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Labor Migration in China: How Families Affect Migrant Workers

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Labor Migration in China:
How Families Affect Migrant Workers

By

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Abstract

China's huge economic growth over the past four decades has been observed by the world and oftentimes acknowledged as an economic miracle. One of the main factors of this extraordinary growth is the large labor population and comparatively cheap labor cost. With the introduction of the Economic Reform and Opening-Up in the late 1970s, a large proportion of the Chinese citizens started to seek better work opportunities outside their permanent residencies, which was not restricted prior to the reform. These people, commonly quoted as the migrant workers and consist more than 20% of the Chinese labor force, is being studied as a good indicator which reflects both the internal migration and the economic growth of China. This paper attempts to understand if family characteristics have any impact on individuals' decision-making of becoming a migrant worker. The study finds that for each one extra person in the family, an individual's likelihood of becoming a migrant worker will increase by 1.36%; whereas for each one extra child an individual has, the likelihood will decrease by 2.8%.

1. Introduction

The fast-growing Chinese economy over the past few decades has been a huge achievement of the country and a great model for other developing countries in the context of globalization. From 1975 to 2017, China's Gross Domestic Product has increased from $163 billion to $12.24 trillion, about a 75-times increase over a little more than 40 years (World Bank, 2019). Many have given the credit of such miraculous economic development to China's Economic Reform and the Open-Up policy started in 1978. As a result of the reform, the mobility of workers in China was increased and people started to seek better work opportunities in a much larger radius, namely cities or other provinces other than where they come from.

The contribution to this economic miracle from these floating labor forces cannot be ignored. Because of the comparatively low cost of labor in the Chinese market and the large population in China, businesses are able to grow and expand more rapidly than in countries where labor costs are a huge proportion of the total cost. These labor forces, the migrant workers, also form more than 20% of the whole labor market in China (National Bureau of Statistics of China, 2018b). Considering the already huge and still increasing proportion of the migrant workers in China, it is necessary to take family factors into account since more households are involved when more individuals are joining this group.

However, though policies started to allow people to work in cities other than their home places, insufficient and incomplete policies were introduced to better the work/life condition of migrant workers while they are in other cities. Gagnon et al. (2014) find in their study that migrant workers, regardless of having urban or rural hukou, are being discriminated against in the urban local labor market. Afridi et al. (2015) find in their study that the *hukou* system reduces the performance of migrant workers.

The *hukou* system, or the household registration system, is a method implemented by the Chinese government to limit population mobility and to distinguish the city-countryside relationships (Cheng and Seldon, 1994). It was initially designed to avoid possible social problems that could take place if large and continuous population migration happens. Under the *hukou* system, every citizen is bounded with a registered place of his/her *hukou* at birth, the single permanent place of residence, such as City X in Province Y (Afridi, Li & Ren, 2015). Together with the registered place, an individual also has a type of *hukou* attached to his/her *hukou* status, being either an agricultural (or rural) *hukou*, or non-agricultural (or urban) *hukou*. The type of *hukou* is inheritable from one's parents or the household (Afridi, Li & Ren, 2015). Both the registered place and type of *hukou* are changeable, although the requirements differ from cities to cities.

There are studies that do not consider the *hukou* system as the only or the most significant factor which affects migrant workers' working opportunities. Chen and Fan (2016) also mention in their study that even migrant workers successfully transferred their rural *hukou* to urban *hukou*, their converted *hukou* status still shows some degrees of inferiority to the native urban *hukou* holders and examples vary by cities. Wang et al. (2002) also find in their study that migrant workers are not benefitting from the same level of social welfare and government supports in their distant working cities as they are in their household registration place for *hukou*.

It now becomes a significant topic to think deeper about what makes an individual become a migrant worker, especially when people start to figure out more benefits from working locally, such as generating more financial income from their agricultural *hukou* (reference). Many previous studies (Cai and Ng, 2014; Zhan, 2011) have focused on social and structural factors regarding people's willingness to be or status as migrant workers. In this paper, I focus on

whether family characteristics of an individual have any impact on his/her status as a migrant worker.

This article uses data from the 2016 China Family Panel Survey, a national longitudinal survey, and focuses on individual and family level feedback. In this paper, I attempt to use the Ordinary Least Square regression to detect the marginal effects of each independent variable has on the dependent variable of migrant worker status. By running OLS regressions with a fixed effect of provincial regions, I find that while some individual characteristics, such as age, gender, and if an individual has a child, do not have a significant impact on migrant worker status, most family characteristics display different levels of significance on one's probability of becoming a migrant worker.

The findings indicate that most family characteristics suggest positive signs to one's burden for the family, i.e. higher family income and more family members, will have a positive effect on an individual's decision-making of becoming a migrant worker. Family characteristics that indicate negative signs to one's responsibility for the family, i.e. number of children and the living condition of their parents (alive, financially connected with the fam, and live with the family), tend to have a negative impact on one's status of being a migrant worker. While most financial characteristics within the family do not display a significant level, the food and medical expenditure of the household show negative impact on one's migrant worker status. The variable of family wages has a positive sign of migrant worker status which is different from the variable of family income. This contradiction may due to the difference in observation numbers.

In general, variables indicating burdens from the family, such as if parents are financially connected with the individual, number of members of a family, and almost all categories of family expense, have a positive correlation with the dependent variable migrant worker. The

more one need to take care of the family, the higher possibility he/she will have in becoming a migrant worker. On the other hand, some core variables indicating supports from the family, such as total income of the family and total savings of the family, will have a negative correlation with the dependent variable migrant worker. The better the family can financially sustain itself, the less likely an individual will choose to become a migrant worker. For every 1,000 yuan increase of one's household wage annually, the probability of him/her to become a migrant worker will increase by 0.02%. For every extra child an individual has, the probability of him/her in becoming a migrant worker will decrease by 2.8%. A high education degree will increase one's chance of becoming a migrant worker by 7.34%, and having an urban *hukou* will increase the chance by 9.61%.

This paper contributes to the topic about internal migration in China by looking at individuals from the family level. Most previous studies regarding individuals' decision-making on becoming migrant workers focus on institutional factors (Shen, 2013; Zhan, 2011), the status quo and foreseeable trends of migrant workers (Xing and Zhang, 2017; Zhao, 2003; Cai and Ng, 2014; Hui, Yu and Ye, 2014), and the externalities that internal migration brings to the target regions (Han and Li, 2017; Combes, Demurger, and Li, 2015). I intend to study how families affect individuals' decision-making on working away from home from perspectives of both family configuration and monetary support and burden.

The rest of the paper is structured as follows. In Section 2 I discuss the contributions of previous literature on the migrant worker topic in China and compare to the internal migration situation in India. Section 3 briefly presents the contributions this paper has towards the broader topic of migrant workers in China. Section 4 provides the data and methodology used in this study. Section 4 provides the results of the regressions and Section 5 discusses limitations and

policy implications of this study. Section 6 concludes. Longer tables are described at the end of the paper.

