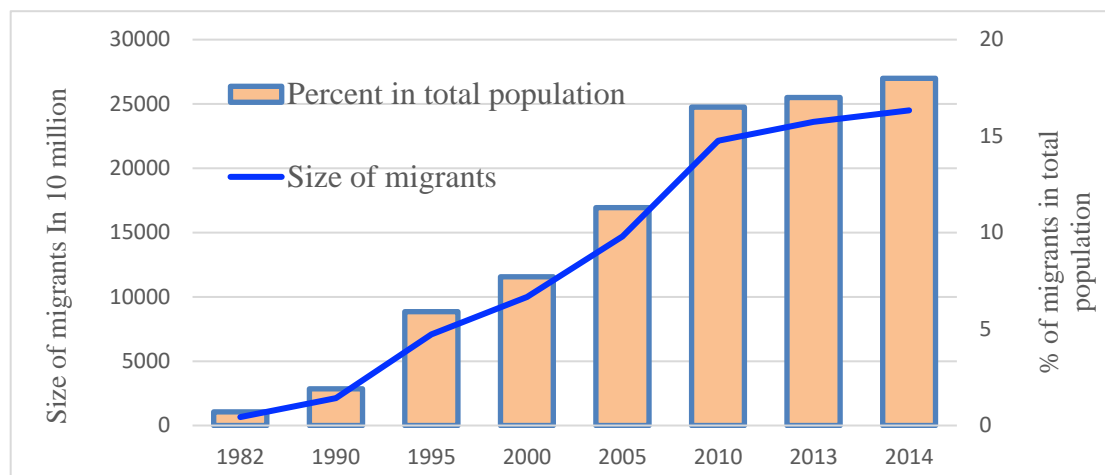

Figure 1. Trend of size and share of migrants: China 1982-2014

Sources: The 1982, 1990, 2000, and 2010 data come from Population Censuses, and the rest from National One Percent Population Survey of corresponding years.

Double dual-properties of the hukou system

The continuously rising size of migrants is closely related to the relaxation of the unique *hukou* system. Formalized in 1958, the current *hukou* system is a household registration program serving as a tool to regulate population geographic distribution and a form of social control that enforces an apartheid structure denying farmers the same rights and benefits enjoyed by urban residents. Between 1958 and 1978, this system had effectively restricted the free flow of resources between industry and agriculture, and between city and the countryside.

While the type of *hukou* has been highly emphasized, itslocation is largely ignored by the academia. In fact, the *hukou* system is of double dual-properties: type (rural vs. urban) and location (local vs. outside). By *hukou* type, the Chinese have been categorized into and labeled as urbanites and peasants, known as the dual property of the *hukou* system. An urban *hukou* is associated with urban citizenship and worker status. Most of them work inside the state system, enjoy higher and more stable salary paid by the government, and have better access to public resources (e.g., education, pension, medical insurance, unemployment insurance, work-related injury

insurance, and housing subsidy). Conversely, a rural *hukou* corresponds to peasant or farmer. Most of them are excluded from the state system, have low and unstable earnings from family-cultivated farmlands, and have limited access to public resources.

With regard to the locations of *hukou* (i.e., the place where people register their household), residents are not simply stamped as rural or urban, but those in a specific village or community. Some 20 years ago, people were required to stay and work within their designated or assigned geographic areas. Mobility was permitted under controlled conditions. Farmers or workers moving to another place without a government-issued *hukou* would essentially share the same status as an illegal immigrant in the west without access to jobs, public services, education, health care, and food. Obtaining an official rural-to-urban *hukou* change is extremely difficult, since the government has tight quotas on conversions per year.

Although the *hukou* restriction has been relaxed, and the boundary of countryside and city, and of farmer and worker reshaped, and people can geographically freely move in recent years, the legacy of the *hukou* has been retained (Liu and Cheng 2009). In 2014, reform was made with this institution, which attempts to remove the distinction between urban and rural residents, and ease the settlement of 100 million people in cities over the next six years. Consequently, large cities have stipulated regulations for migrants to settle down with *hukou*. However, this overhaul is more symbolically meaningful than empirically significant, because the changes fell short of hopes for more comprehensive reform and include exemptions for major cities where most migrants tend to move in.

Changes of the family

Large-scale migration has been the consequence and facilitator of socioeconomic development at the macro level; the compositional change of migrants has also reshaped household context at both the receiving and sending societies at the micro level. The composition of migrants today is more complicated than that in the past. In the 1980s and 1990s, migrants tended to be young and single, but more and more married people with children have joined the tidal wave of migration in the past two

decades, contributing to the phenomenon of familization. However, various institutional and structural constraints render them to leave spouse, children and parents at the place of origin, generating left-behind children (e.g., Zhang 2012), left-behind spouse (mostly the wife) and left-behind parents. Consequently, migration has brought about unprecedented changes to living arrangements among core family members, and the share of incomplete families remains high.

Compared to numerous studies on migration, research focusing on living arrangements and living apart of migrants, particularly in China, remains extremely inadequate. Even among the few existing studies, findings are conflicting. With regard to the mode of migration – defined in this paper as three categories: (1) solo move or non-family move, (2) half-familization[1], and (3) familization[2] or family move – while researchers tend to agree that more and more migrants move with family members, the absolute share conflicts in different research. For example, some conclude that, based on census data, the rate of couple move among migrants increased from 7.4 percent to 46.1 percent between 1990 and 2000 (Yu 2005). Regionally, the pattern of half-familization or familization has become more salient between 1984 and 2006 in Beijing (Hong 2007). In 2006, for example, among 4078 surveyed migrants, 59.8 percent moved together with at least one family member, while solo move of couples accounted for 22.0 percent in 2006 (Hou 2009). Rather, 75.3 percent of couples move together to Beijing, suggesting a high-level of familization (Zhai et al. 2007). In Wuhan, a big city in central China, couple move reached 69.2 percent among married migrants as early as 1995. Using nationally representative data collected in 2011, Yang and Chen (2013a, 2013b) have found both a lower share of family move, and tremendous variations of family move by the definition of the "family," locations of destination and levels of administrative boundary crossing, ranging from about 30 to 66 percent.

