THE IMPACT OF INTERNAL MIGRATION ON LABOR MARKET OUTCOMES OF COLLEGE GRADUATES IN CHINA

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by

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SUMMARIUM

Since economic reform in 1978, migration and the expansion of higher education have become important factors in China's modernization process and are closely linked with social mobility (Cebolla-Boado & Soysal, 2018): Rapid economic growth has stimulated massive migration both at home and abroad for educational and/or career opportunities. When market forces continue to permeate every sector, including education and the labor market, the special institutional arrangement (i.e. hukou system) and the structure of the labor market are still organizing the social structure of the entire society (Bian & Logan, 1996; Xiao & Bian, 2018).This background provides a context for studying the relationship among socioeconomic status attainment, higher education and migration, namely, how migration produces and maintains social inequality under the joint action of centralist state-control and market forces.

At present, the research on "how mobility affects college graduates' performance in China" mainly has the following shortcomings. First, in 2019, China's Gini Coefficient was reported at 0.465 NA. The main investigation of previous research on individual social and economic status is ascribed factors (such as family background, residence, gender) (He & Wu, 2018), achieved status, such as level of education (Xiao & Bian, 2018), social capital (Bian, 1997), or the structure of the labor market (Li et al., 2015), while the geographical mobility and its interaction with other factors impact on individual socioeconomic status is ignored. Second, in terms of higher education, similar to many western developed countries in the 1950s, China's higher education began to expand in the late 1990s. Since 1999, the Chinese government has adopted the higher education expansion policy, resulting in the rapid growth of higher education opportunities. A striking example is that in 1998, the gross enrollment rate of higher education was 5.86% and by 2018, the ratio had reached 50.60 percent (World Bank, 2020). However, research on higher education focuses on the influence of family background and factors in the education process on the access to educational opportunities and academic performance (Liu,2015; Tam & Jiang, 2015), while there is a lack of research on the relationship between higher education and labor market. Third, in terms of migration, similar to many

other developing countries, China has been experiencing the massive volume of internal migration. In 2017, 244 million people was estimated to move across regions within the country (Report on China's Migrant Population Development, 2017), which is close to the total global international migration (United Nations, 2017). Because the rural-to-urban is quantitatively so important, many studies have been conducted to explore the labor market performance of low-skilled migrants in China (Fan, 2002; Wu & Treiman, 2004; Zhang & Wu, 2017), whereas research on higher-education and highly skilled migration within China is scarce.

Research question

This dissertation is composed of three empirical studies focusing on the effects of migration on the socioeconomic status of college graduates and whether such effects are limited by other structural factors. Specifically, Chapter 4 studies the interaction of migration and gender on college graduates' starting salary and work organization entry. Chapter 5 explores the influence of migration and family background on college graduates' employment outcomes; examines the role of locality (cities) in differentiating socio-economic outcomes of migrants. The last empirical chapter, Chapter 6, examined whether Beijing, Shanghai, Guangzhou and Shenzhen, the first-tier cities, have emerged as an "upward social class escalator region" (Fielding, 1992) for the young adults in the Chinese graduate labor market. The research questions were as follows:

1. Is there an economic premium attached to graduate migration? If yes, do all young people with different characteristics benefit equally from the migration premium?

2. Is there a double negative effect between gender and migrant status on college graduates' initial salaries and entry into the state sector for employment?

3. Is there migrant selectivity among graduate return migrants in terms of human capital characteristics? What is the impact of family background on graduate return migrants' labor market outcomes?

4. Is there a positive association between moving to first-tier cities (Beijing, Shanghai, Guangzhou, and Shenzhen) and college graduates' monthly starting salaries in China's labor market? Due to the stringent local hukou barrier in Beijing, Shanghai and Guangzhou and Shenzhen, do graduate migrants have equal access to employment opportunities in government organizations and public enterprises

compared to their local peers?

Data and methods

Data

Findings of the three empirical studies in this dissertation are based on second-hand data. The data came from the "China College Student Survey" (CCSS), which was conducted by China Data Center at Tsinghua University in 2010, 2013 and 2015. The project used stratified probability-proportional-to-size random sampling and 60 universities from 23 provinces participated in the survey. It is a nationally representative survey. This survey aimed to understand the academic performance of Chinese college students during school, as well as their performance in the labor market and personal career choices. The survey also included information on the students' socioeconomic status, school education during the middle school, and college entrance examinations. Since undergraduate study in China is usually a four-year program, students in the last semester of undergraduate study (four-year program) were defined as a sample population. The selected respondents need to fill in their placement after graduation, and students who chose to seeking a job after graduation need to give some information about employment (such as number of offers, place of employment, income, etc.).

