The Health Disparity of Migrants, Return Migrants and Non-Migrants: A Life Course Perspective in the Case of Rural-to-urban Migration in China

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Abstract

Using nationally representative data from the China Labor Force Dynamics Survey (CLDS) 2010, we examined health disparities across migrants, non-migrants and return migrants in the context of rural-to-urban migration in China. We find that a "health paradox" phenomenon exists in China's internal migration context. In examining whether this is caused by health selectivity of migration, we the examined "Healthy people migrate" and "unhealthy migrants return" hypotheses and found that rural-to-urban migrants are less healthy than rural non-migrants in the young adulthood, but they are healthier than rural non-migrants in their older adulthood. In the meanwhile, the return migrants are less healthy than both rural non-migrants and on-going migrants in older adulthood but not in young adulthood, indicating a life course effect of health selectivity in migration or return. Our study sheds light on migration and health selectivity from the perspective of life course.

Introduction

Research on health disparities among Hispanic immigrants in the United States has shown that immigrants experience comparable, or even superior, health outcomes comparing to native-born people, even though they have lower socioeconomic status and limited health care access compared to the natives in immigrant receiving areas in general (Hummer, Rogers, Amir, Forbes, & Frisbie 2000, 2007; Turra & Goldman 2007). This "Epidemiological paradox" has been a longstanding puzzle in demographic and epidemiology research (Palloni and Morenoff 2001). To explain this paradox, several theoretical hypotheses have been stated in the previous literature, which range from suspicious data quality, cultural factors such as eating habits and life style, as well as the selection of migration and return migration (Ullmann, Goldman & Massey 2011). With regard to migration selectivity, scholars offered two hypotheses. One is the "Healthy people migrate" hypothesis and the other is "unhealthy migrants return" hypothesis. These two hypotheses about the "epidemiological paradox" seem self-explanatory. Indeed, it is easy to imagine why positive migration selection may be operating at origin areas. Individuals in poor health are unlikely to be able to endure the rigors of the journey (Hildebrandt and McKenzie 2005), let alone the challenges of adjusting to a new place of destination. Moreover, given the different health care system and barriers between sending and receiving places for the labor migrants, it is challenging for those in poor health to migrate.

However, fewer studies have been conducted in the internal migration context. Moreover, very few studies have been conducted on the selection of return migration in the internal migration setting. There is a gap of such studies, especially in China where the *Hukou* system prevents

migrant workers from having long term living commitments in places of destinations. Moreover, previous studies has not taken into consideration the effect of life course factors in determining health selectivity and migration. In young adulthood, both migrants and non-migrants are generally healthy, and health may be less a concern for them to migrate or return. While they enter into older adulthood, health would impose more significant challenges for them to remain as migrants or to initiate migration, especially when migrants have difficultly accessing health care and medical facilities in the migration destination.

In this paper we first examine whether a "health paradox" exists in the context of rural-to-urban migration in China. We then examine whether the "health paradox" can be explained by the "healthy people migrate" and "unhealthy migrant return" hypotheses in the context of rural-to-urban migration in China, where, under the precepts of a national Household Registration System, migration was historically restricted and migrants continue to experience limited access to government services such as subsided health care service in destination areas. The life course perspective is taken into consideration as health has great variation over the life course.

Review of the Literature

In previous research about migration and health selectivity, the "healthy people migrate" hypothesis has been used to argue that immigrants are a selected group who are generally healthier than non-immigrants due to the physical demands of migration process. Indeed, in the migration decision making process, physical capital is one of the important factors to consider. Not only because the potential health risk involved in the migration process, but also as a result

of the interruption of health care provision during migration. Empirical studies have examined this hypothesis in both international and internal migration context, and in general, they support this hypothesis in both settings to some extent (e.g. Ullmann et al. 2011; Yao 2010; Tong & Piotrowski 2012). However, the positive association might changes over time or depending on the context, and the effect may be modest (Ullmann et al. 2011). Thus, it is necessary to examine this hypothesis in a variety contexts, where the migration experience might be different from that of Mexican immigrants in the United States.

In contrast, the “unhealthy people return” hypothesis argues that migrants choose to return because of their deteriorated health, that is, the so called “salmon bias” hypothesis. Basically it argues immigrants who are experiencing deteriorating health choose to return to their place of origin. On the one hand, declining health may prevent them from participating in physically demanding work. On the other hand, they may go back to their places of origin to seek social and health support from their family members, especially when they lack of social security in the places of destination. As a result, on-going migrants appear healthier as a group (the so-called 'Salmon bias') (Abraido-Lanza et al. 1999; Turra & Elo 2008).