2. Literature Review

Internal labor migration has been a major developmental issue that most, if not all, countries are constantly facing. While it seems to be human nature that people tend to move to places where they are economically better-off, it is still a policy concern for the government to regulate such migration to ensure both developed and developing regions have equal opportunities. For individuals who were not born in large cities, there is always the option to leave their families in the rural area and seek higher-paying employment opportunities. However, it has never been a simple choice to make, especially in China. Regardless of personal concerns that one needs to think of when comparing the pros and cons of working in another city, there are also external institutional factors, such as the *hukou* system, that restrict people from going to work away from home.

2.1 The *Hukou* System

Since it was implemented when the state was founded, the *hukou* system had a huge impact on people's everyday life, including food subsidies, employment, housing, education, medical care, marriage and military enlistment (Wu and Treima, 2004). Although citizens with different types of *hukou* are entitled to different ways of enjoying benefits from the state, it is generally acknowledged that urban *hukou* holders are favored by policies much more than rural *hukou* holders. For instance, though all children are eligible for the 9-year complementary education provided by the state, only children with urban *hukou* are allowed to enroll in school in

cities, whereas children with rural *hukou* can only go to nearby public schools where infrastructures and quality of educators are worse than schools in cities (Chan and Buckingham, 2008). Moreover, when it comes to applying for universities, students with local urban *hukou* are normally favored by the universities than students with a registered *hukou* that is non-local. The favoring policy normally takes place in the form of different requirement for national exam score standards. For instance, a local college candidate may only need to achieve 500 in the national university entrance exam in order to pass the requirement line for consideration, whereas a student who goes to the same school may need to achieve 520 because of his non-local *hukou* status. Education is only a part of this inequality in receiving public benefits based on people's urban/rural *hukou* status ().

However, the restriction of *hukou* system has becoming more and more loose. Since the early 1980s, the *hukou* system has been softened along with the economic reform and rural residents were permitted to move to other places to work and live with a granted temporary *hukou* registration (Shen, 2013). The population mobility has thus increased and more and more rural residents choose to work in the cities for higher wages and better living conditions. Many local governments now use the urban *hukou* enrollment as an incentive for fresh graduates to stay and work at the college cities or try to attract graduates to relocate by introducing favoring *hukou* settlement policies. For instance, the local government of Qingdao, a Top-3 city by GDP in Shandong Province, started to allow people under 45 with a bachelor's degree to apply for its urban *hukou.*

According to Chen and Fan (2016), as early as 2001, small cities like Changzhi in Shanxi province had also started hukou reforms. However, Chen and Fan (2016) highlight that there is a "mismatch" between the soften *hukou* reform and people's willingness of transferring their rural

hukou status to urban hukou status. The reason behind is that only middle to small cities are very open to accept migrant workers with rural *hukou* and grant them with urban *hukou;* larger cities are still being restrictive. However, it seems that instead of having an urban hukou, people now care more about which city that the urban *hukou* status is linked to. The issue has evolved to, as Chen and Fan (2016) summarize, "the question of *where* more so than *what*."

2.2 Migration Issues in China

One of the most discussed migration issues in China is employment discrimination. Gagnon et al. (2014) finds that migrant workers are discriminated against in the urban labor market which happens mainly in the sense of wage levels. They use data from a 2005 One-Percent Population Survey conducted by the Chinese National Bureau of Statistics. The sample size is roughly 2.3 million individuals from 31 provinces and other provincial regions. The findings show that almost all income gaps between rural migrant workers and urban residents can be explained by differences in individual characteristics. When leaving out the *hukou* system as a variable, 40% of the income gaps remain unexplained. Such finding suggests that the differences in income between rural migrants and urban residents are mainly caused by the *hukou* system and that rural migrants face wage discrimination when working in urban regions. One limitation from this study is that although urban migrants are treated as a comparison group to the rural migrants, distance and level of medical security were not taken into account. Given that migrants cannot enjoy the health insurance outside their home county/city, rural migrants may appear to be more vulnerable than urban migrants if either their home county is far away from the city or the medical conditions are worse than urban migrant workers.

There are also other social issues that come along with the gradual reform of the *hukou* system and increasing migrant population from larger cities to small and medium cities. Huang and Fei (2016) find that rural migrant workers in cities have a very low participation rate in welfare programs. Although some cities have introduced policies that encourage migrant workers to participate in welfare programs, for instance Beijing and Shenzhen which offer a lower contribution rates for the social insurance program, the rate of participation is still low. The reasons behind the opt-out on insurance include migrant workers' high mobility among cities and rural areas, the constantly changing policies on insurance plans, informal employment that offers no insurance, insufficient wages for insurance, and ignorance about the insurance program. Other aspects of the migration issues, such as education of left-behind children (whose parents all work in the cities and grow up with other relatives) (Wang, 2014; Shi et al., 2016) and criminality caused by or involved with the "floating population" (another word for migrants with negative connotations).

While it might be true that most migrant workers opt out of the welfare programs because of their constant mobility, there are many other possibilities that may happen regardless of their work status. For instance, Huang and Fei (2016) does not consider migrant workers who work without formal contracts and thus are not covered with any form of formal insurance or welfare. It is true that it is difficult to capture samples that involve illegal behaviors, but the authors can still work on what people think about the compensation process if misfortune happens. It is also highly possible that migrant workers do not fully trust in the government welfare program because they for some reasons do not expect the program to work properly. It is more meaningful for the policymakers to think of their own deficiencies, such as the implementation

of compensations, rather than thinking this issue as institutional and not work in an efficient way that target migrant worker community accepts.

Yang and Zhou (2017) also conduct a study on the topic of migrant workers' attainment in basic pension insurance. They find that for labor outflow provinces, the resident population ratio has a negative effect on expenditure levels; whereas the resident population ratio in labor inflow provinces have a positive effect on expenditure levels. This is mainly an institutional factor which migrants can only enjoy the benefits from basic pension if they return to their household registered province. Most migrant workers would therefore choose not to join the basic pension insurance plan. However, the study also finds that after 2011 when the migrant pension insurance shift mechanism has been gradually promoted across provinces, the number of migrants involved in the basic pension insurance has increased. This study is helpful to my study as it points out the difference of changes in one aspect of the labor migration issue and suggests a possible reason why rural residents would choose (or not choose) to work in cities. More discussion on the changes in institutional factors will be mentioned in *2.6 The Institutional Reform* part.

2.3 Internal Migration in India

India is another developing country which internal migration supports a huge part of domestic labor supply and contributes continuously to the development in cities. India and China have many similarities in various aspects. The most relevant ones in this case are the facts that they are both developing countries in Asia with large population and land area. Agriculture is also one of the significant industries for these two countries.

