

Effect of *Hukou* Mobility on Depression in Later Life in Urban China

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Abstract

We investigate how the *hukou* system in China creates disparities in psychological well-being among rural-urban migrants. Using China Health and Retirement Longitudinal Study (2011-2013) and its life history data, we use propensity score analysis to assess the causal relationships. Results show that *hukou* conversion reduces depressive symptoms, and that such beneficial effects are only prominent in low propensity groups. These effects are mostly driven by women and older group (60+years old) with low propensities of obtaining an urban *hukou*. For current urban residents, not having an urban *hukou* mostly hurts the psychological well-being of women and older adults who are already in a socioeconomically disadvantaged position. For inter-county migrants who later obtained an urban *hukou*, a period of long waiting time may lead to more depressive symptoms. Chronic stress associated with not having an urban *hukou* in the urban area may have a lasting negative effect.

Introduction

Hukou system was first established in 1955 as a form of social control, and only urban *hukouers* had access to the state-allocated goods, welfare and entitlements (Chan, 2010). Once born, each person is assigned a *hukou* type (either agricultural (rural) *hukou* or non-agricultural (urban) *hukou*) based on place of birth and lineage (i.e. mother's *hukou* type). For a few decades, *hukou* system strictly bound individuals to the land where they were born. *Hukou* mobility (rural-urban *hukou* conversion) is possible but highly selective. The major channels include receiving a specialized secondary education or higher, serving in and then demobilized from the army as an officer, being promoted to be a cadre in township government, and land being taken over by an urban factory for plant expansion (X. Wu & Treiman, 2004; Whyte, 2010). Education was found to be the most important channel, and those who realized *hukou* mobility are considered the “the best and the brightest” of the rural population (Wu & Treiman, 2007).

Starting in the late 1970s and early 1980s, the *hukou* system was relaxed and rural *hukouers* have the freedom to migrate to urban areas for working and living. Thus transpired a large flow of rural-urban labor migration for the past decades. In 2000, the “floating population”, migrants who resided outside their household registration place for an extended period of time, comprised 6% (79 million) of the total Chinese population, and by 2010, this percentage had increased to 17% (221 million; China Statistics Press, 2012; Liang, Li, & Ma, 2014). However, reforms on *hukou* mobility have taken much smaller and slower steps. Since the 1990s, *hukou* reform was decentralized to local governments, who have the autonomy to secure resources and experiment on *hukou* reforms (L. Wu, 2013). However, obtaining a local urban *hukou*, especially in Tier 1 cities remains very difficult. Some cities use a point based system resembling that of obtaining a citizenship in some developed countries. In general, the *hukou* converters are still highly selected on education, occupation or income (Zhang & Treiman, 2013).

Those urban residents with rural *hukou* are experiencing prolonged institutional and social discrimination. They face occupation segregation with urban *hukou* holders, with rural *hukouers* highly concentrated in occupations that are physically demanding, difficult, and dangerous (3D jobs), usually face hiring and wage discrimination, and have a much higher probability to face wage arrears (Meng & Zhang, 2001). Migrants with rural *hukou* are particularly vulnerable to potential downfalls in the city as they are largely excluded from social security programs, such as social assistance programs (e.g., minimum living guarantee), social welfare (e.g., disability benefits), housing subsidies, and social insurance (Xu, Guan, & Yao, 2011). Social discrimination towards rural migrants is also prevalent – they experience various forms of stigmatization, including labelling, stereotyping, social isolation, and hostility, and some have poor social adjustment (X. Li et al., 2006). Migrant workers from rural areas are still referred to as “peasant-workers” and considered as a “second class” of urban citizens (Wang, Zuo, & Ruan, 2002). Migrant workers in China are sometimes compared to blacks in apartheid South Africa and undocumented Mexican immigrants in the United States (Roberts, 1997).