These inconsistencies may reflect differences in the way "family" is defined or

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[1] Some members of nuclear family co-reside in receiving society, but some are left back home or live in other places, who can be spouse, children or both spouse and children.
[2] All family members live together at the place of destination.

measured (nuclear, stem vs. extended family), whether children's marital status is distinguished, and how "migration" is defined in relation to length of stay in receiving society and boundary crossing. Additionally, different data sources (local vs. national) were used, some focusing on nationally representative data and others utilizing localized, small-scale and conveniently collected data. Hence, conceptual and methodological disparities in existing studies have rendered findings from various studies to hardly be compatible for comparison or generalized to the entire population of migrants.

However, what is consistent among existing studies is that the share of solo move is decreasing while that of half-familization or familization increasing. Nevertheless, a good proportion of migrants still live apart from some family members. We argue that living apart among nuclear family members is largely a function of institutional and structural constraints at the place of destination (and origin), rooted in the double-dual properties of *huhou* system, which lead to double selection in living arrangements.

Double selection model and split living arrangements: A conceptual framework
Economic rationality of living apart

In previous literature in Western societies living apart or split households due to migration has been largely attributed to the strategy to maximize family gains by making money at place of destination and spending it back home (Bustamante and Alemán 2007; Hugo, 2003, 2006; Fan, Sun and Zheng, 2011). In societies with a free labor market, who moves out and who stays at home can be a function of family strategy to maximize household utility. Drawing on data on "village in the city" collected in Beijing, Fan et al (2011) identify three modes of migration: sole, couple, and family move, and argue that migrants' decision of whether or not to leave the children behind depends on the children's age and parental availability to help at the place of destination. They interpret such decision from the perspective of economic rationality, arguing that circulation between cities and villages of migrants is the outcome of rural Chinese actively rearranging their household division of labor to maximize earnings from urban work opportunities, and to benefit from both locations.

This is essentially an approach of self-selection motivated by economic rationality, which, while reasonable and inspiring in a truly free market economy, largely ignores the role that institutional and structural factors play in the process of migration with regard to living apart. In contexts with unequal access to local labor market, public school, housing, and social security, such decision might be made beyond economic concerns. Macro factors may also play an important role in migration decision and affect split living through an opposite way of selection. Although many migrants have stayed or worked at the place of destination for years, public policies do not put them on par with residents with local *hukou*. Clear distinctions between migrants and local residents in access to public goods and services render migrants to leave some family members at the place of origin.

Double-dual property of hukou and living apart

The double dual-property as stated above has profound implications for split living among nuclear family members of migrants by incurring selection effect. Compared to the first dual-property (i.e., *hukou* type) which is already highly emphasized, the importance of the second dual-property (i.e., location of *hukou*) has been largely ignored in existing studies. By prescribing migrants as outsiders, however, the location of *hukou* is just as, if not more, important as the type of *hukou*. Migrants might be denied access to public resources, rights and services simply because they are outsiders, regardless of their *hukou* type. The location of *hukou* has, therefore, played a role of social barrier for migrants. Despite central government's reiteration on equal access to local resources and services of migrants as local residents, resource constraints and deeply rooted norms of sectionalism or provincialism motivate local government to give priority in public benefits to residents with local *hukou*. Being outsiders, migrants remain excluded from the local system or institutional arrangements, regardless of their length of stay in receiving societies.

Considering jointly the *hukou* type and location, migrants can be classified as rural-urban migrants (i.e., migrants from the countryside to cities with a rural *hukou*) and urban-urban migrants (i.e., migrants from other cities with an urban *hukou*), and

existing studies mostly focus on the former, especially those in the labor market. Along with rural migrants, however, many urban citizens also moved in the past 30 years, mostly from less developed cities to more advanced areas. Ascribed and acquired features due to *hukou* type made rural-urban migrants and urban-urban migrants totally different segments of population. Urban-urban migrants share similarities with or even have better human capital accumulations than local urban people due to selectivity. Rural-urban migrants, on the other hand, may have changed their role from farmer to worker, but remain labeled as peasants or guest workers who are doubly disadvantaged and marginalized as being both outsiders and rural-ers. Consequently, rural-urban migrants, compared to urban-urban migrants, have lower income, more constrained access to public goods, and lower capacity to afford to bring family members along.

Further, the actual location of *hukou* (e.g., inter-province or intra-province) makes substantive difference in family reunion. Public resources are allocated largely based on the number of residents with a local *hukou*; since migrants do not register at the place of destination, they are not entitled to local resources. Cross provincial boundary might be associated with the greatest exclusions and biggest barriers in family reunion, because some types of public resources are distributed provincially. Difficulties for family reunion attenuate as the level of boundary crossing goes down. Migration in the same prefecture (e.g., an administrative unit between province and county), for example, does not present strong obstacles in access to public goods and sociocultural connections. Urban-urban migrants, while possessing better education and work skills than local people, are outsiders like their rural counterparts. Being outsiders per se is restricted in access to local resources, certain jobs, insurances, public housing and high-quality education of children. Hence, urban-urban migrants, who to a large extent move to pursue better life-long development, which is unlike most rural-urban migrants who move to improve the quality of daily life, may still encounter difficulties in family reunion.