Unlike China, India does not have administrative restrictions like the Chinese *hukou* system and everyone is legally free to work across provinces. However, Kone et al. (2018) indicate that most labor migration activities are not conducted cross-state but rather cross-districts within the state. The authors use data from National Census of India in 2001, as well as additional household and labor force data from the National Sample Survey between 1999-2000 and 2004-2005. Although 30% of the population are defined as migrant workers from the population sample, the authors find that the migration activity happening between districts within a state is almost 50% higher than activities across states. Additionally, they also find that the population of inter-district female migrants are almost three times more than their male counterparts due to the "well-known migration of women within the same or neighboring districts for marriage" (Kone, et al. 2018).

Their study clearly shows that although administrative measures regarding one's household status is not present, internal migrants in India are still impeded by the state borders when migrating. To explain such phenomenon, Kone et al. (2018) suggest that three institutional factors can apply to the impediment of state borders, including inadequate social welfare, home bias to educational access, and public employment. Migrant workers may be well aware of the fact that they are excluded from the subsidized food and admission to public hospitals. Public universities and employers are also in huge favor of home residents compared to inter-state immigrants. Since most migrants are people who live below the poverty line or with very limited income, it is not surprising that they tend to avoid inter-state migration since social welfare, education, and job opportunities are very important for them. Kone et al. (2018) use variables that relate to states in India, namely if the states migrants left and enter for work are neighboring or not, to detect possible relations between migration and cultural effects which vary by

locations. For my study, I use control for provincial regions in the OLS regression for the possible cultural variations. This study can also be compared to the Chinese migrants in the sense that the decision-making of internal migration is not normally affected by wage level but other institutional factors.

Khan (2017), on the other hand, indicates that many inter-state migrant workers are actually skilled workers and in fact earn higher salaries on average compared with native workers in Indian cities. He uses individual level data from the Employment and Unemployment and Migration Survey from 2007-2008 conducted by the National Sample Survey Organization which includes over 500,000 individual samples. According to the regression analysis, neither return to work experience nor years of schooling between the two groups has significant impact on the wage gap, indicating that the gap is not caused by the difference in productivity of workers.

Findings from Khan's (2017) study can be used to explain why workers in India choose to migrate inter-state given all the institutional impediments. While the same logic could be applied to the migrant workers' status in China, it is noteworthy that the inter-state migrants in China are normally comprised of peasants with lower education level. What migrant workers expect from working in urban areas may not be higher wages than the native workers but a higher wage than working locally. Additionally, given the existence of the *hukou* system, migrant workers in the urban areas may face discrimination from the labor market due to various reasons. For instance, employers may need to pay extra for migrant workers' housing and may need to grant extra vacations for family visits. The labor market is narrower for the migrant workers since employers tend to avoid extra cost when recruiting.

There are many factors that could be helpful when studying similar topic on China. In spite of similar institutional factors such as local protectionism in education and individuals' various preference over internal migration, the difference preference in gender is an interesting factor to look at. Though I do not expect a similar or higher gender ratio in favor of female in studies on internal migrants in China, there is for sure a gender difference on the status of becoming migrant workers. In many Chinese people's perspectives, females are often supposed to play the role at home with tasks such as taking care of children and parents, while males are often supposed to act as the major labor force and perhaps the only source of income. However, we have yet to see a very unequal number of female migrant workers compared to male migrant workers. What in fact matters more to individuals in becoming a migrant worker may instead be the family rather than their extinctive roles at home.

2.4 Incentives for Migrant Workers

The biggest incentives for migrant workers to leave their homes and work in urban areas are higher wages, opportunities of transferring *hukou* from rural to urban, and better living conditions in the city. Qin et al. (2015) use data from a household survey conducted by the Ministry of Agriculture of China from 2003 to 2007 which has a sample size of over 75,000 individuals across 17 provinces. The authors only include individuals aged 16-65 that are neither student nor non-farm business owners, meaning the sample primarily includes workers. The descriptive data indicates that during the five-year period, the average annual earnings of a migrant worker is 6225.98 yuan (CNY), whereas the income per capita on the village level was only a little over 3,000 yuan. This indicates that by working in the cities, migrant workers will have a higher income compared to those who do agricultural work at the in rural areas.

In spite of higher incomes, migrant workers also aspire to live and work in cities that can offer more possibilities, such as work opportunities, entertainments, infrastructures, and convenience in life in general. Xing and Zhang (2017) find in their study that migrant workers are willing to give up part of their earnings in exchange for a better city to live in. They mention that although the Chinese government tries to "restrict population growth in in large cities but encourages growth in small and medium-sized cities," migrant workers tend to vote with their feet for whichever city they are more willing to work and live in, which in most cases, are large cities. They use the 2005 One-Percent Population Survey conducted by the China's National Bureau of Statistics (NBS) and eliminate samples that do not fit their definition of migrant workers. Xing and Zhang's definition of migrant workers are stricter and must fulfill all 7 conditions from living in urban areas to must be a household head in the city. It is a thorough definition of migrant workers given that the raw data set they use contain over 2.3 million individuals. The only difference they made on the definition in this sample selection compared to other studies on migrant workers is that they only include household head, which in most cases are male. The authors were able to include almost 25,000 individual samples across 95 cities from all provinces. They then use semi-parametric approach to predict earnings of these migrant workers.

For the city level regressions, they used data from the 2005 Urban Statistical Yearbook of China to collect city characteristics, some of which include consumption of tradable and non-tradable composite goods, population size, non-monetary cost of migration, distance from one's home village to city, and income. They also collect data online from China Meteorological Data Sharing Service System for average January temperature as part of city amenities. The authors also set city fixed effects for every destination city as a way to predict their willingness to move

to cities. In this part, they set Beijing as the baseline of 0 with a fixed effect, and results of other

cities highly match people's common knowledge about those cities: cities with higher life quality

and employment opportunities, such as Shanghai and Shenzhen, are ranked in the first places.

However, it is very controversial to choose Beijing as the baseline but not another city in China.

Except being the capital of the state, Beijing is neither the most economically developed city by

GDP (Shanghai is ranked the first in 2017) (NBSC, 2018a), nor the best destination city for

migration in terms of level of difficulties to change one's *hukou* status.

In short, by conducting a two-step regression, Xing and Zhang (2017) find that cities with

larger populations are normally recognized to have more city amenities. The regression indicates

that in general, migrant workers are willing to give up roughly 1.7% of their income in exchange

for a 1% larger city population. This study is relevant to my research as it explains why many

migrant workers choose to work in large cities and how much are they willing to go to these

cities. The quantified city amenities are very helpful to understand the large-city impact and the

results also match people's view towards large cities in general.

However, while it might be true in most cases that cities with larger populations often

have facilities and infrastructures that can provide a better life quality, it is hard to say if an

increase in migration causes the city to develop faster and fulfil the increasing needs of this

larger population; or that cities with better developments becomes more attractive to potential

migrants. I am more inclined to the first hypothesis since one of the initial purposes of the *hukou*

system was to restrict mass population migration. It is also difficult to identify or quantify how

much benefits an individual will gain from moving to a larger city. Since the responses are based

on national survey, it is difficult to tell if potential migrants themselves are actually capable of

calculating the extra benefits of moving to a larger city at the cost of 1.7% of their income, or that they only expect that the life will be better by hearing from others.