Further, the data used in this dissertation was limited to a sample with the following characteristics: Students who had no experience of migration before college and chose to find a job after graduation. In addition, only those who had received (at least) one offer and provided income information in the survey were included. The final sample consisted of 5,906 eligible individual students.

Data analyses

Considering the sample selection problems caused by these abovementioned conditions, the dissertation used Heckman's (1979) two-step sample selection models to test the effect of sample selection bias on the results. Specifically, in the first step, a probit model was fitted to estimate the selection into our analytical sample, based on which the inverse Mill's ratio, λ, was calculated (Flippen, 2013). In the second step, the λ parameter was included in the model predicting starting salary. In migration studies, researchers also pointed out the migrant self-selection issues

(Borjas, 1987; Chiswick, 1999). Chapter 6 also used the two-step selection model to identify the return migration selectivity.

Besides, this dissertation adopted propensity score matching and weighting methods. The matching method was used to compare the aggregate impact of education migration and work migration on the salary outcome in the whole sample as well as in disaggregated samples according to hukou origin (rural or urban); while the latter was to reduce selectivity bias in regression models, following the argument from Ridgeway, Kovalchik, Griffin and Kabeto (2015), I include the product of a propensity score weight (correcting for graduate migration selection bias) and the sampling weight as the final weight in estimations of regression models.

Overview of the findings

Chapter 4 examines how internal graduate migration interacts with gender and play a key role in producing inequality among recent college graduates in China. Results show that, on one hand, female graduate migrants had less chance to enter governmental organizations which affords institutional protection against gender discrimination. On the other hand, the effect of geographical mobility (migration) varied by work organizations and female graduate migrants who ended up in the non-state sector were more likely to experience an income penalty in earnings attainment. The results suggest that although female graduate migrants are a highly selective group in terms of human capital characteristics, they are disadvantaged twice in the labor market because of the existing barriers based on gender and hukou locality.

In Chapter 5, the impact of graduate return migration on initial salaries of college graduates in Chinese graduate labor market is investigated. Results reveal that graduates moving back to their pre-college hukou located cities had more opportunities to get a placement in government organizations and public enterprises, relative to onward migrants, and the advantage was enhanced by the introduction of family political capital. Besides, despite of the effect of migrant selectivity indicated that they were not much different than the onward migrants with respect to the characteristics that determine starting salaries, graduate return migrants had slightly higher earnings than onward migrants. The findings suggest that family background plays an important role in shaping differences in labor market outcomes among graduate migrating population and graduate return migration seems to be a strategy

for upward social mobility taken by college graduates from privileged families.

Chapter 6, the last empirical chapter of the dissertation, examined whether Beijing, Shanghai, Guangzhou and Shenzhen have emerged as an "upward social class escalator region" (Fielding, 1992) for young people in China. After accounting for observed demographic and human capital characteristics and migrant selectivity, migrating into Beijing, Shanghai, Guangzhou and Shenzhen has been found to be positively associated with earnings attainment, and the economic benefit from relocation was greater than that experienced by migrants elsewhere in the system. However, in-migrants to Beijing, Shanghai, Guangzhou and Shenzhen have fewer opportunities to work in the state sector (government organizations in particular). These results suggest that migration to Beijing, Shanghai, Guangzhou and Shenzhen can only bring short-term economic benefits, but it cannot guarantee the upward social mobility of migrants. It remains to be further investigated as to whether such a region has the potential to become an escalator region in China.

Implication of the findings

Findings above demonstrate the impact of internal migration on the socioeconomic status of graduates in China's labor market. Based on these findings, there are some policy recommendations and theoretical directions that can be pointed out.

Theoretical implications

Overall, through nuanced investigation of the influence of migration on labor market outcomes, my dissertation makes an important contribution to the field of social mobility literature on labor market performance of highly-educated migrants.