Structural barriers and selection for split living

Structural barriers come from two channels: one closely linked to the *hukou*

system, another to local economic structure. For example, migrants in both more advanced and less developed regions may have a higher risk of living apart from family members, but such similarity is driven by different underlying mechanisms, self-selection or being selected (or passive selection). Being selected might be more pronounced in more economically advanced regions and cities with the best and most abundant public resources (e.g., medical and education), job opportunities, and other life chances, which all together attract migrants and their family members to move in. Such locations, however, are also associated with higher costs of daily living and higher thresholds for family reunion, which discourages migrants to bring all family members along. For example, cities in the south (e.g., Shenzhen and Guangzhou), east (e.g., Shanghai and Hangzhou) and around Bo See (e.g., Beijing) have explicitly issued regulations discouraging non-skilled workers to move in. Explicit or implicit rules have been stipulated to restrict migratory children's access to compulsory, high school and college education, public residential insurances or even the purchase of cars or housing.

If we argue that family split living in economically more advanced cities might be the direct result of being selected due to structural and institutional constraints, living apart of migrants in less developed areas or cities may reflect the effect of self-selection driving. In this decade, the Chinese government has rigorously encouraged both migrants to move into less-developed areas (e.g., central and western areas) and second-tier or third-tier cities, and residents migrating out to return back to their hometowns to work, and even provide subsidies to those who start their own business in western region. Nevertheless, tremendous regional gap between the west and the east due to longtime differentiating development strategies and transpiration limits until very recent years can hardly be leveled up in a short period of time. Western area and to a lesser extent central area is associated with extremely inadequate or low-quality public resources and the lack of job opportunities and colorful life styles. Hence, while some large enterprises have relocated their factories to hinterland, which has created more job opportunities and successfully brought back some local residents, the shortage of high-quality hospitals and schools, and more prestigious

jobs, more attractive to migrants and their family members, discourages migrants to bring in family members to receiving societies.

Both institutional and structural barriers for family unification at the place of destination can yield both passive selection and self-selection, but the so-called self-selection is also largely driven by structural forces. Similarly, the underlying mechanism of household "economic rationality" in relation to living arrangements can be of macro constraints as well, although we do not deny the possibility that migrants may simply desire to make money and have no desire to be reunited with children and/or spouse.

Data

Sample

This paper draws on data from the 2013 Migrant Dynamic Surveillance Survey (MDSS), conducted by National Health and Family Planning Commission in May and June, 2013. This is a nationally representative survey that covers approximately 200,000 respondents ages16 to 59 who have resided at current place for over one month with non-local *hukou*.[3] As the most recent, large-scale survey data, the MDSS contains rich information, including household context, migration characteristics of family members, and individual demographic and socioeconomic profiles. This allows us to examine living apart among various family factors, and explore the roles that institutional exclusion and structural barriers play in family reunion of migrants. The sample includes both rural-urban migrants and urban-urban migrants, accounting for 84.8 percent and 15.2 percent, respectively. For the purpose of this study, we focus on nuclear family, including couples without children and couples with unmarried children.

Rather than paying attention to the decision making per se regarding who moves and who stays at home, we attend to the results of such decision, split living of migrant family. We limit our target population to married respondents of nuclear

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[3] Detailed information on sampling can be found in National Health and Family Planning Commission (2014).

family. Since this study also explores the relationship between living arrangements and socioeconomic status and work-related factors, only those who were in the labor market at the time of survey are included in the final sample, which leaves a total of 100888 respondents.

Dependent variables

Based on household roster and children's information on marital status and current location of residence, we first code a variable with eight categories (see Table 1), including two categories of migrants without children – (1) husband living apart, and (2) wife living apart – and six categories of migrants with children: (3) only husband living apart; (4) only wife living apart; (5) husband and at least one child living apart; (6) wife and at least one child living apart; (7) only children living apart; (8) all nuclear family members live together at destination. Wives in only couple family have a higher proportion to be separated from the husbands, but very few would leave spouse or spouse and some children at home among couples with children. Instead, they either all live in receiving societies or leave only children at home, suggesting that couples in such family are likely to move together. This finding confirms to what has been referred to earlier (e.g., Chen and Sun 1996; Ma 2009; Zhai et al. 2007), but conflicts with most existing studies arguing that wives stay home to take care of children while husbands move out to earn bread due to traditional gender norm (e.g., Cai 1997). It suggests that both the husband and wife are contributors to family economy, and secular influences of migration have modified the role and position of wife in migrant family.

Further we collapse the eight-category variable into a two-category variable by combining the first seven categories together where 1 indicates at least one nuclear family member living apart and 0 otherwise. This allows us to clearly see and easily interpret how institutional and structural constraints are linked to living apart among migrant family members, in addition to reducing the complexity of living arrangements and increase the frequencies of living apart. In the sample, approximately 40 percent of migrants live apart from at least one family member.

Table 1 Living apart of migrants with or without children (nuclear family)

	Frequency	Percent
Only couple family		
Husband living apart	578	0.57
Wife living apart	932	0.92
Family with unmarried children		
Only husband living apart	122	0.12
Only wife living apart	70	0.07
Husband and at least one child living apart	71	0.07
Wife and at least one child living apart	81	0.08
Only children living apart	38,136	37.8
Family unification	60,898	60.36
N	100,888	

Source: 2013 MDSS.

Independent variables

This work features double selection effect associated with institutional and structural barriers on living arrangements of migrants from family members. The key is to identify appropriate indicators to measure these concepts. Selection resulting from institutions is gauged by four variables: (1) *hukou* type by differentiating migrants into rural-urban migrants (coded as 1) and urban-urban migrants (coded as 0). (2) Locations of *hukou*, coded as inter-province, inter-prefecture, and inter-county. (3) Access to employment and old-age insurance in receiving society: 1 indicates having it and 0 otherwise. (4) Housing source used to examine the exclusion or inclusion of public housing source to migrants.