2.5 Migration Externalities

While migrant workers are directly involved with many civic issues, there are also externalities that they bring to the urban areas. Combes et al. (2015) find in their study that labor migration may increase the wages on native workers in the urban areas as well. They use the 2007 Urban Household Survey to collect individual data and extract migrant share in different cities from the One-Percent 2005 China Population Survey. They also collect city-level data from the 2008 China City Statistical Yearbook.

The OLS regression indicates that the migrant share of cities is highly correlated with the employment density. The study also finds evidence that a large positive correlation between the city share of migrants and the natives' wages. The authors estimate that about two-thirds of such impact results from migrant/native complementarity in the production function and the rest from agglomeration economies.

However, there are some shortcomings in the study. Regarding the individual data selection, the authors did not include "owners of private or individual enterprises" since they find it impossible to separate wages from profit. Whereas in Xing and Zhang's (2017) study, they find that migrant workers are "much more likely to be self-employed," though they have a "much lower monthly income than urban workers." The elimination of this group of migrant workers may result in a substantial loss to the whole population. Another drawback from the NBS data is that no working times are recorded. Extra working hours could apply to many

migrant workers if they work in the manufacturing or construction industry. Another possible shortcoming is that the individual data on migrant workers did not distinguish between rural migrant workers and urban migrant workers. While most rural migrant workers are normally unskilled, urban migrant workers can be skilled. The proportion of these two types of migrant workers may affect the result regarding complementarity in the production function since urban migrant workers may conduct same level of works compared to native workers. To be more precise about their findings, the authors also stated that the impact from labor migration on occupation and location choice since the current Chinese data cannot be assessed on it. The study is interesting and useful for my research as it shows that labor migration may also bring benefit to the cities which may change the discrimination that migrant workers are facing and the policy-making in cities regarding migration.

2.6 The Institutional Reform

Over the years that the temporary *hukou* system has been implemented, the labor migration from rural areas to the urban cities has increased. Issues that are believed to be caused by institutional factors are revealed, such as the discrimination in job markets that migrant workers are facing. Shen (2013) mentions in her study that the relaxed *hukou* system in the early 1980s was a huge institutional driver for the labor migration as rural residents were able to work in cities with a temporary *hukou* registration. The average annual growth rate of temporary population that the migrant workers form is almost 15% from 1982 to 2005. However, as literatures have suggested, the temporary *hukou* system also causes livelihood issues to migrant workers, such as basic pension, unequal wages, and health care services. After thirty more years

of the labor migration, both the government and the potential migrant workers have started to act in ways that best match their own interest.

From migrant workers' perspectives, some of them choose to change their expectation about working in the cities. Some migrant workers, especially who come from the rural areas and have farmland at home, tend to work part-time and give up the possibility of moving their *hukou* from rural to urban. Cai and Ng (2014) find that because of the two major institutional factors in China, the *hukou* system and the household responsibility system (HRS), rural residents with farming land ownership tend to act like "part-peasants" and split their labor force for two or more jobs. While *hukou* limits their access to public welfare in cities, HRS separates their farming lands into small plot sizes that are difficult for agricultural machines and thus require a more intense labor demand.

Chen and Fan (2016) also find that urban *hukou* is becoming less and less attractive to the migrant workers. By collecting data from the Floating Population Dynamic Monitoring Surveys (FPDMS) from 2010 to 2012, the authors find that though most migrant workers (over 60%) plan to stay in cities in long-term (5 years or more), only 21% of them are willing to transfer their rural *hukou* to urban *hukou*. Other studies that the authors refer to also show that migrant workers are willing to stay for a long period in cities but are also less willing to obtain an urban *hukou* at the cost of losing their rural *hukou*. The authors also point out that although the current *hukou* reform discipline is to "fully remove barriers for peasants to settle in towns and small cities," peasants seem to favor larger cities much more than small cities. This finding also matches Xing and Zhuang's (2017) paper regarding migrant workers' willingness to give up part of their income for larger cities. Findings from these studies can be used in my research to

explain why rural residents choose not to work in larger cities and why migrant workers choose to work regardless of the disutility.

From the government's perspective, some changes have been introduced to the *hukou* system on various levels. Hui (2014) shows how the gradual reform on *hukou* system affects the migrant workers in Shenzhen, one of the most economically developed cities and biggest migrant destination in China. In 2010, the State Council approved the public rental-housing policy that would allow households who cannot afford private-sector housing and are not eligible for other kinds of government housing to apply for. The authors use face-to-face survey interviews with contemporary migrant workers in Shenzhen to collect data and 478 migrants were successfully interviewed. From the study, the authors find that while most migrant workers are willing to move into the public rental housing if available to them, most of them do not choose because being treated differently for their non-local *hukou* identity. In fact, their rural *hukou* does not seem to make significant differences to their decision-making in housing. What seems to be more important to them are the dissatisfaction of their current housing in the *chengzhongcun* (urban villages). This finding is very important to my study in the sense that it could explain why some migrant workers seem to not care about their rural *hukou* status. Many of them in fact care more about short-term benefits, such as their living condition at the moment, rather than long-term returns, as such urban *hukou* that may take years for them to get.

3. Contributions

The previous literature has focused on different aspects of the labor migration issue in China and has offered many insights to my study. Most of the articles use the One-Percent

Population Survey, Urban Household Survey, and Urban Statistical Yearbook to collect individual and city level data. In my research, I plan to use data from China Family Panel Studies (CFPS) conducted by the Peking University from 2010 to 2016. This data is a nationally representative data set that includes individual, household and village level data. I plan to include the household data along with individual data to conduct my research since it is a category that has not been studied very often in the previous research. By using the household level data, I will be able to study how family factors can contribute to individuals' decision-making in working in the city or not. The family factors are important to this question not only because that family is a crucial part of the traditional values that most Chinese people acknowledge, but also that individuals are legally and tightly connected to their families in many aspects, namely the *hukou* system and one's obligation to financially support their direct relatives (parents, spouse and children). To study what makes an individual become a migrant worker, one needs to put himself in the shoes of these individuals and think what are their concerns in real life. In this case, family is undoubtedly one of the biggest concerns that one needs to consider before leaving home and work in other places.

3. Data and Methodology

3.1 Data Source

The data used in the study is drawn from the latest wave of the China Family Panel Study (CFPS), the CFPS 2016. CFPS is a national longitudinal general survey conducted by the Institute of Social Science Survey of Peking University in China. The survey collects data at the individual level, family level, and community level, and surveys 16,000 households in 25

provincial regions in China (excluding Hong Kong, Macao, Taiwan, Xinjiang, Tibet, Qinghai, Inner Mongolia, Ningxia and Hainan) (Xie & Lu, 2015)[1]. CFPS started its first baseline survey in 2010 and finished three waves of follow-up surveys at the same scale in 2012, 2014, and 2016. CFPS data is available on Peking University Open Research Data platform (reference).