Empirically, most previous studies examining these two hypotheses were conducted either using an origin sample or a destination sample, respectively. Consequently, comparisons cannot be made across all groups of people in labor forces in both sending and receiving regions. When considering migration selection, an important aspect is the comparison group used to judge migration. To evaluate the idea of “healthy in-migrants”, it is important to compare migrants

with both non-migrants in sending and receiving places. From a destination perspective, to see if a “health paradox” exists, migrants should be compared with the non-migrants in the receiving areas to see if these migrants are healthier than the destination population. From an origin perspective, migrants should be compared to non-migrants in sending areas to see if heathier people are likely to migrate away. To examine “unhealthy migrant return” hypothesis, it is necessary to examine whether return migrants are less healthy comparing to ongoing migrates, instead of only comparing them to non-migrants. For instance, Ullmann at al. (2011) compared return migrants and non-migrants in Mexican, and showed that return migrants exhibited worse health conditions related to obesity, smoking and psychological health problems. However, the worse condition of obesity of return migrants relative to non-migrants in Mexico might be due to the eating habits they formed in the United States during their period of migration in the United States. There is a lack of comparison between return migrants and on-going migrants, which is more relevant to the “unhealthy people return” hypothesis.

Other than a few exceptions which compare return migrants with on-going migrants in the host society, scholars have shown the opposite selection of returnees comparing to on-going migrants. For instance, Sander (2007) showed that return migrants from Germany to Turkey have relatively better health comparing to those non-returned migrants. The study even indicated that the health of ongoing immigrants is in decline, just the opposite of what is predicted by the “unhealthy migrant return” hypothesis. One possibility is that those who experienced deteriorated health conditions may tend to stay in the host society to enjoy the benefits of public health care in the more developed countries. Others such as Elo (2008)

examined the Hispanic migrants to United States and find very modest evidence for the "unhealthy people return" hypothesis.

Based on these mixed findings of tests of "unhealthy people return" hypothesis, it is possible that the nature of selection of return migration on health is conditional on features of different migration streams, life stages, cultural context and aspects of the health care system in different sending and receiving communities. Similar to the decision-making process of migration, migrants also make calculations on the cost-benefits of return, and these decisions not only include considerations of physical conditions, but also reflect how well they can take care of physical health at different life stages. In particular, if they can access and afford the better health care in the place of migration, they may choose to stay even in the case of health deterioration. In contrast, if they face obstacles to access the health care in place of destination, they may choose to return to receive medical treatment. Beyond the medical care system, the daily support from family members also has influences on health and the return decision. Thus, the selection of return migration may be context- and life stage-specific. There is a need to study this selectivity beyond the international migration context and focus on more context specific areas. Unfortunately, very few studies have been conducted on the selection of return migration in the context of internal migration. There is a gap of such studies in the internal migration settings, especially in China where the Hukou system prevents the migrant workers from receiving the full access of health care in the places of destinations.

In this paper we examine whether there exist "health paradox", then we will examine the "healthy people migrate" and "unhealthy migrant return" hypotheses in the context of rural-to-

urban migration in China, where, under the precepts of a national Household Registration System, migration was historically restricted and migrants continue to experience limited access to government services such as subsided health care services in destination areas. This study examines health selectivity in both initial out-migration and return migration using the Chinese setting as a case study, and takes into consideration the effects of life stage factors.

Hypotheses

China, as a special case which involves mostly internal migration and state-imposed barriers to free movement, is an interesting contrast to the case of Mexican migration to the US. In this study, we explore the "healthy in-migrants" and "unhealthy out-migrants" hypotheses at different life stages in the context of institutional barriers of *Hukou* system in China. As the migration and health selectivity argued, we in general expect that migrants are healthier than non-migrants in both rural and urban area in China. Many jobs held by migrants are dirty, demanding and dangerous in the Chinese setting, especially in their initial stages of migration. Even in the less demanding jobs, they often require very long work hours and have few opportunities for days off compared to the urban labor force. We also expect return migrants are unhealthy comparing to non-migrants in both rural and urban contexts. Although health care in urban China is better equipped to deal with medical problems than in rural area, rural migrants are often not able to enjoy the benefits because of *Hukou* constraints in their migration area. In the meanwhile, they often have access to the New Cooperative Health Care system in their hometown which is linked to their Hukou status. When their health condition deteriorates, they may choose to go back to their hometown to access affordable health care. However, we expect that the degree of selectivity will be conditional on life stage. In young

adulthood, we expect that there is less health selectivity for migration and return migration as young people are the healthiest group in terms of their life stages. In older adulthood, we expect the health selectivity to be stronger, as people's health condition gradually become more variable and generally less healthy. Health conditions will impost greater challenges for migrants at this life stage.