Two closely related variables, geographic region or economic zones of receiving societies, are used to assess the effect of economic structural selection at macro level on family context. Each is classified as four categories: east, center, west and northeast for the former, and the Pearl River Delta in the south, the Yangzti River Delta in the east, Around Beijing (or Bo Sea Area) in the north, and other remaining areas. The Pearl River Delta and the Yangzti River Delta largely correspond to the east area. As much as they are more economically advanced with better employment opportunities and higher earnings, they also have stronger local culture and social exclusion to outsiders. Since the two variables are closely related, only one will be included in model analysis.

In addition, we control for respondents' sociodemographic features, including age, sex, ethnicity, and education, number of children, and migration characteristics (e.g., reasons of migration, duration in receiving society, weekly work hours and economic integration level). Economic integration is measured as a composite index composed of occupational prestige and income using factor analysis technique. The factor loadings are both 0.76, and the latent variable can account for about 58 percent variations of the observed variables. We expected that in addition to be possibly associated with the outcome variable, some of these variables may confound the relationship between the key predictors and the response variable (Fan et al. 2011).

Variable distributions

Table 2 displays both the univariate distributions of the key predictors and their correlation (percent) to the response variable. About 87 percent of the sample comes from the countryside. Over half of migrants have their *hukou* outside the receiving provinces, about 20 percent makes inter-county move, and the rest 29 percent of migrants move to different prefecture, suggesting that migrants tend to move to another province. Taking into account geographic regions, it is clear that slightly less than half move to the east region, which is economically more advanced. Among those currently in the labor market, less than a quarter has employment old-age insurance. With regard to housing source, less than 1 percent has access to public housing, while about two-thirds rent private apartments, and about 15 percent of migrants own house (apartment) in receiving society. Not surprisingly, the east area receives over 43 percent of total migrants; interestingly, the west also host about one-third of migrants, which is followed by central area, and the northeast attracts some 6 percent of migrants. With regard to economic zones, Pearl River Delta, Yangzti River Delta and Bo Sea Area host approximately 6, 17 and 16 percent of migrants, respectively.

The bivariate relationship between migrants splitting from at least one family member and institutional and structural factors is listed in the third column of Table 2. We observe that rural *hukou*, inter-province *hukou*, having no employment old-age insurance and residing in non-self-owned apartments are all associated with a higher prevalence of separated living arrangement than respondents otherwise. In particular,

those living in employee dormitories have the lowest rate of family reunion (less than 20 percent) compared to their peers living in other housing sources, while over 80 percent of migrants owning house and approximately 70 percent of migrants having public housing in host society have achieved family reunions, much higher than migrants with other sources of housing. Living apart also varies by structural factors: migrants moving to the east, or Yangtzi Rever Delta or Pearl River Delta have the highest rate of split family living pattern.

Table 2 Univariate distribution (proportion or means) of key predictors

Variables	% of distribution	Correlation to living apart (%)
Institution factors		
Hukou		
Urban	13.10	35.91
Rural	86.90	41.39
Location of *hukou*		
Inter-province	52.32	47.76
Inter-prefecture	28.66	32.66
Intra-prefecture	19.02	32.41
Have employee's old-age insurance		
No	77.43	41.11
Yes	22.57	38.46
Housing source		
Rent private apartment	66.85	80.58
Rent employer's apartment	6.52	56.53
Free apartment by employer	6.37	47.70
Self house	14.64	39.66
Public housing	0.80	32.41
Other	4.82	18.99
Structural factors		
Region		
East	43.65	45.80
Center	18.20	35.22
West	32.33	39.52
Northeast	5.82	24.04
Economic zones		
Pearl River Delta	5.84	45.77
Yangzti River Delta	17.33	53.85
Around Beijing	15.98	36.64
Other area	60.84	37.24

Source: 2013 MDSS.

Migrants also differ in sociodemographic and migration characteristics (results not shown here), and such variability allows further statistic analysis. Similarly, we have also explored the bivariate relationships between living apart and control variables, and found that the dependent variable is significantly correlated to age, gender, ethnicity, education, reasons of migration, duration at the place of destination, weekly work hours, and economic integration index. Such findings suggest that it is necessary to explore the net effect of key predictors on the response variable using regression models, controlling for sociodemographic and migration characteristics.

Linking selection effect (e.g., institutional and structural factor) to living apart

Logit model results

The dependent variable is dichotomously gauged, and logit model applies. Considering the clustering nature of migrants in each city that may share similarities, we utilize robust standard error to correct possibly downward estimation of standard error. Model analysis proceeds in two steps: the first step only considers key predictors, including only institutional and structural factors (see Table 3 for results), and the second step adds control variables (see Table 4 for results). As Figure 2 indicates, the rate of split living is almost the same for the two categories of intra-provincial migrants, and thus, we combine them as one category (coded as 0 in comparison with inter-provincial migrants) in model analyses.

The only difference between the two models in Table 3 is that Model 2 adds interactions between *hukou* and old-age insurance, location of *hukou* and regions to the equation. The results are very similar in the two models, and all variables are significantly related to living apart in Model 1. If migrants have access to employee old-age insurance, their probability of living apart is significantly lower than those otherwise. As expected, a rural *hukou* compared with an urban *hukou*, and inter-provincial migration compared with intra-provincial migration are associated with a significantly higher risk of living apart from at least one family member. Having old-age insurance makes migrants feel more stable and secured, and thus more likely to bring family members along. Similarly, having access to public housing is related to a

lower risk to live apart from some family members than renting private or employer's apartment, having free apartment provided by employer or other housing source, 6.4-time ($\exp^{((1.995)\text{-}1)}$) lower risk than free apartment, for example. The occupants of free apartment tend to be young, work in manufactory assembly lines, and collectively dwell in factory dormitories. However, owning one's own house/apartment in receiving societies is associated with the lowest likelihood to live apart. Owning a house or apartment is the lifelong pursuit for the majority of Chinese, which gives migrants a sense of security and belonging, and thereby motivating them to bring all family members along. Compared to the east, migrants in other regions are all associated with a lower risk of living apart.