The CFPS survey focuses on the social changes of contemporary China and both the economic and non-economic well-being of Chinese citizens (Xie et al. 2017). The questionnaire of CFPS includes a variety of socioeconomic aspects of households and individuals, such as economic activities, family member relationships, education, welfare, population migration, and physical and mental health. It is also the latest, most thorough, and perhaps the only publicly available data that features internal migration in China at the family level.

The original data package contains three data sets of which survey questions are conducted at different levels. Although the CFPS survey consists of both face-to-face survey and phone interviews, the questionnaires applied are almost identical. After merging the datasets of adult, family economy and family configuration at the individual level (i.e. using unique personal ID for the merging) the valid number of observations has gone down to 36,213 from 58,179 in the raw data set.

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[1] *While the source of CFPS did not mention clearly as in why these regions were not included, it could be that these regions are either difficult to conduct a thorough field survey or cannot represent that the majority of the Chinese population due to economic and political factors.

3.2 Descriptive Data

To clean the data set, I eliminate all the invalid observations, including all missing data in non-monetary related variables such as *age*, *gender*, *hukou status*, and *work location*, as well as a few economic variables where missing data consist of a minority of the "not applicable" observations, such as *expense* and *government subsidiary* (both personal and home level). However, there are many monetary variables that include a massive amount of missing observations (more than half of the entire sample size), such as *income*, *family wage*, and *revenue from land rental*. To maintain a good size of the data, I changed all the missing observations of non-economic variables to 0, such as *parent alive*, leaving those in economic variables as missing, such as *income*. The missing observations inevitably influence the regression results by shrinking the valid sample size. While the regression result from the last model consists roughly 20% of the initial population size, the sample size of this result still manages to maintain above 3,000 observations, making the result valid for interpretation.

For the definition of a migrant worker, I refer to a single question asking the work location of individuals in the questionnaire for adult (see attachment 1). The options are 1) This village/residential community; 2) Another village/residential community in this township; 3) Another township in this county/city/district.; 4) Another county/city/district in this province; 5) Another province in mainland China; 6) Outside of Mainland China (including Hong Kong, Macau, and Taiwan); 7) Online store; and 8) Not fixed. Any observation with the answer "unknown" is eliminated. In this study, an individual with any answer from option 2 to option 6 is considered a migrant worker as he/she work remotely away from his/her residential area. One possible ambiguity is that an individual can work overseas in foreign territories and become

ineligible as the purpose of this study is to focus on internal migration. However, since only 21 individuals answered option 6, the possible distraction to the results is very low.

Table 1 shows that the total amount of valid observations for *migrant worker*, a binary dependent variable used in the regression model, is 16,024. The mean value of 0.66 indicates that about two thirds of the population in my sample are considered as migrant workers, which is much higher than the 37.17% that migrant workers consist out of the entire national labor force of China (NBSC, 2018b). The main difference is the definition of migrant worker between my study and the official one. For my research, I posit that working away from one's permanent residence has a stronger impact for individuals rather than their inherited *hukou* status, given that many urban *hukou* holders also choose to work in cities larger than their hukou registered city and the desire of people willing to work in larger cities has also been discovered (Xing & Zhang, 2017). Therefore, I focus more on the fact that people work in places away from home is more significant than why people work in different industries other than their inherited *hukou* type.

The sample size of the study has come down to 16,036 observations from over 53,000 individual observations in the initial data set. The binary variable of *gender* (which male=1 and female=0) with a mean value of 0.507 shows that the population is almost equally distributed with both sexes. The variable *age* indicates that the average year of age in the sample is 42.03 years old. The *hukoudummy* variable indicates if an individual has an "agricultural (or rural) *hukou* status" (=0), or a "non-agricultural (or urban) *hukou* status" (=1). The mean value indicates that there are more individuals with rural *hukou* rather than urban *hukou*. The *marriagedummy* is a variable with "only married" (=1) and "not married" (=0). Any other marital statuses such as widowed, divorced, and cohabitation are considered as not married here.

The reason behind this is that only married individuals have legal responsibility to support his/her spouse and their family economically. *Child* is a binary variable with 0 indicating "no child" and 1 indicating "has child". *Singlechild* is a sub-variable of *Child* and indicates if an individual has only 1 child (=1) or has more than 1 children (=0). It is used to reflect if the Family Planning Policy[2] has any effect on the population in this data set.

    Education indicates the highest education that an individual has received by 2016. It is a ranked variable with 1 indicating "illiterate/semi-literate" and 8 indicating "doctoral degree". The variable is categorized into 3 parts, namely *lowedu*, *midedu*, and *highedu*. The 3 subcategories are used to display the distribution of educational level more precisely. The mean of 3.024 of the *education* variable indicates that the average education level of this sample is slightly above "junior high school" (=3), which matches the higher observations of *midedu* compared to the other 2 categories. *Parentalive* indicates if either of an individual's parents are "alive" (=1), or "both dead" (=0).

    Table 2 displays a group of independent variables from the category of family-related characteristics. It is designed to demonstrate an individual's economic obligation beyond him/herself and the number and type of family members that he/she may need to be responsible for. For instance, *number of children* indicates that although some individuals may need to take care of 10 children, the majority of this sampling individuals only have 1 or 2 children. The mean of 1.277 may be related to the One-Child Policy that has been enforced for 2 to 3 decades in China but that is not a major concern in this study.

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[2] The Family Planning Policy is referring to the One-Child Policy which only allows Chinese citizens to have 1 child in most situations. The policy was implemented in the 1980 to control the fast-growing population of China and was written in the Constitution in 1982. This controversial policy was terminated in 2015 with an amendment of allowing couples to have 2 children in most cases (Gu, Feng, Guo, and Zhang, 2007).

Live in Family measures if the individual lives with the family (=1) or not (=0). *Parent Finance* measures if either parent of an individual is financially connected with him/her. It is very surprising that the mean value of *Parent Finance* is only 0.211 as I would expect a much higher value, since the filial responsibility is a crucial part in the Asian cultures and to financially support one's parents is widely acknowledged as a necessary obligation. *Parent live with Family* is a binary variable and indicates if parents of the individual live with the family or not. *Family Count* is about how many members in an individual's family and the mean value of 4.295 is as expected. I would also expect a higher mean value for individuals with rural *hukou* since One-Child Policy was in general less strict when it comes to execution in the rural areas.

Family Wage and *Family Expense* are all family level variables. The reason why that Family Expense is much higher than the other two variables may be due to the fact of a high volume of missing values in income-wise variables. Since all missing values from monetary variables are changed into 0, the mean values of these variables appear to be much lower than they should be. It is a problem of many social surveys conducted in China and previous literature has also reflected similar problems with data sets published in China (reference). However, it is also very interesting that respondents of the CFPS survey tend to answer most questions about expenditures while avoiding questions regarding incomes.

The last variable, *Total Family Members as Migrant Worker or Villagers* measures the amount of an individual's family member who work as a migrant worker or work for other villagers for agricultural work. The mean value is very low at 0.873 and may suggest that the average individual from the sample do not have other family members who work outside their residential areas.