1. The impact of internal migration on the socioeconomic status of college graduates

In the field of higher education, the relationship between education and employment is a topic that scholars and policy makers have long been concerned about (Schomburg & Teichler, 2007). Research in the field of higher education is focused on the impact of education-related mechanisms (national education system, school type or major, etc.) on employment outcomes. In this study, the influence of higher education related factors has been verified（academic performance at college such as undergraduate GPA, awards, CCP membership, English language certification;

fields of study and college type (whether "Project 211" or not) .

More importantly, findings indicate that graduate migration has a non-negligible impact on the employment results of college graduates. The results of this dissertation also show that in China, as economic reforms continue to advance, students have more freedom to make use of geographical mobility to find the most suitable job for themselves, so as to maximize the economic return brought by work.

The labor market performance of migrants also reflects the socio-economic integration of migrants. The findings challenge the idea of self-selection of migrants. Results from the empirical chapters show that in general, there is a positive association between geographical mobility and the initial salaries of college graduates, even after controlling for their migration-related characteristics. Migrant experience itself, rather than migrant selectivity, helps graduate migrants to achieve higher earnings.

My dissertation suggests that although there is a positive association between migration and salary outcome, migration has an inhibiting effect on entering the primary sector in the labor market. The existing institutional and structural factors in the society have an important impact on the consequences of migration. Different from the segmented mechanism in developed countries, China's labor market is divided by state-owned and non-state-owned sectors and the *h*ukou system is the main channel for sending workers into different sectors. *Hukou* hinders the free movement of college graduates, making it impossible for migrants to achieve upward mobility through migration.

Besides, the results of this dissertation prove that cities play an important role in creating unequal consequences of migration. High-skilled migrants have often been associated with global elite, as free-floating mobiles that are disembodied from localities and moving outside of the constraints of nation states (Hannerz 1996, 129; Sklair 2005). In China, these highly educated migrants are not "free-floating mobiles", instead, their mobility and its consequences are constrained by institutions and structures. Results show that, despite of a substantial income premium from migration that in-migrants to Chinese megacities (Beijing, Shanghai, Guangzhou, and Shenzhen) experience, they face more restrictions from the *hukou* system (comparing migrants elsewhere in the system) when seeking employment in government organizations and public enterprises.

Last, in China, citizenship has been found to be stratified in terms of *hukou* locality. In the Chinese context, citizenship has been interlocked with the hukou (household registration) system for more than 50 years. With the reform of the household registration system，the *hukou* location，rather than the hukou classification, has become more important in determining access to resources and defining one's life chances. The larger the city is, the more valuable is its hukou because there are more government-provided benefits. Beijing, Shanghai, Guangzhou and Shenzhen, where the barriers or social boundaries associated with hukou are stronger than any other cities (Wang et al., 2017; Zhang & Tao, 2012), as a result, migrants encounter more difficulties in labor market if they want to settle down in these cities.

2.Maintenance of inequality: the interaction between migration and other social and demographic characteristics

The findings of this dissertation indicate that although graduate migration is generally considered to be "a process wherein higher-education students …for the purpose of career advancement or upward social mobility" (Li, et al. 2020, p.4); however, mobility did not play a role in reducing existing inequalities. In the Chinese context, The reason why migration is associated with inequality lies in its mechanism: Exclusion (*Immigration Policy and Citizenship* at the societal level) and opportunity hoarding (*Opportunity structures* in employment markets at the societal level). The *hukou* system in China, is a typical example of exclusion based on legal boundaries enforced by the state. This dissertation also wants to emphasize the socio-economic differentiation brought about by the classification of *hukou* system (especially local-nonlocal). Just as *immigration policy measures and citizenship* which is closely related to legal affiliation in international migration, the nature of legal exclusion provided by hukou restricts their access to the same job opportunities as local residents, although it does not limit the migration behavior of graduates. The linked mechanism is *opportunity structure* in the labor market. For graduate migrants, the hukou system does shape the opportunity structure in the labor market, that is, compared with local people, migrants have fewer job opportunities. But more importantly, it is important to note that the hukou system works in conjunction with the segmented labor market: what migrants lack is not jobs that are generally available, but jobs in the primary sector of the segmented labor market. Therefore, migration produced inequality through exclusion (in the sense of legal aspect) and

opportunity structure.