Data

The data we used are from 2012 China Labor Force Dynamics Survey (CLDS), a nationally representative study of the Chinese labor force. This survey uses a stratified multi-stage cluster probability sampling design. Specifically, all Chinese provinces (excluding the Tibet Autonomous Region, Hainan and Hong Kong, Macao and Taiwan) were divided into six strata based on geographic location and population. Within each stratum, four stages of cluster sampling were conducted: in the first stage, districts (prefecture-level cities, capital cities and major urban and suburban municipalities) and counties (including county-level cities) are the primary sampling units; the streets and townships are secondary sampling units; residents' committees and villagers' committees are the tertiary sampling units and the households are the ultimate sampling unit. In each household, all laborers are selected as the respondents in the survey. Geographically, the CLDS covered 29 provinces and autonomous minority areas. It includes about 16,000 labor force participants from around 9,000 households.

Unlike other studies of health and migration in China (e.g., Chen 2011; Tong and Piotrowski 2012), this nationally representative sample represents the labor force population and it includes migrants in urban areas, non-migrants in urban, non-migrants in rural areas as well as

return migrants in rural areas in China. Thus, our study includes the most inclusive migration groups and can simultaneously examine the "healthy in-migrants" and "unhealthy out-migrants" hypotheses with appropriate comparison groups.

Measures

Health Measures: We include three types of health measures: self-rated health, the extent to which health problem in last month which prevents them from work, as well as the incidence of illness in the last two weeks. Self-rated health is a self-evaluation of personal health condition and we grouped it into three categories: poor or fair/fine, healthy or very healthy. Self-rated health captures both the physical and mental aspects of health and can be considered a proxy for overall health status. The second health measure is how often the health problem prevented respondents from normal work and daily activities in last month. We reversed coded this variable so that higher values show less effect of health on work or daily activities (i.e., higher numbers indicate better health). Values are divided into three categories in the order of "often/always have health problem", "sometimes" and "never". The third health measure is the incidence of being ill in last two weeks, which is a dummy variable for being ill or not.

Migration Status: We define rural-to-urban migrants as those people who are living in urban areas but do not have a local *Hukou* in the city they are migrating, or those rural people who are working in cities but temporarily return to their hometown. We define return migrants as those people who have migrated at least six months in their life but now returned and plan to return permanently. Although we deliberately focused on the rural-to-urban migration selection, we also distinguish urban-to-urban migrants in the model as the streams of urban-urban migration

are different from rural-to-urban migration. The urban-to-urban migrants are better educated and they are less likely to work in the labor-intensive sectors. As a result, our major independent variables in this study have five categories: non-migrants in rural (rural *Hukou*, not floating), non-migrants in urban (rural *Hukou*, not floating), urban-to-urban migrants urban *Hukou*, floating, rural migrants rural *Hukou*, floating, as well as returned migrants rural *Hukou*, floating, now returned).

Demographic and health behavior measures: we include the demographic control variables of age, sex, marital status, education, and occupation as these demographic variables may closely correlate with health status. Age is analyzed as a continuous variable. Marital status includes never married, married (first married or remarried) as well as post-marital status of widowhood or divorced. Education is a self-reported attainment level including lower than primary school, primary school, secondary school, high school/technical school/other equivalent education, as well as tertiary education or above. Occupation includes five categories: management and professionals, administrative or service workers, industry workers, informal workers and non-classified jobs as well as not employed (including farmers who are working on their field but did not identified other jobs).

Health behavior variables include smoking and drinking. Smoking is a dummy variable of whether the respondent ever smoked in their life. The drinking measure asks about whether drinking occurs regularly or not. We also include Body Mass Index (BMI) as a proxy for genetic, dietary as well as exercise habits. BMIs is calculated based on reported height and weight. We deleted those cases with abnormal BMIs lower than 13 or higher than 50 as they probably

reflect content errors in the data. We also included health insurance in the model to indicate respondent's efforts to protect their health. We code this variable as a three categories of no health insurance, having one type of insurance and two or more types of insurances.

Household level control variables: household level variables include the number of migrants in the households, and indices for living condition as well as family wealth. The living condition index is a summary measure of whether the household has running water, electricity, independent kitchen, garden, balcony, internet access, gas conduit, natural gas conduit, indoor bath room, heating system, indoor toilet, and single family housing. The wealth summary index includes items of color TV, air condition, refrigerator, washing machine, piano, VCD/DVD player, camera recorder, and computer.