In this research, we focus on the current urban residents with rural origins (i.e., born in rural areas with rural *hukou*) and compare depressive symptoms of the middle-aged and older adults who obtained an urban *hukou* and those who still have rural *hukou* while taking account of

hukou mobility selection. We ask the following research questions: 1) What is the overall effect of *hukou* conversion on the psychological well-being of individuals in later life? 2) How the effects vary by different groups? We examine such effects by gender, age groups, and groups of different propensities (low/high) for *hukou* conversion. 3) Among migrants who realized *hukou* mobility, how is the stress associated with a long-term waiting time to obtain an urban *hukou* impact their psychological well-being?

Data

We combine China Health and Retirement Longitudinal Study (CHARLS) 2011-2013 with the CHARLS 2014 life history data. CHARLS is a high-quality nationally representative sample of Chinese residents age 45 and older living in continental China. In the national baseline survey, 150 county-level units from 28 provinces were randomly chosen, adopting multi-stage stratified Probability Proportional to Size (PPS) sampling. The sampling frame contains all county-level units (except for Tibet), and is stratified by region and urban districts, rural counties and per capita statistics. Within each county-level unit, 3 primary sampling units (PSUs), either villages in rural areas or neighborhoods in urban areas, were chosen. Within each PSU, collective dwellings, such as dormitories and nursing homes were originally excluded. Migrants who live in factory dormitories or employers' homes were sampled in their homes of origin as household members living away from home (Y. Zhao et al., 2012). Individuals and their spouses were sampled with the condition that such individual is aged 45 or older (their spouses can be less than age 45). We limit our sample to the current urban residents with rural origins. The sample in 2013 yields 2,026 individuals, of which 1,066 (52.6%) obtained urban *hukou*.

Analytical Strategy

In the first set of analysis, we perform propensity score analysis for five groups – 1) all individuals in the sample, 2) all women, 3) all men, 4) those aged between 45-59, and 5) those aged 60 and older. We obtain average treatment effect on the treated (ATT). To assess the stratified effect of *hukou* conversion, within each group, we further obtain such effect for all groups of propensity, for those in low propensity strata, and those in high propensity strata.

To evaluate the association between time of waiting for an urban *hukou* and depressive symptoms, in the second set of analysis, we further limit our sample to the *hukou* converters who engaged in internal migration before or at the same time of obtaining an urban *hukou*. Multiple regressions are used to predict their depressive symptoms in 2013 while controlling for their depressive symptoms in 2011 and other covariates.

Measures

Depressive symptoms are obtained by taking the mean scores of 10 questions based on CES-D10, adopted by CHARLS. It ranges from 0 to 3 with a higher value indicating more depressive symptoms. *Hukou* mobility, or rural-urban *hukou* conversion is defined by the two criteria: 1) the person was born with a rural *hukou*; 2) the person has a current urban *hukou*. The covariates used for predicting rural-urban *hukou* conversion are the following: gender, age, age quadratic, education levels (no education (reference), some education to elementary school

graduate, middle school graduate, high school graduate, college or higher), type of first work (Government or public sector, firms, farming or others (reference)).

In the second set of analysis, we control for a variety of factors. Years of waiting is obtained by counting the number of years between their first migration and year of obtained an urban *hukou*. We use the cut off of 5 years with the comparison category being waiting time equals 5 years or more (reference: waiting time less than 5 years). Other covariates in this analysis include depressive symptoms in 2011, gender, age, age squared, educational attainment, annual household expenses (logged), type of most recent job (government or public sector, firms, self-employed, others (reference)), whether retired by 2011, and whether had pension in 2011.

Results

Descriptive results

Table 1 shows the covariates used in propensity score matching and depressive symptoms in 2013 by *hukou* status. The *hukou* converters comprise slightly more than half of the sample (52.6%). Rural *hukou*ers have significantly more depressive symptoms, less likely to be male, and approximately 1.7 years younger than the *hukou* converters. Rural *hukou*ers have lower educational attainment, and are less likely to work in government/public sector or firms in their first job.

Table 2 describes migrants who obtained urban *hukou* after migration in our sample. Of the 371 individuals, 25.7% waited 5 years or more for their urban *hukou*. The mean depressive symptoms in 2013 is 0.71, and 0.67 in 2011. They are slightly more likely to be female (57%) with a mean age of 64. Approximately 30% of them graduated from high school or higher. The average annual household expense in 2011 is 6,867 yuan. For their most recent job, 42% are firms, followed by government or public sector (23%), and others (20%). Approximately 47% of them had retired by 2011, and 44.2% had pension in 2011.