Table 3 is a set of descriptive statistics at the family level (except income, *total retirement* subsidiary and total *government subsidiary* are at the individual level) and for all monetary variables. The units of all mean values are in Chinese *Yuan* (CNY)[3] and indicate a yearly value. Due to the data restriction, some variables only have very limited valid observations. For instance, there only a little more than 4,000 observations in *income.* However, if compared the mean value of income with the mean value of family income, which has a very complete number of observations at over 16,000, we can tell that the sample group for income can represent the whole population group. The mean value of *income* is more than one third of the mean value of family income, which seems reliable given that the average members of a household in my data set is 4.3 (Table 2).

Land rental indicates how much income the family will gain by lending their land to other villagers for farming or other purposes. The low valid observation number at 1460 suggests that renting out their lands does not seem to be a popular choice to use their lands. I assume that despite interviewees who refuse to answer the question, most households with ownership to lands will either use the land on their own or hire someone to farm the land on their behalf.

Total retirement subsidiary and *total government subsidiary* have a moderate number of observations, since only a portion of the population sample is over the legal retirement age of 55-60 for females and males respectively. The mean of *total retirement subsidiary* is almost 20,000 yuan, making it half of the mean value of individual income. This suggests that individuals who are retired should be able to financially take care of themselves. This indicator may also explain the low mean value of variable *parent finance* in Table 1.

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[3] The recent currency exchange rate of CNY to USD is about 1:0.15 as of 04/30/19.

Food, *house*, and *medical expenditure* are the top 3 expenses for a family and *mortgage1* seems to only consist a fairly small proportion. *Mortgage1* is a revised variable indicating how much unpaid mortgage a household has till 2016. It was initially recorded in the interview in 10,000 yuan per unit and I multiple the observations by 10,000 for the better presentation in this table. Less than? 2,000 individuals claim that their households are on debt for housing. As part of the expenditure category, *mortgage* has a much lower valid response rate compared with other categories in food, house, and medical. However, the response rate for housing expenditure is high and have a mean value over 11,000. This may suggest that most households in my population sample are not in debt for their housing but need to rent a house or spend money on maintaining their current housing. It may also because that most rural *hukou* holders have their own lands and are almost free from policy to build homes on their lands. It would be unnecessary for most of these households to have mortgage if housing is not a major part of their family expenditure plan.

One of the main assumption of my research topic is that migrant workers, compared to non-migrant workers from the same *hukou* registration place, tend to have a higher income. For this study, I choose 5 provincial regions with the highest population group from my data set and compare the income of migrant worker and non-migrant worker groups within each of these 5 provincial regions (Appendix I). I also use a 2-sample t-test to show if the findings are valid. 4 provincial regions out of 5 show a negative t-value. For the only group with a positive t-value and a p-value of less than 0.05, the income of migrant workers is higher than their counterpart from the same provincial region. However, with the t-test value at 0.307, the result is still insignificant and cannot support that migrant workers earn more than non-migrant workers when they come from the same provincial regions. Qin (2015) presents in her study that migrant

workers earn more than non-migrant worker at a sample of more than 30,000 individuals.

However, the data she used is at village level but not provincial level. This difference may be the

reason why the 2 descriptive statistics have different signs of relation.

3.3 Regression Model

I estimate a Ordinary Least Square (OLS) model to display all the marginal effects of the

coefficient results. Models 1, 2, and 3 indicate individual characteristics, family characteristics,

and monetary characteristics respectively. It is more representative to display how different

variables can influence the probability of an individual to become a migrant worker. I attempt to

use Model 1 (with variables in X_1 category) to indicate the influence on the dependent variable

from an individual's own characteristics, Model 2 (with variables in X_2 category) for his/her

basic family characteristics, and Model 3 (with variables in X_3 category) for his/her family

characteristics in the economic sense.

$Migrateworker = \beta_1 Age_i + \beta_2 Age2 +$

$\beta_3 Child_i + \beta_4 Gender + \beta_5 Marriagedummy_i + \beta_6 Lowedu + \beta_7 Midedu_i + \beta_8 Highedu_i + \beta_9 Hukoudummy + \beta_{10} Parentalive + \delta province + \varepsilon$

$Migrateworker = \beta_1 Num\ of\ Children_i + \beta_2 Liveinfam_i +$

$\beta_3 Parentfinance_i + \beta_4 Parentlivewfam_i + \beta_5 Family\ Count_i + \beta_6 Famwage1000_i + \beta_7 Ttl\_fam\_migrant\_worker_i + \delta province + \varepsilon$

$Migrateworker = \beta_1 Income_i + \beta_2 Saving_i +$

$\beta_3 Med_i + \beta_4 Govsub_i + \beta_5 famwage_i + \beta_6 Expense_i + \beta_7 Food_i + \beta_8 House_i + \beta_9 Mortgage_i + \beta_{10} Retiresub + \delta province + \varepsilon$

For Model 1, I expect that *age* and *gender* will not have a significant influence or may have a neutral effect on the dependent variable *migrant worker*. I expect a negative significant effect on *hukoudummy* as in general, since individuals with rural *hukou* tend to be more interested to work away from home (reference). I also expect a positive effect on *education* because people with higher education will need to seek better work opportunities in larger cities for a higher return on salary. Although there can be individuals who were educated higher and live/work in large cities, the probability is much smaller consider the population size and land size of China, the population size of educated individuals, and number of large cities.

For Model 2, I expect that the more economic burdens an individual receives from the family, such as more children to raise, have both parents to look after, and higher than average family members, the more likely an individual will choose to work as a migrant worker with higher salary then working locally. However, the variable *Family Wage* may be difficult to interpret as it is hard to tell if higher wages cause an individual to work away from home or becoming a migrant worker increases the person's salary.

For Model 3, I expect that income-related variables, such as *income*, family income, savings, both *subsidiaries*, and *land rental* should have a negative effect on *migrant worker* as people have less need in money and better work opportunities. For expense-related variables, such as *expanse*, *medical*, *food*, *house*, and *mortgage*, I expect a positive effect on *migrant worker* as people have a larger need of money in life.

4. Results

4.1 Regression Results

The regression result from Model 1 shows that both *education* and *hukou* have significant effect on *migrant worker.* For each level increase in education, the probability of an individual to become a migrant worker will increase by 3.81%. This result matches my expectation about the education variable. However, as of *hukoudummy,* having an urban *hukou* is likely to increase the probability of *migrant worker* by over 12.2%. From the result of the third regression which Model 1 and Model 2 are ran together, the significance of *hukoudummy* has doubled to 24.4%.

The regression result on *hukoudummy* has a high significance level but appears to be counterintuitive. It indicates that urban *hukou* holders are at least 12.2% more likely than rural *hukou* holders to work in cities away from their permanent residence. The general expectation regarding the relationship between *hukou* status and migrant worker status is that people with rural *hukou* are more willing to become a migrant worker as they can earn more by working in non-agricultural industries in cities. However, one explanation for this regression result is that many urban *hukou* holders whose *hukou* registered places are small cities are also willing to work in larger cities such as the capital cities of each provinces. Based on the definition of migrant worker in my study, it is understandable that compared to the thousands of cities in China, a handful of the top largest cities will always be the most coveted destinations for people who want to work away from their home residence.