Analytical Approach

Depending on the measure of the specific dependent variable, ee use either ordinal logistic regression or a binary logit to examine the migration status and health disparities respectively. To test the "healthy people migrate" hypothesis, on-going migrants are compared to non-migrants at origin; and to test "unhealthy migrants return" hypothesis, return migrants are compared to on-going migrants. However, we only present one type of model which uses non-migrant in rural areas as the reference category. Significant tests across other comparison were conducted and predicted probabilities are used to show the health differences across migration status groups. We compute probabilities by averaging the sum of the product of the actual values of the right-hand side variables and their corresponding coefficient estimates from our equations, while varying the values of some variable(s) of interest. For all the models, we

correct standard errors for clustering of individual records within household records as some households have more than one migrant. We also use heteroskedastically robust standard errors (White 1980), and check for collinearity using variance inflation factors.

Strengths and Weaknesses of Approach

The strength of this study is that it uses nationally representative data for the labor force, rather than only a rural or urban sample, so comparison groups across these sectors are more appropriate. Moreover, we include multiple dimensions of health so consistent effect across these measures could be examined to give a comprehensive picture of the health-migration nexus. However, there are some weaknesses. Specifically, we use a cross-sectional design, so we cannot identify the individual's health situation prior to migration or return. Thus, the health situation among different migrant status groups is just a snap-shot in the survey moment, which may cover some changes before and after migration/return. We assume that the potential changes are random so the snap-shot can still be a good proxy of health status. In addition, we also lack information on chronic health condition such as diabetes or hypertension.

Results

Table 1 shows the descriptive statistics of dependent and independent variables for the entire sample as well as for the sub-samples of young adults (age 16-35) and older adults (age 36-60). In general it shows that young adults have better health than older adults across all three health measures. In the entire sample, 51% are rural non-migrants, 25.6% urban non-migrants, 2.1% urban-to-urban migrants, 11.7% rural-to-urban migrants and 9.3% return migrants. The

proportion of migrants is greater in young adult sample than in older adult sample, which is as expected.

In the regression analysis, we first used the urban non-migrants as the reference group to see if there exists a "health paradox" phenomenon in China's internal migration case. The results (*now shown*) displayed that indeed on-going migrants are healthier than urban non-migrants in the self-rated health model. We then explore whether it might be caused by "health people migrate" or "unhealthy people return". Table 2 shows the results when treating the rural non-migrants as the reference group. The first model shows the results for the entire sample. Comparing to rural non-migrants, the full sample did not show a statistically significant difference between on-going migrants and rural non-migrants, but it indeed showed that return migrants are less healthy than on-going migrants as well as rural non-migrants, supporting the "unhealthy people return hypothesis". As young adults may have little health differentials across different migration groups, we speculate that the non-significant difference between migrants and rural non-migrants on health might be due to the differentials of health selectivity at different life stages. To test this, model 2 added an interaction term of age and migration status, and it showed that in the initial stage of young adulthood, on-going migrants actually have worse health status comparing to rural non-migrants, but this effect becomes positive in the later stages of life. In Models 3 and 4, we examined health differentials across migrant groups for young adults and older adults separately. The results are consistent to the interaction model that the on-going migrants have worse health than non-migrants in young

adulthood, but are better off than rural non-migrants in older adulthood. In contrast, the less healthy status of return migrants exists only among older adults.

The demographic control variables show the expected results.. Age and health are inversely related. Education has a positive effect on health. Industry workers and those not working people (including farmers) are less healthy than management and professionals. The positive effect of getting married on health only exists among the older adult group, which again is a reflection of life stage. Ever-smoking has positive effect on health, which is counterintuitive. This might be due to self-selection on answering a question about self-rated health. It is possible that those people who feel they are healthy paid less attention to the harmful effect of smoking. However, people who are drinking are less healthy. The body-mass index has a positive effect on people's health, which might be different from the finding in more developed countries, where a higher value of BMI may indicate worse health and eating habits. In China, being thin mostly points to a relative shortage of nutritious food, although trends have been changing in some areas of China. Household socioeconomic status has a significantly positive effect on health in terms of both living condition and family wealth.

Table 3 examines the health differentials with regard to how often health problem affected work in last month across migration status. Table 4 shows the results for being ill. These two sets of models are in general consistent to the self-rated health results, except a few differentials. In particular, the "healthy people migrate" and "unhealthy people return" in the older adulthood are robust across all three measures of health.