When interaction terms are taken into account, the above patterns retain except for region. Its pattern reverses such that the main effect of "center" and "west" on the risk of living apart is positive, although the effect of "northeast" is insignificant. However, considering jointly the main effect and interactive effect, the substantive meaning between region and the response variable maintains.

It is necessary to note that since most inter-province migrants locate in the east, including Pearl River Delta, Yangzti River Delta, and around Beijing, migration boundary crossing correlates to geographic region or economic zone (see Appendix 1). However, the variable of economic zones[4] still yield independent impact on the outcome variable such that Yangtzi River Delta is associated with the highest risk of living apart, while other places a lower risk. When interaction terms are taken into account, such pattern reverses for migrants in other area such that it is linked to a higher risk of living apart than their fellow migrants in Pearl River Delta. As discussed above, this is possibly due to the fact that other areas have inadequate resources to attract migrants' family members.

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[4] Models using the variable of "region" are also fitted, and results (not shown here) are similar to those of economic zones.

Table 3 Logistic model results of the risk of split living of migrants (only Key predictors)

Variables	Model 1 Coef.	Model 1 RSE		Model 2 Coef.	Model 2 RSE	
Institutional factors						
Rural *hukou* (urban *hukou* =ref)	0.05	0.02	*	0.21	0.05	***
Intra-province migration (interprovince=ref)	0.45	0.01	***	0.28	0.04	***
Have employee's old-age insurance (no=ref)	-0.19	0.02	***	-0.34	0.04	***
Housing source (public =ref)						
Rent private apartment	0.23	0.08	**	0.26	0.08	***
Rent employer's apartment	0.89	0.08	***	0.91	0.08	***
Free apartment by employer	1.99	0.09	***	2.01	0.09	***
Self house	-0.64	0.08	***	-0.59	0.08	***
Other	0.56	0.08	***	0.59	0.08	***
Structural factors						
Region (east=ref)						
Center	-0.15	0.02	***	0.20	0.06	***
West	-0.08	0.02	***	0.50	0.05	***
Northeast	-0.56	0.03	***	0.04	0.08	
Interaction						
Rural *hukou* × Inter-province migration				0.21	0.04	***
Rural hukou × EOAI	-	-		0.22	0.05	***
Rural hukou × region						
Rural-urban migrants in central provinces	-	-		-0.38	0.06	***
Rural-urban migrants in west provinces	-	-		-0.67	0.05	***
Rural-urban migrants in northeast provinces	-	-		-0.72	0.09	***
Intercept	-0.29	0.09	***	-1.03	0.09	***
N				100888		
Log pseudolikelihood	-70271.33			-70274.72		
Pseudo R2	0.08			0.08		
Source: 2013 MDSS.						
Note: *p<0.05; **p<0.001; ***p<0.001.						

Table 4 lists analytical findings from two logistic models by adding migrants' sociodemographic factors and migration characteristics to the equation. The addition does not change the relationship illustrated in models 1 and 2 except for the size of coefficients for the key predictors. For example, while the gap between the two types of migrants disappears (Model 3), all else equal, when interaction terms are included, rural migrants again have a high hazard of living apart than their urban counterparts. The same is true for inter-provincial migrants, but it is the opposite for those with old-age insurance or with own house at the place of destination.

Table 4 Logistic model results of the risk of split living of migrants (all predictors)

	Model 3			Model 4		
Variables	Coef.	RSE		Coef.	RSE	
Institutional factors						
Rural *hukou* (urban *hukou* =ref)	-0.038	0.024		0.127	0.052	*
Intra-province migration (interprovince=ref)	0.467	0.015	***	0.265	0.043	***
Have employee's old-age insurance (no=ref)	-0.001	0.021		-0.113	0.045	*
Housing source (public =ref)						
Rent private apartment	0.208	0.085	**	0.232	0.085	**
Rent employer's apartment	0.857	0.088	***	0.878	0.088	***
Free apartment by employer	1.955	0.091	***	1.970	0.090	***
Self house	-0.605	0.087	***	-0.565	0.087	***
Other	0.526	0.089	***	0.553	0.089	***
Structural factors						
Region (east=ref)						
Center	-0.254	0.021	***	0.077	0.061	
West	-0.172	0.017	***	0.394	0.049	***
Northeast	-0.649	0.034	***	-0.093	0.079	
Interaction						
Rural *hukou* × Inter-province migration				0.240	0.046	***
Rural hukou × EOAI	-	-		0.150	0.050	**
Rural hukou × region						
Rural-urban migrants in central provinces	-	-		-0.366	0.065	***
Rural-urban migrants in west provinces	-	-		-0.646	0.052	***
Rural-urban migrants in northeast provinces	-	-		-0.666	0.087	***
Sociodemographic factors						
Age	0.060	0.001	***	0.060	0.001	***
Female	0.146	0.015	***	0.147	0.015	***
Hanzu	0.261	0.032	***	0.261	0.032	***
Education (<=primary=ref)						
Middle school	-0.025	0.020		-0.028	0.020	
High school	0.016	0.025		0.011	0.026	
College or above	-0.176	0.040	***	-0.124	0.040	**
Number of children	0.31	0.01	***	0.309	0.012	***
Migration characteristics						
Move for work	0.211	0.043	***	0.217	0.043	***
Duration at destination	-0.004	0.000	***	-0.004	0.000	***
Weekly work hours	0.001	0.000	***	0.001	0.000	*
Economic integration index	-0.004	0.001	***	-0.004	0.001	***
Intercept	-3.54	0.11	***	-3.738	0.121	***
N						
Log pseudolikelihood	-60067.56			-59913.48		
Pseudo R2	0.116			0.118		
Source: 2013 MDSS.						
Note: *p<0.05; **p<0.001; ***p<0.001.						