Since many variables in Model 1 and Model 2 are correlated, the coefficient of *hukoudummy* in regression 3 is doubled to 24.4%. The overall results in regression 3 appear to have a higher significance level. It is also reflected in the coefficient of education that almost

doubled in regression 3 compared to regression 1. Regardless of the increase in number of variables in regression 3 and the increase in R-squared from less than 1% in regression 1&2 to 2.47% in regression 3, the two sets of variables may affect each other. For instance, one's age and marriage status will have influence on his/her likelihood of having their parents to live with the family or not. Dummy variable of *child*, *number of children*, and *family count* are also correlated with each other. Therefore, results from regression 3 should be more relevant and accurate.

Similar results happen in Model 2 as well. While most family-related variables appear to be very significant, the *number of children* and *live with family* tend to have negative effects on the dependent variable. For each extra child an individual has, the probability of him/her to become a migrant worker decreases at 2.76% and even higher at 4.1% if taken variables from Model 1 into account.

The amount of family member and the total family wages also have a small positive and significant effect on the dependent variable. In Model 3, for each 1,000 yuan increase in the *family wage*, the probability of one being a migrant worker will increase by 0.06%; for each 1 more person as a migrant worker in family, the probability of one being a migrant worker will increase by 6.3%.

The result from *total_family_migrantworker* also indicates that having one or more family members as a *migrant worker* will have a positive effect on individuals becoming migrant workers. This result matches the discovery from a previous study on migrant worker network which states that current migrant workers will have a positive effect on non-migrant-workers from their own village, whereas returned migrant workers will have a negative effect (Zhao, 2003).

To run Model 3, I generated a series of variables that are multiplied by 1,000 from the original variables for a better presentation in terms of regression results. Because these monetary variables are counted in the unit of 1 yuan, for the better presentation of coefficients, I multiple and generate related variables so that the coefficients can be interpreted in units of 1,000 yuan. Any variable with "1000" at the end of its name is generated in this way, except *mortgage* which was in units of 10,000 yuan. It has been eliminated from regressions because the observations are too less to construct a *probit* regression along with other variables.

I conduct 4 rounds of OLS regression based on Model 3 and results are shown in Table 5. The first regression in Table 5, which is regression 4 of the study, is set to consist only the expenditure variables in the model. Regression 5 contains only the income variables from Model 3. Regression 6 combines the main variables from both expenditure and income categories and eliminates variables with less observations to cover a larger part of the entire sample. Regression 7 includes all variables from both expenditure and income categories mentioned in previous regressions.

The results from Table 5 partially verify my expectation about Model 3. There are only two variables from regression 4 and 5 contain a significant coefficient. *Med1000* in regression 4 indicates that for each 1,000 yuan increase in the medical expanse for one's household, the probability of the person to become a migrant worker will increase by 0.106%. In regression 5, *Total_retirement_subsidiary* indicates that for each 1,000 yuan increase in the retirement subsidiary of one's household, the probability of the person to become a migrant worker will increase by less than 0.001%, similar to no effect at all.

Regression 6 eliminates *Total_retirement_subsidiary* and *Total_government_subsidiary* for the lack of valid observations and that they do not represent a wage income which takes time

and effect. The results of regression 6 shows that *med1000* is still the only variable that has a significant coefficient value. For each 1,000 yuan increase in medical expense for one's household, the probability that the person will become a migrant worker will increase by 0.104%. Including *med1000*, the signs of each coefficient in regression 6 almost remain the same if compared with regression 4 and 5. The coefficients are also way below 1% in all cases.

While all 4 regressions in Table 5 have a significant constant, regression 7 has the highest value of pseudo R-squared. The observation number is decreased to less than 1,700 in regression 7 and the value of most coefficients are increased accordingly. While *med1000* is still the only variable that has a significant coefficient, variables such as *food1000* and *house1000* have increased by more than 10 times. Their coefficients indicate that that for each 1,000 yuan increase in food and house expenditure, the likelihood of one becoming a migrant worker will increase by 0.173% and 0.154%. Other variables still display an almost neutral effect to the dependent variable.

Limitations and Policy Implications

The major limitation of this study is that it does not follow the official definition of migrant workers. Officially, individuals who work away from their household registered place for more than 6 months are considered as migrant workers. However, due to data limitation, I was unable to limit the samples within this time range. Another limitation is that the study did not control for work types of agricultural or non-agricultural, which may display a clearer difference in individuals' choices. There are also many missing observations, for instance *income*, from the raw data and may affect the final regression results.

The results from this study indicate that individuals tend to care more about their responsibilities to their offspring compared to their parents or other relatives. It is also logical that parents tend not to leave their children for work but to company them at home. One policy implication for the government to attract more migrant workers, especially those young couples, would be to invest in younger level education facilities to support a larger group of children, or to offer more compensations for the migrant parents to raise children below a certain age. This may increase their interest in working away from home knowing that they may bring their children together to the urban areas.

Conclusion

In general, the regression results all show a significant effect on the dependent variable *migrant worker* and suggest that most family factors do have a huge impact on one's decision in becoming a migrant worker or not. The most significant results are from the first and second model where individual characteristics and non-monetary family characteristics are considered. It is clear that having other family members who are able to help an individual either financially or physically, such as taking care of one's house when he/she is away, will have a positive effect on one's probability in becoming a migrant worker. If, on the other hand, family members who have difficulties in taking care of themselves or need someone to constantly be with them, are considered as having a negative effect on one's probability in becoming a migrant worker. Variables of *parent alive* and *children* all show negative effects on the dependent variable *migrant worker*.

Monetary variables do not display much of a significance in terms of influence on the dependent variable. The only variable with significant coefficient is medical expense, which for each 1,000 yuan increase in medical expense, the probability of one to become a migrant worker will increase by 0.5%. It can be interpreted in the way that medical expenses, unlikely other everyday expense on food, house and other categories, often incur with a sudden and last for a long period of time. Individuals may have difficulties in foreseeing such event or are able to use insurance or other kinds of methods to prevent it. It could also be that many migrant workers, especially those with *rural* hukou and work in construction industry, are more exposed to accidents than others. In that case, it could be possible that it is being a migrant worker causes the medical expenditure to increase rather than the other way around.

In conclusion, this study adds new perspective to the issue of migrant workers and internal migrations in China by looking the family level of characteristics from the latest data available rather than individual or institutional factors from a broader scale.