Conclusion and Discussion

Using nationally representative data on labor force population in China, this study examines health differentials across different migration groups to shed light on the "health paradox" found in the international migration setting in the United States. In general we have following findings: first, there indeed exists a health paradox in the context of rural-to-urban migration in China, that is, migrants are healthier than urban non-migrants, despite that the urban population enjoys better socioeconomic status and access to health care infrastructure than migrants. Second, in examining whether there exists a "healthy people migrate" and "unhealthy people return" phenomena, our study did not support the former in the full sample, rather, it did so only in the sample of older adults of ages 36-60. In the young adulthood, we even found an opposite direction of effect between migration and health. That is, migrants are even less healthy than rural non-migrants. Third, the "unhealthy people return" phenomena is in generally supported and they are the least healthy group across all the migration status groups, which is especially robust in the older stage of adulthood.

In general, the "healthy people migrate" and "unhealthy people return" are robust across all three types of measures of health status in the adulthood, which indicates that the phenomena of migration and health selectivity should take into consideration of differences across life stages. In young adulthood, we did not find that migrants are enjoying health advantage comparing to non-migrants in rural areas, which is contrary to what we expect, as migrants are thought to be positively selected in terms of their health. On the one hand, we speculate that it might be due to the small variation of health status among young adults. On the other hand, we

argue that it might also depend on life-stage related to migration. When rural people migrate in their early stage of adulthood, they maybe more likely to take the relatively less well-paid and more physical demanding jobs as they have less capital accumulated in the urban labor markets. Their living condition is also often worse. Living such a stressful life may have an adverse effect on their health status. Moreover, they may suffer more from the pollution and toxic environment from the urban setting, which may make reduce their health status after their initial migration. A cross-sectional snap-shot cannot capture health status prior to migration, so it is possible that their health went down after migrated. Indeed, the study also shows that urban residents have worse self-rated health status comparing to rural non-migrants. In contrast, on-going migrants are enjoying a health advantage over non-migrants in both rural and urban areas, showing stronger health selectivity in older adulthood. We speculate a resiliency and survivorship effect: people who are still migrating at these ages might have endured and survived the hardest life stage of migration, which made them, as a group, particularly strong in terms of their health, particularly compared to those unhealthier migrants who have returned. In addition, as they might have been migrants for a longer duration, they could have accumulated social and financial capital which makes them less vulnerable than more recent migrants.

However, this study also warrants some caution in understanding the “health paradox” phenomena. Although the “health paradox” can be found in the data, the examining of “healthy people migrate” and “unhealthy people return” explanation needs qualification. In an ideal design, the health status prior to migration or return should be used to test these hypotheses and health status should be examined repeatedly for the same individuals over

time. Our cross-sectional design cannot capture whether health gets better or worse after migration, and we are forced to use a synthetic cohort approach to examining differences in health over the life course. Furthermore, health status might itself be an outcome of migration, rather than one of its determinants. In addition, although the three types of health measures are informative, there is a lack of detailed measures on specific diseases. Future studies should include more detailed longitudinal data to capture more dimensions of health and to better examine the health disparities of various migrant groups.

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Table 1: Percentage and mean of Variables for Health and Independent Variables

Variables	Mean/Percentage All Ages	S.D.	Mean/Percentage Ages 16-35	S.D.	Mean/Percentage Ages 36-60	S.D.
Health Variables						
Self-rated Health	1.46	0.69	1.73	0.50	1.31	0.73
Daily Health Problem in Last Month	1.51	0.63	1.64	0.52	1.43	0.68
Being ill in past two weeks	0.20	0.40	0.17	0.37	0.21	0.41
Migration Status						
Rural Hukou, not floating	0.51	0.50	0.44	0.50	0.54	0.50
Urban HuKou, not floating	0.26	0.44	0.23	0.42	0.27	0.44
Urban Hukou, floating	0.02	0.14	0.03	0.18	0.01	0.12
Rural HuKou, floating	0.12	0.32	0.20	0.40	0.08	0.27
Rural Hukou, Floated, now returned	0.09	0.29	0.09	0.29	0.09	0.29
Demographic Control						
Age	40.13	12.62	25.81	5.67	47.97	7.04
Male	0.46	0.50	0.48	0.50	0.46	0.50
Education Level						
Below primary school	0.19	0.39	0.05	0.22	0.26	0.44
Primary school	0.23	0.42	0.17	0.38	0.26	0.44
Secondary school	0.31	0.46	0.37	0.48	0.27	0.44
High school, technical or equivalent	0.18	0.38	0.23	0.42	0.15	0.36
Tertiary education	0.10	0.30	0.17	0.38	0.06	0.24
Occupation						
Management&Professionals	0.15	0.36	0.18	0.39	0.13	0.34
Adminstrative and service workers	0.15	0.35	0.20	0.40	0.12	0.33
Industry workers	0.32	0.46	0.18	0.39	0.39	0.49
Informal workers and others	0.08	0.28	0.07	0.26	0.09	0.29
Not working	0.30	0.46	0.36	0.48	0.26	0.44
Marital Status						
Never married	0.16	0.37	0.41	0.49	0.02	0.12
Married, including first and remarried	0.81	0.39	0.58	0.49	0.94	0.24
Widows or divorced	0.03	0.18	0.01	0.10	0.05	0.21
Health Behaviors						
Drink	1.71	0.45	1.78	0.42	1.67	0.47
Smoke	1.76	0.43	1.77	0.42	1.75	0.43
Body-mass index(BMI)	22.36	3.36	21.36	3.27	22.93	3.26
Numbers of health insurances						
No insurance	0.10	0.30	0.14	0.35	0.08	0.28
one type of insurance	0.76	0.43	0.70	0.46	0.79	0.41
Two or more types of insurances	0.14	0.35	0.16	0.36	0.13	0.34
Household Variables						
Number of migrants	0.30	0.70	0.21	0.58	0.35	0.75
Living condition index	5.67	2.13	5.92	2.07	5.55	2.15
Family wealth index	4.04	1.90	4.22	1.92	3.95	1.88
N	14072		4748		9170	