Propensity score analysis

Appendix A reports boundaries of matching blocks and balancing properties for all five sets of propensity score matching. The cut off of 0.4 is used to distinguish low propensities and high propensities. Table 3 reports results for ATT in propensity score analysis. For all individuals in the sample, *hukou* conversion reduces depressive symptoms, and such beneficial effects are only prominent in low propensity groups. These effects are mostly driven by women and older group (60+years old) with low propensities of obtaining an urban *hukou*. In other words, for current urban residents, not having an urban *hukou* mostly hurt the psychological well-being of women and older adults who are already in a disadvantaged position socioeconomically. Table 4 further shows that for the migrants who later obtained an urban *hukou*, a period of long waiting time may lead to more depressive symptoms. This result suggests that chronic stress associated with not having an urban *hukou* in the urban area may have a lasting negative effect on their psychological well-being and such effect may still persist even after they obtained an urban *hukou*.

References

- Chan, K. W. (2010). The household registration system and migrant labor in China: Notes on a debate. *Population and development review*, 36(2), 357-364.
- China Statistics Press. (2012). *Tabulation on the 2010 Population Census of the People's Republic of China*. Beijing, China: China Statistics Press.
- Liang, Z., Li, Z., & Ma, Z. (2014). Changing Patterns of the Floating Population in China during 2000-2010. *Population Development Review*, 40, 695-716.
- Li, X., Stanton, B., Fang, X., & Lin, D. (2006). Social stigma and mental health among rural-to-urban migrants in China: A conceptual framework and future research needs. *World health & population*, 8(3), 14.
- Meng, X., & Zhang, J. (2001). The two-tier labor market in urban China: occupational segregation and wage differentials between urban residents and rural migrants in Shanghai. *Journal of comparative Economics*, 29(3), 485-504.
- Roberts, K. D. (1997). China's "tidal wave" of migrant labor: What can we learn from Mexican undocumented migration to the United States?. *International Migration Review*, 249-293.
- Wang, F., Zuo, X., & Ruan, D. (2002). Rural migrants in Shanghai: Living under the shadow of socialism. *International Migration Review*, 36(2), 520-545.
- Whyte, M. K. (Ed.). (2010). *One country, two societies: rural-urban inequality in contemporary China* (Vol. 16). Harvard University Press.
- Wu, L. (2013). Decentralization and hukou reforms in China. *Policy and Society*, 32(1), 33-42.
- Wu, X., & Treiman, D. J. (2004). The household registration system and social stratification in China: 1955-1996. *Demography*, 41(2), 363-384.
- Wu, X., & Treiman, D. J. (2007). Inequality and equality under Chinese socialism: The hukou system and intergenerational occupational mobility. *American Journal of Sociology*, 113(2), 415-445.
- Xu, Q., Guan, X., & Yao, F. (2011). Welfare program participation among rural-to-urban migrant workers in China. *International Journal of Social Welfare*, 20(1), 10-21.
- Zhang, Z., & Treiman, D. J. (2013). Social origins, hukou conversion, and the wellbeing of urban residents in contemporary China. *Social science research*, 42(1), 71-89.
- Zhao, Y., Hu, Y., Smith, J. P., Strauss, J., & Yang, G. (2012). Cohort profile: The China health and retirement longitudinal study (CHARLS). *International journal of epidemiology*, 43(1), 61-68.

Table 1. Descriptions of Depressive Symptoms and Covariates Used in Propensity Score Matching to Predict Current Hukou Status

Variables	Current Hukou Status		
	<i>Mean or %</i>		
	<u>Rural hukouers</u>	<u>Rural-urban hukou converters</u>	
<u><i>Depressive symptoms in 2013 (0-3)</i></u>	0.76	0.66	***
<i>Covariates Used in Propensity Score Matching to Predict Current Hukou Status</i>			
	<u>Rural hukouers</u>	<u>Rural-urban hukou converters</u>	
Male	42.92%	43.90%	
Age	60.64	62.33	***
<u><i>Educational attainment</i></u>			
No education	16.56%	10.60%	***
Some education	45.31%	30.86%	***
Middle school	28.54%	28.33%	
High school	8.54%	21.01%	***
College or higher	1.04%	9.19%	***
<u><i>Type of first work</i></u>			
Government or public sector	3.75%	12.85%	***
Firms	7.81%	20.73%	***
Farming or others	88.44%	66.42%	***
Sum	960	1,066	