Tables and Graphs:

Table 1: Descriptive Statistics of Individual Characteristics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
Migrant worker	16,024	0.660	0.474	0	1
Age	16,036	42.037	15.80	16	104
Gender	16,036	0.507	0.500	0	1
Hukoudummy	14,613	0.337	0.473	0	1
Marriagedummy	16,036	0.763	0.425	0	1
Child	16,036	0.711	0.453	0	1
SingleChild	11,409	0.49	0.50	0	1
Education	15,187	3.024	1.446	1	8
Lowedu**	5,523	1	0	1	1
Midedu***	7,293	1	0	1	1
Highedu****	2,371	1	0	1	1
Parents Alive	16,036	0.80	0.40	0	1

Notes: *migrant workers with urban or rural *hukou* status; **illiterate/semi-literate and primary school; ***junior high school and senior high school; ****3 or 4 years of college and master's/doctoral degree.

Table 2: Descriptive Statistics of Family Characteristics

Variables	Observation	Mean	Std. Dev.	Min.	Max.
Number of Children	16,041	1.277	1.170	0	10
Live in Family	16,055	0.909	0.288	0	1
Parent Finance	16,055	0.211	0.408	0	1
Parent live with Family	16,055	0.194	0.400	0	1
Family Count	16,055	4.295	2.013	1	17
Family Wage*	16,055	29173.43	56,058.96	0	2,200,000
Family Expense*	15,205	90012.23	131,296.4	104	5,169,220
Total Family Members as Migrant Workers	16,055	0.873	1.154	0	9

Note*: Units in Chinese Yuan (CNY)

Table 3: Descriptive Statistics of Monetary Characters at the Family Level

Variables	Observation	Mean	Std. Dev.	Min.	Max.
Income	4,138	38,305.47	167,372.6	70	10,300,000
Savings	16,041	56,972.43	151,821.9	0	4,000,000
Family Income	16,027	100,768	250,891.8	160	11,400,000
Total retirement subsidiary	4,763	19,184.64	23,492.13	50	210,000
Total government subsidiary	5,853	1,894.566	7,229.344	5	300,000
Land Rental	1,460	2,966.495	6,220.176	16	75,000
Expense	16,041	90,012.74	131,342.6	104	5,169,220
Food	15,958	21,535.75	19,457.84	24	600,000
House	15,793	11,664.55	32,819.31	16	551,440
Medical	14,420	7,233.441	27,830.44	10	1,200,000
Mortgage1	1,869	250,890.3	3,409,966	100	60,000,000

Table 4: Results from Model 1 and Model 2

VARIABLES	(1) Control for Provinces	(2) Control for Provinces	(3) Control for Provinces	(4) No Control
age	-0.00142		-0.000637	-0.00202
	(0.00184)		(0.00298)	(0.00301)
age2	2.17e-05		2.61e-05	4.80e-05
	(1.91e-05)		(3.16e-05)	(3.19e-05)
gender	-0.00249		-0.0137	-0.0157
	(0.00790)		(0.0115)	(0.0117)
child	-0.00165		0.0248	0.0583**
	(0.0141)		(0.0240)	(0.0239)
marriagedummy	0.0250**		0.0329*	0.0408**
	(0.0123)		(0.0190)	(0.0192)
hukoudummy	0.0463***		0.0899***	0.0961***
	(0.00951)		(0.0133)	(0.0128)
parentalive	0.00834		-0.00313	-0.00496
	(0.0112)		(0.0170)	(0.0171)
lowedu	-0.0547***		-0.0296	-0.0151
	(0.0193)		(0.0290)	(0.0292)
midedu	-0.0377**		0.00560	0.0206
	(0.0187)		(0.0268)	(0.0270)
highedu	0.00970		0.0539*	0.0734***
	(0.0208)		(0.0282)	(0.0283)
Number_of_Children		-0.00685	-0.00857	-0.0280***
		(0.00634)	(0.0103)	(0.0101)
liveinfam		0.000866	0.0857*	0.0895**
		(0.0301)	(0.0442)	(0.0444)
parentfinance		0.134*	0.119	0.0988

	(0.0716)	(0.0869)	(0.0873)
parentlivewfam	-0.119*	-0.0701	-0.0447
	(0.0717)	(0.0864)	(0.0867)
familycount	0.0189***	0.0162***	0.0136***
	(0.00359)	(0.00389)	(0.00385)
familywage1000	0.000338***	0.000186**	0.000202**
	(8.68e-05)	(9.12e-05)	(8.74e-05)
Total_family_migrantworker	0.0135	0.0286***	0.0255**
	(0.00986)	(0.0105)	(0.0104)
Constant	0.628***	0.622***	0.434***	0.377***
	(0.0529)	(0.0527)	(0.0880)	(0.0791)
Observations	14,608	6,990	6,635	6,635
R-squared	0.023	0.042	0.060	0.032

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 5: Results from Model 3

VARIABLES	(1) Control of Provinces	(2) No Control	(3) Control of Provinces	(4) No Control
income1000	-0.00449	0.00143	-0.000117**	-0.000117**
	(0.00570)	(0.00521)	(5.54e-05)	(5.57e-05)
familyincome1000	0.00649	-0.00550	5.98e-05*	5.33e-05*
	(0.00811)	(0.00410)	(3.11e-05)	(3.12e-05)
savings1000	-0.000160	0.000915	3.87e-05	5.87e-05
	(0.00777)	(0.00368)	(6.92e-05)	(6.77e-05)
expense1000	-0.00308	-0.000337	-0.000168	-0.000163
	(0.0132)	(0.00494)	(0.000105)	(0.000104)
food1000	-0.0343	0.00904	0.00122**	0.000862*
	(0.0286)	(0.00930)	(0.000490)	(0.000480)
house1000	0.000709	0.00186	0.000371	0.000279
	(0.0278)	(0.00818)	(0.000291)	(0.000291)
med1000	0.0202	-0.00325	0.000793**	0.000755**
	(0.0261)	(0.0107)	(0.000335)	(0.000336)
Total_gov_subsidiary1000	0.0357	0.0407		
	(0.146)	(0.0454)		
Total_retirement_subsidiary1000	-0.0129	-0.00670		
	(0.0167)	(0.00648)		
mortgage1	-2.57e-06	4.94e-06		
	(1.51e-05)	(6.03e-06)		
Constant	1.642**	0.992***	0.599***	0.641***
	(0.651)	(0.282)	(0.0587)	(0.0128)

Observations	35	35	3,602	3,602
R-squared	0.747	0.186	0.025	0.004

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

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Appendix I:

Descriptive Data of Migrant Workers in 5 Provinces of the Largest Population from Data Set

Provincial Regions	Observations	Mean of Migrant Worker Annual Income*	Mean of Non-Migrant Worker Annual Income*	2 Sample t-test of Unequal Variances
Liaoning	1.342	28,962.59 (256)	43,430.3 (117)	-0.9392
Shanghai	1,128	57,829.71 (213)	55,816.51 (83)	0.3068
Henan	1.825	31,629.35 (283)	64,824.21 (108)	-0.5569
Guangdong	1,868	42,429.1 (311)	79,894.43 (233)	-0.8486
Gansu	1,630	29,087.4 (230)	32,116.25 (93)	-1.0885

*Numbers of observations are in brackets below the mean values. All units are in Chinese Yuan (CNY).