Table 2: Migration Status and Self-rated Health for All and by Age Groups

	All ages (additive)		All ages (Interaction)		Ages 16-35		Ages 36-60	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Migration Status								
Rural Hukou, not floating (Ref.)								
Urban HuKou, not floating	-0.251***	0.0569	-0.293*	0.169	-0.302**	0.114	-0.191**	0.0651
Urban Hukou, floating	-0.334*	0.135	-0.593	0.428	-0.597**	0.2	-0.147	0.177
Rural HuKou, floating	-0.00012	0.0639	-0.471*	0.202	-0.169*	0.0984	0.161*	0.0859
Rural Hukou, Floated, now returned	-0.232***	0.0627	-0.0901	0.248	-0.16	0.126	-0.248***	0.0732
Demographic Control								
Age	-0.0494***	0.002	-0.0505***	0.00247	-0.0455***	0.01	-0.0349***	0.00319
Male	0.314***	0.0502	0.311***	0.0504	0.297**	0.0944	0.306***	0.061
Education Level								
Below primary school								
Primary school	0.371***	0.0556	0.370***	0.0559	0.554***	0.164	0.336***	0.0592
Secondary school	0.598***	0.0564	0.599***	0.057	0.778***	0.16	0.545***	0.0614
High school, technical or equivalent	0.684***	0.0683	0.689***	0.0685	1.100***	0.176	0.509***	0.0769
Tertiary education	0.670***	0.0942	0.675***	0.0943	1.167***	0.199	0.458***	0.117
Occupation								
Management&Professionals								
Adminstrative and service workers	-0.0112	0.0677	-0.00916	0.0676	-0.0913	0.119	0.0316	0.0815
Industry workers	-0.171**	0.0646	-0.169**	0.0646	-0.305*	0.123	-0.140*	0.075
Informal workers and others	-0.0238	0.0777	-0.0329	0.0776	-0.184	0.155	-0.00511	0.0892
Not working	-0.295***	0.0635	-0.300***	0.0638	-0.207*	0.123	-0.409***	0.0764
Marital Status								
Never married								
Married, including first and remarried	0.0256	0.0721	0.0155	0.0723	0.175	0.109	0.427*	0.17
Widows or divorced	-0.261*	0.116	-0.273*	0.117	-0.387	0.323	0.174	0.193
Health Behaviors								
Smoke	0.115*	0.0533	0.112*	0.0533	0.0643	0.107	0.097	0.0612
Drink	-0.221***	0.0487	-0.224***	0.0487	0.12	0.1	-0.335***	0.0547
Body Mass Index (BMI)	0.0314***	0.00596	0.0311***	0.00596	0.000682	0.0129	0.0458***	0.00673
Numbers of health insurances								
No insurance								
one type of insurance	-0.0868	0.0636	-0.0841	0.0634	-0.104	0.108	-0.0689	0.078
Two or more types of insurances	-0.153*	0.079	-0.150*	0.0793	-0.270*	0.135	-0.0811	0.0969
Household Variables								
Number of migrants	0.00932	0.027	0.0127	0.0271	0.003	0.0577	-0.0078	0.0298
Living condition index	0.0297*	0.0128	0.0302*	0.0128	-0.00727	0.0243	0.0424**	0.0145
Family wealth index	0.133***	0.0137	0.132***	0.0137	0.111***	0.0241	0.132***	0.0159
Age*Migration Status Interaction								
Rural Hukou, not floating *age (Ref.)								
Urban HuKou, not floating *age	--	--	0.000988	0.00366	--	--	--	--
Urban Hukou, floating*age	--	--	0.00661	0.011	--	--	--	--
Rural HuKou, floating*age	--	--	0.0128*	0.00534	--	--	--	--
Rural Hukou, Floated, now returned*age	--	--	-0.00349	0.00581	--	--	--	--
Cut1	-2.791***	0.216	-2.863***	0.228	-3.490***	0.472	-1.470***	0.318
Cut2	-0.802***	0.216	-0.872***	0.229	-0.936*	0.473	0.442	0.318
N	14072		14072		4748		9170	