All control variables are significantly associated with the outcome variable. Age, female and Hanzu are all positively linked to likelihood of living apart, suggesting

that younger, male migrants and minority migrants have a lower risk of living apart from some family members. Conversely, collage education reduces the risk of living apart. Moving for work and longer weekly work hours both raise the probability of living apart from at least one family member, while as the years of stay in host society lengthens and the level of socioeconomic integration improves, the risk of living apart goes down. Such findings are as expected. For those who move for work, they may intend to make more money rather than being integrated into the host society, and thus may not be interested in bringing all family members to the current location.

However, the relationship between the response variable and duration of stay, work hours and socioeconomic integration may be non-recursive. It is possible that precisely because migrants do not achieve family reunion, they devote more time to work, leading to longer weekly work hours. Similarly, because all members of nuclear family reside together at the place of destination, migrants are likely to stay longer years and thus better integrated. Given this, their relationship cannot be interpreted as causality but associations.

Simulated risk of split living

Based on findings of Model 3, we simulate the risk of living apart (see Figure 2). The hypothetic persons share the following characteristics: they move for work, have old-age insurance, live in public housing, have high school education, and are of female, Han ethnicity with average age, duration of stay in receiving societies, weekly work hours, and economic integration level. The simulation by *hukou* is for those who cross provincial boundary and locate in Pearl River Delta, while simulations by location of *hukou* and economic zones are for rural-urban migrants, and locate in Pearl River Delta or with inter-province *hukou*, respectively.

Applying the same role, we also simulate the risk of living apart against duration of stay in receiving society. Figure 3 illustrates the results for rural-urban migrants and urban-urban migrants. The two parallel lines suggest that they share a same pattern of living apart. The risk of living apart is high when migrants first arrive in the host society, regardless of *hukou* types, but it goes down as the duration of stay gets longer, while fluctuating. Such pattern suggests that family reunion is achieved

gradually, and other family members join the earlier movers sequentially once they are settled down. However, the line representing urban-urban migrants locates below that of rural-urban migrants, indicating that the latter have a higher risk of living apart, regardless of the length of stay in the host society.
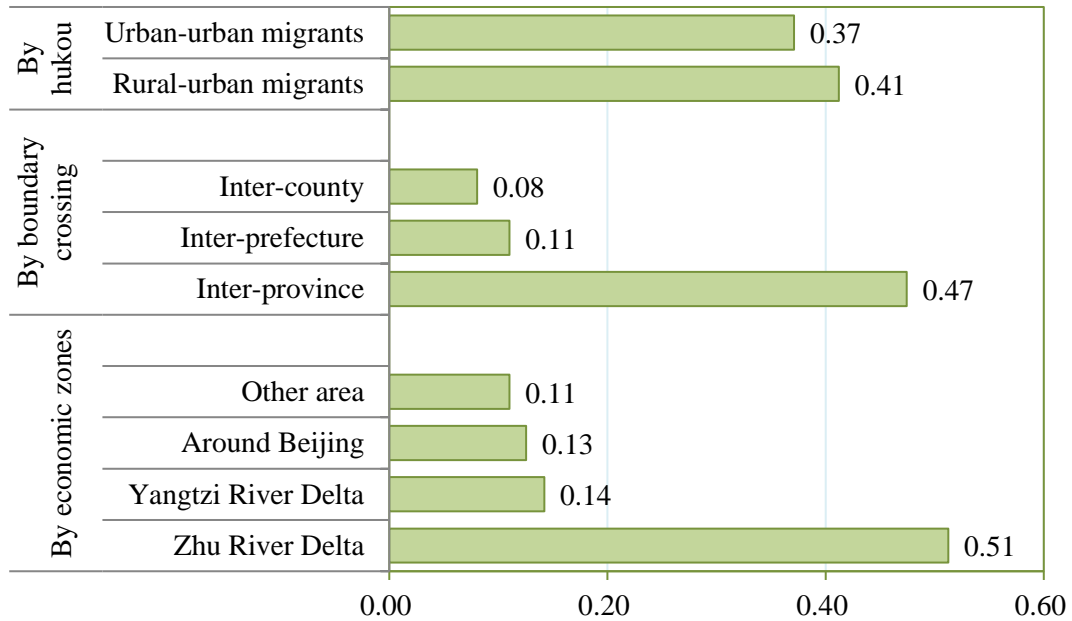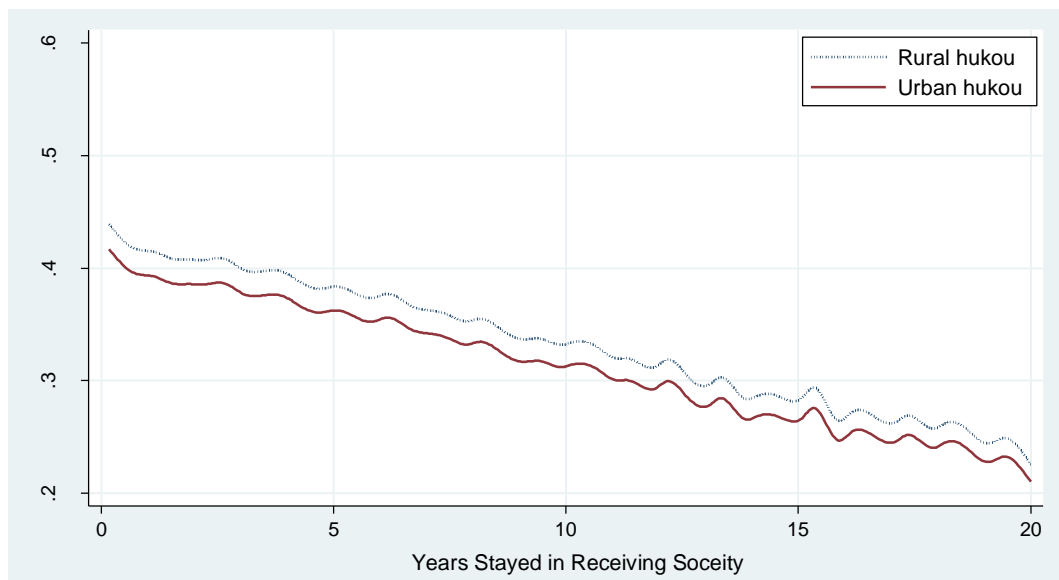