*** p<0.001

Table 2. Descriptions of Inter-County Migrants Who Obtained Urban Hukou at the Same Year or after Migration

Variable	Mean	Std. Dev.
<i>Year waiting for urban hukou (≥ 5 yrs)</i>	25.07%	0.43
<i>Depressive Symptoms in 2013</i>	0.71	0.56
<i>Depressive Symptoms in 2011</i>	0.67	0.57
Male	43.40%	
Age	64.44	9.38
<i>Education attainment</i>		
No education	9.16%	
Some education	36.39%	
Middle school	24.80%	
High school	20.22%	
College or higher	9.43%	
<i>Annual household expense per capita in 2011</i>	6087.06	5488.90
<i>Most recent job</i>		
Government or public sector	23.18%	
Firms	41.51%	
Self-employed	15.63%	
Others	19.68%	
<i>Retired by 2011</i>	47.44%	
<i>Had pension in 2011</i>	44.20%	

Table 3. Effects of Rural-Urban Hukou Conversion on Depressive Symptoms in 2013, Propensity Score Analysis

ATT	<u>All</u>		By Gender		By Age Groups	
			<u>Women</u>	<u>Men</u>	<u>45-59 Yrs old</u>	<u>60+ Yrs old</u>
<i>All groups of propensity</i>						
Effects	-0.061	*	-0.055	-0.036	-0.021	-0.083 *
S.E.	0.028		0.042	0.038	0.044	0.037
<i>Low propensity</i>						
Effects	-0.096	***	-0.106 *	-0.042	-0.073	-0.09 *
S.E.	0.032		0.052	0.044	0.057	0.04
<i>High propensity</i>						
Effects	-0.023		-0.019	-0.026	0.001	-0.066
S.E.	0.048		0.052	0.061	0.058	0.067
Sum	2,025		1,146	879	845	1,180

*** p<0.001 * p<0.05

Table 4. Predicting Depressive Symptoms in 2013 for Inter-County Migrants Who Obtained Urban Hukou at the Same Year or after Migration

	Coef.	Std. Err.	
<i>Years since first migration</i>			
<i>Reference: less than 5 years</i>			
5 years or more	0.13	0.06	*
<i>Depressive symptoms in 2011</i>			
Male	-0.03	0.05	
Age	0.06	0.03	*
Age squared	0.00	0.00	*

*** p<0.001 * p<0.05 + p<0.1

This table also controls for educational attainment, annual household expenses in 2011, most recent job, retirement and pension status in 2011.

Appendix. Distribution of Propensity Score Blocks

All

# of Blocks	Boundaries of Blocks	Untreated	Treated
1	0.045	47	14
2	0.2	274	140
3	0.4	467	400
4	0.6	87	135
5	0.7	51	150
6	0.8	33	227
	Total	959	1,066

Women

# of Blocks	Boundaries of Blocks	Untreated	Treated
1	0.085	10	5
2	0.2	152	78
3	0.4	175	105
4	0.5	103	128
5	0.6	69	92
6	0.7	22	60
	0.8	17	130
	Total	548	598

Men

# of Blocks	Boundaries of Blocks	Untreated	Treated
1	0.2	113	50
2	0.4	183	156
3	0.6	38	67
4	0.7	22	85
5	0.8	15	92
	Total	411	468

Ages 45-59

# of Blocks	Boundaries of Blocks	Untreated	Treated
1	0.068	43	30
2	0.2	201	97
3	0.4	134	124
4	0.6	42	91
5	0.8	8	75
	Total	428	417

Ages 60+

# of Blocks	Boundaries of Blocks	Untreated	Treated
1	0.4	461	365
2	0.6	46	164
3	0.8	24	120
	Total	531	649