** p<0.1, ** p<0.01, *** p<0.001*

Table 3: Migration Status and whether Health has Affected Work in last Month for All and by Age Groups

	All ages (additive)		All ages (Interaction)		Ages 16-35		Ages 36-60	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Migration Status								
Rural Hukou, not floating (Ref.)								
Urban HuKou, not floating	-0.0345	0.0564	-0.836***	0.153	-0.248*	0.101	0.0247	0.0679
Urban Hukou, floating	0.103	0.13	-0.382	0.408	-0.00239	0.184	0.146	0.187
Rural HuKou, floating	0.0926	0.0611	-0.682***	0.191	-0.0527	0.0907	0.258**	0.0856
Rural Hukou, Floated, now returned	-0.101	0.0636	0.168	0.244	0.03	0.119	-0.164*	0.075
Demographic Control								
Age	-0.0265***	0.00193	-0.0324***	0.00233	-0.00978	0.00886	-0.0202***	0.0032
Male	0.178***	0.0476	0.172***	0.0478	0.211**	0.0799	0.123*	0.0622
Education Level								
Below primary school								
Primary school	0.285***	0.0545	0.262***	0.0548	0.295*	0.167	0.233***	0.058
Secondary school	0.399***	0.0558	0.367***	0.0563	0.387*	0.162	0.330***	0.0613
High school, technical or equivalent	0.452***	0.0684	0.433***	0.0685	0.429*	0.173	0.421***	0.0805
Tertiary education	0.175*	0.0894	0.215*	0.0892	0.370*	0.191	0.132	0.121
Occupation								
Management&Professionals								
Adminstrative and service workers	-0.127*	0.0651	-0.126*	0.0647	-0.0761	0.0986	-0.132	0.0868
Industry workers	-0.165**	0.0637	-0.142*	0.0639	-0.127	0.112	-0.183*	0.0785
Informal workers and others	-0.0305	0.0782	-0.0423	0.0782	-0.0988	0.143	-0.0531	0.0956
Not working	-0.294***	0.0623	-0.324***	0.0624	0.0156	0.105	-0.482***	0.0805
Marital Status								
Never married								
Married, including first and remarried	0.169**	0.0652	0.140*	0.0653	0.177*	0.0941	0.123	0.171
Widows or divorced	-0.0501	0.119	-0.0827	0.119	0.366	0.323	-0.119	0.197
Health Behaviors								
Smoke	-0.00374	0.0518	-0.00906	0.0519	-0.0131	0.0957	-0.0396	0.0622
Drink	-0.131**	0.0471	-0.142**	0.0472	0.0378	0.0866	-0.219***	0.0556
Body Mass Index (BMI)	0.0300***	0.00583	0.0291***	0.00582	0.0119	0.0112	0.0362***	0.00673
Numbers of health insurances								
No insurance								
one type of insurance	-0.0943	0.063	-0.113*	0.063	-0.0658	0.0999	-0.129	0.0813
Two or more types of insurances	-0.145*	0.0783	-0.187*	0.0784	-0.299*	0.122	-0.0961	0.103
Household Variables								
Number of migrants	-0.0293	0.026	-0.0176	0.0262	0.00989	0.0566	-0.0365	0.029
Living condition index	0.0700***	0.0121	0.0717***	0.0121	0.0514*	0.022	0.0814***	0.0142
Family wealth index	0.0716***	0.0135	0.0722***	0.0134	0.0413*	0.0224	0.0824***	0.0162
Age*Migration Status Interaction								
Rural Hukou, not floating *age (Ref.)								
Urban HuKou, not floating *age	--	--	0.0191***	0.00348	--	--	--	--
Urban Hukou, floating*age	--	--	0.012	0.011	--	--	--	--
Rural HuKou, floating*age	--	--	0.0210***	0.00517	--	--	--	--
Rural Hukou, Floated, now returned*age	--	--	-0.00681	0.00576	--	--	--	--
Cut1	-2.299***	0.212	-2.655***	0.222	-2.954***	0.437	-1.997***	0.326
Cut2	-0.0547	0.212	-0.404*	0.221	0.199	0.423	0.0748	0.326
N	14072		14072		4748		9170	