Figure 2 Predicted probability of split living

Figure 3 Predicted probability of split living by *hukou* type

Similarly, location of *hukou* bears substantially divergent patterns of living apart, as Figure 4 illustrates. Inter-province migration relates to a much higher risk of living

apart, and the gap between inter-province and intra-province migration does not narrow with the length of stay, and their gap is much bigger than that due to different *hukou* types.
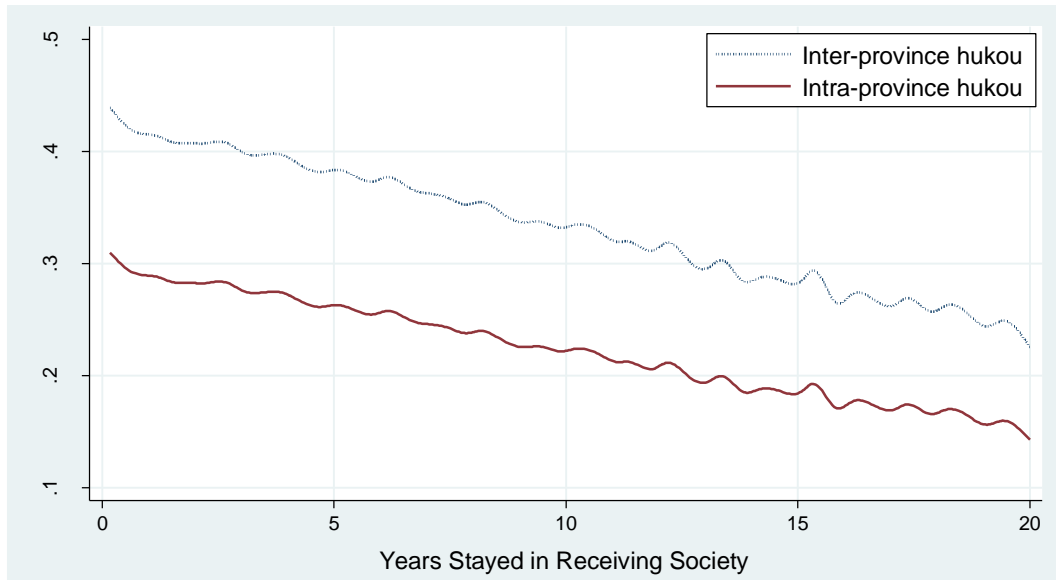

Figure 4 Predicted probability of split living by location of *hukou*

Figure 5 is the simulated results for regions. The line on the top stands for migrants in the east, representing a continuously higher risk of living apart, irrespective of years stayed in receiving society. No convergence is detected among the four regions regarding the risks of living apart, although gaps drops steadily as year of stay in receiving society increases.
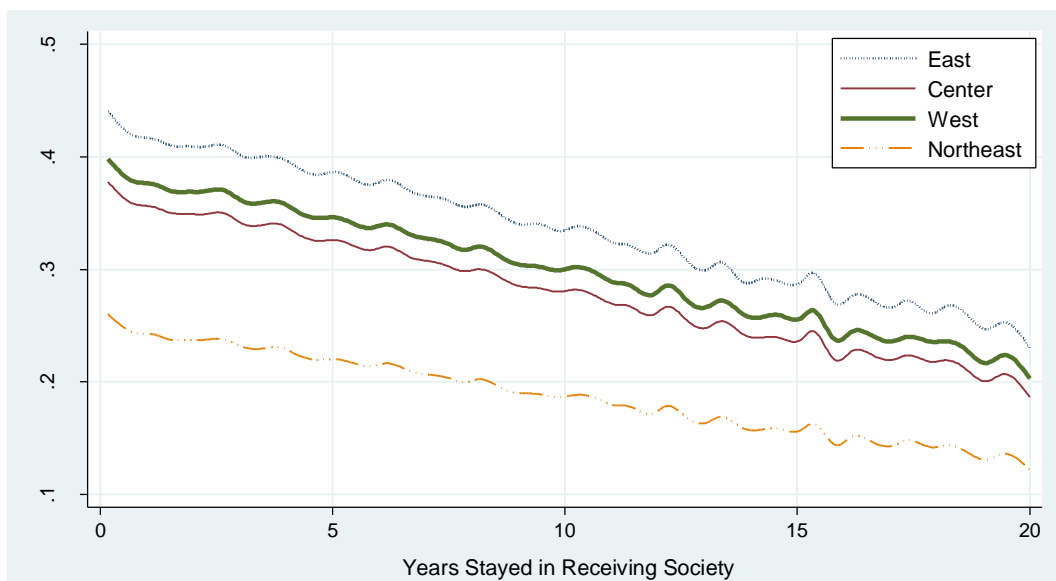