** p<0.1, ** p<0.01, *** p<0.001*

Table 4: Migration Status and Being Ill in last Two weeks for All and by Age Groups

	All ages (additive)		All ages (Interaction)		Ages 16-35		Ages 36-60	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
Migration Status								
Rural Hukou, not floating (Ref.)								
Urban HuKou, not floating	0.0577	0.0689	0.439*	0.196	0.0516	0.12	0.0828	0.0858
Urban Hukou, floating	0.341*	0.154	0.257	0.459	0.0947	0.226	0.557**	0.207
Rural HuKou, floating	-0.0337	0.077	-0.0606	0.249	-0.104	0.112	-0.0273	0.109
Rural Hukou, Floated, now returned	0.167*	0.0754	-0.364	0.289	-0.0938	0.152	0.271**	0.0887
Demographic Control								
Age	0.0107***	0.00235	0.0114***	0.00283	0.0147	0.0112	0.00531	0.00386
Male	-0.360***	0.0623	-0.367***	0.0625	-0.159	0.105	-0.451***	0.0807
Education Level								
Below primary school								
Primary school	-0.318***	0.0638	-0.307***	0.0641	-0.680***	0.179	-0.231***	0.0683
Secondary school	-0.464***	0.0668	-0.449***	0.0673	-0.730***	0.173	-0.368***	0.0756
High school, technical or equivalent	-0.455***	0.0821	-0.444***	0.0824	-0.643***	0.187	-0.476***	0.103
Tertiary education	-0.304**	0.11	-0.329**	0.11	-0.832***	0.211	-0.134	0.152
Occupation								
Management&Professionals								
Adminstrative and service workers	0.0818	0.087	0.083	0.0871	0.203	0.13	-0.0453	0.12
Industry workers	0.187*	0.0819	0.177*	0.0821	0.121	0.141	0.209*	0.104
Informal workers and others	0.193*	0.0991	0.195*	0.0994	0.153	0.175	0.236*	0.125
Not working	0.173*	0.0802	0.180*	0.0807	-0.0409	0.134	0.307**	0.105
Marital Status								
Never married								
Married, including first and remarried	-0.164*	0.0826	-0.139*	0.0835	-0.183	0.117	-0.278	0.199
Widows or divorced	-0.0737	0.135	-0.0478	0.136	-1.376*	0.599	-0.121	0.226
Health Behaviors								
Smoke	-0.119*	0.0674	-0.118*	0.0675	-0.0942	0.121	-0.132	0.0827
Drink	0.182**	0.0603	0.186**	0.0604	0.0888	0.11	0.244***	0.0727
Body Mass Index (BMI)	-0.0214**	0.00705	-0.0210**	0.00704	-0.0182	0.0141	-0.0252**	0.00841
Numbers of health insurances								
No insurance								
one type of insurance	0.115	0.0774	0.129*	0.0777	0.0188	0.119	0.204*	0.101
Two or more types of insurances	0.314**	0.0961	0.339***	0.0967	0.171	0.147	0.427***	0.127
Household Variables								
Number of migrants	0.0176	0.0307	0.0113	0.0308	-0.0278	0.07	0.033	0.0348
Living condition index	-0.00112	0.0149	-0.00207	0.015	0.0423	0.0279	-0.0218	0.0177
Family wealth index	-0.0761***	0.0158	-0.0775***	0.0158	-0.0326	0.0271	-0.0983***	0.0196
Age*Migration Status Interaction								
Rural Hukou, not floating *age (Ref.)								
Urban HuKou, not floating *age	--	--	-0.00899*	0.0044	--	--	--	--
Urban Hukou, floating*age	--	--	0.00269	0.0115	--	--	--	--
Rural HuKou, floating*age	--	--	0.000925	0.00658	--	--	--	--
Rural Hukou, Floated, now returned*age	--	--	0.0128*	0.0066	--	--	--	--
Constant	-0.892***	0.261	-0.965***	0.274	-0.935*	0.534	-0.492	0.396
N	14072		14072		4748		9170	

** p<0.1, ** p<0.01, *** p<0.001*