Figure 5 Predicted probability of split living by regions

Summary and conclusion

The Federation of Trade Union of Guangzhou City in the Pearl River Delta, the frontier of China's opening door to the outside world and one of the cities most attractive to migrants, reported in 2011 that family reunion is one of the most important factors affecting the happiness of rural-urban migrants employed, even more important than economic determinants. Living together with spouse and children is not only the basic demand of human nature, giving people the sense of security and love, but is also important for promoting family harmoniousness, solidarity and cohesion, and maximizing family functions. However, in context with heavy workload, poor work condition and low-level of income and welfare, many migrants are unable to bring core family members along. This paper attempts to explore how double selections related to institutional and structural factors are related to living apart among migrants using the nationally representative data. It has found that about 40 percent of married migrants do not co-reside with all nuclear family members, and it is particularly so among those with a rural *hukou* or non-local *hukou*, or moving to the east or the west. Although it is unable to consider the family features in sending areas and migrants' desire to bring all nuclear family members to the place of destination, adding these factors may not change the basic pattern of findings emerged from this analysis.

Living apart among family members causes various familial and social problems, including safety issues, psychological problems and problems with schooling among left-behind children, higher divorce rate among migrants and psychological and physical wellbeing of migrants for living-apart spouses, as well as daily care support for parents at the individual level. At the macro level, annual Spring Festival Travel Rush is precisely the manifestation of circulatory migration. Family unification is not simply an issue of individual families, but mirrors the institutional and structural factors at the place of destination and origin. Although studies tend to ascribe circulatory migration to family strategy that attempts to maximize family economic gains (Fan et al. 2011), we have clearly observed from this analysis that living arrangements among internal migrants in China goes beyond simple economic

consideration. Conversely, institutional and structural selection in receiving societies play important roles. We do not deny the fact that who migrates and who stays conditions on economic rationality, but we also believe that selection or exclusions due to *hukou* system and attached factors are important in decision-making process. As we have seen above, about half migrants move to the east, who, in addition to be attracted by employment opportunities, may be appealed by high-quality public resources in education and medical care, among others. Leaving some core family members at home does not suggest that migrants think living together is not important, but because they are selected by policy and structure through inadequate income, less access to better school or no access to participate in local college examinations of children, and less access to childcare services, etc. All these work together and render the basic desire of family reunion a luxurious demand.

Seven years ago, the share of urban population exceeded that of rural population for the first time, a milestone in the Chinese history. However, this share is believed to be largely exaggerated because it includes rural-urban migrants who work in cities but are not entitled to urban benefits. Consequently, the Chinese government has determined to promote human-centered "New-Type of Urbanization." Facilitating family unification in receiving societies for those who have such desire is clearly one of the most important means to achieve the the goal of New-Type of Urbanization. Family unification is also essential for receiving societies to attract, accumulate and retain human resources. It is especially important for the east or more economically advanced areas since such loci are more short of human resources due to rapid economic development and low fertility rate in an extended period of time. As more factories are relocated to the hinterland from coastal areas or to economically less developed regions from more advanced regions, the east coastal areas has suffered from increasing difficulty to recruit necessary workers. Such phenomenon coincides with high threshold of family reunion for migrants who tend to be treated as machines without feelings and desires, but cheap labors craving only for money. The shortsighted philosophy and behaviors may undermine the sense of belonging and attachment of migrant workers to the host society, which may eventually become the

bottleneck of sustainable development in the long run. Conversely, family unification would promote long-term residence of migrants in receiving society, which in turn help them become more skilled workers, service persons or professionals, and valuable stocks of labor; similarly, their children can be the potential labor resource. These could solve the problem of high mobility of migrants and thus the shortage of workers. Given this, reducing the share of living apart of migrants necessitate attentions to be devoted specifically to those who are rural-ers, have no access to employee old-age insurance and public housing, and have their *hukou* outside the receiving province. Local government should lower the threshold of family unification without worrying about its "cake" to be shared by outsiders. Rather than excluding outsiders from the local social welfare system, government in receiving societies should provide needed assistance to facilitate migrants' family reunion.

We have also found that the likelihood of family unification among migrants is also low in less developed western areas, but as we stated above, the reasons are different. Although more factories have moved inland, people still desire to move out due to lack of high-quality resources in the west. In such areas, the question is how to retain and save human resources for local use, which is indeed a big challenge. Increasing government investment in infrastructure might be one effective solution in the long run, which would not only increase local job opportunities, but more importantly, also narrow regional gap in public resources and thereby motivating people to stay locally. Otherwise, the loss of young or middle-aged people would attenuate the vitality and energy in the local labor force, and further enlarge regional disparities, contradicting with National Strategy of Western Development.

It is not easy to achieve these goals for both developed and less developed areas. They require fundamental changes in public resource redistribution, and touch the base of the interests of local urbanites who may not be willing to share with outsiders the already inadequate public resources. Nevertheless, local government has to be determined to break the unequal and unfair interest structure among various segments of the population, and truly realize that places more inclusive to migrants would be in advantaged position in long-term sustainable development.

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Appendix 1 Correlation between Economic Zones and Location of *Hukou*

	Zhu River Delta	Yangzti River Delta	Around Beijing	Other area
All migrants				
Inter-province	70.07	83.99	65.23	39.11
Inter-prefecture	27.17	13.46	21.06	34.65
Inter-county	2.76	2.55	13.72	26.24
Urban-urban migrants				
Inter-province	61.64	79.62	70.47	34.21
Inter-prefecture	33.95	15.61	16.78	36.26
Inter-county	4.41	4.77	12.75	29.53
Rural-urban migrants				
Inter-province	71.23	84.53	64.25	39.86
Inter-prefecture	26.24	13.19	21.85	34.41
Inter-county	2.54	2.27	13.9	25.73
N	6,766	20,509	18,266	67,496

Source: 2013 MDSS.