Additionally, this dissertation suggests that, migrant status interacts with pre-existing inequalities such as hukou status(rural/urban) and gender and shapes outcomes among college graduates in China's urban labor market. Rather than being natural, categories, such as gender and race, are socially constructed, and they not only influence individual identities but also provide principles of organization in the social system (Browne & Misra, 2003). Thus, these results imply that migration may serve to entrench pre-existing socioeconomic inequalities between rural and urban hukou holders, as well as between men and women.

3. **Family background, education and migration: The reproduction of social inequality**

In the field of stratification research and higher education, one of the focal points of debate is the extent to which higher education reduces the influence of family background on an individual's economic success (Bloome, Dyer, & Zhou, 2018; Hout, 1988; Torche, 2011; Witteveen & Attewell, 2017, 2020). Findings of the study support the reproduction hypothesis, that is, family background still has a very important influence on the employment outcomes of college graduates: Family income is significantly positively correlated with graduate starting salaries.

In addition, although the political capital of parents has no significant impact on the salary of a graduate, it has a significant impact on whether college migrants can enter into the employment of primary sectors. This shows that power maintenance still plays an important role in the graduate labor market. Political elites are more likely to pass on their dominant position to their children, and the formation of elites is exclusive.

Another important finding of this dissertation is that the influence of family background on one's economic achievement can also be realized by influencing one's migration behavior. The return migration behavior in particular, is a resource and power of dominant families: graduate return migrants are more likely to be singletons from one-child urban families with higher family income, cadre parents, and more familial political capital. Furthermore, those with more political capital are more likely to enter government organizations and public enterprises. By influencing their children's migration choice, the children from the advantaged families obtain higher socioeconomic status by means of mobility, thus realizing the intergenerational

transmission of class. Therefore, geographical mobility becomes a tool for the reproduction of social class.

Practical implications

In terms of the labor market, the findings of this dissertation suggest that the government needs to establish policy evaluation and supervision mechanisms for gender equality. At the same time, laws and regulations related to the labor market should be established to enhance the awareness of labor equality and the ability to protect rights, so that female workers can learn to use legal means to fight for and protect their rights. Moreover, such local protectionism should be corrected in policy design, given the unequal employment opportunities for locals and outsiders brought about by the hukou system. In the field of higher education, students should have more freedom of choice in their educational mobility. For rural students, attention should be paid to the improvement of rural educational resources, including teachers and schools. In the college application stage, teachers or organizations should fully explain the situation of each higher education institution (including education and employment), so that students and parents can have a deeper understanding of the school. What's more, the establishment of various types of colleges and universities, such as vocational skills schools, and the further improvement of the higher education system will enable students to have more choices when applying for colleges and universities. In terms of the household registration system, the welfare and rights attached to the household registration system should be removed to break the institutional bottleneck of social mobility of the floating population. Given the important role of first-tier cities in China's economic system, how to solve the problem of floating population in first-tier cities has become a key issue for policy makers to solve in the future.

Limitations and directions for future research

Finally, several important limitations need to be considered. First, the dissertation was limited by the use of a cross-sectional design conducted, and it was not able to investigate the long-term impact of migration on college graduates' labor market outcomes. Future research should attempt to collect longitudinal data that trace a representative sample of higher education leavers after graduation in order to have a better understanding of the long-term consequences of migration. Second, although

this dissertation tried best to include as many variables as possible to correct for migrant self-selection bias, it should be acknowledged that there is still a possibility that unobserved traits, such as personality, risk-taking, and confidence, are also related to the labor market outcomes of graduates. It is suggested that the association of these factors is investigated in future studies. Third, this dissertation was exclusively focused on the effect of graduate migration on the labor market outcomes among bachelor's degree holders. However, migration is associated with education, and individuals with the different educational background may benefit differently from geographic mobility. Future work from China to include individuals at different education levels (such as B.A., M.A., and PhD.) would be of great help in knowing the same issue in the Chinese context. Fourth, this dissertation merely examined the economic outcomes of migration. While both earnings attainment and work organization entry are essential indicators of the social and economic status in China (Li et al., 2015; Xiao & Bian, 2018), the consequence of migration is related to other aspects of life, including housing ownership, marriage, and family support (Cui et al., 2016; Qian & Qian, 2017). One possible area of future research would be to conduct follow-up surveys of the college-educated cohorts of the current CCSS sample. This could help researchers gain a more complete picture of the graduate migration process and its importance for determining individuals' life opportunities.

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1 INTRODUCTION

As early as the 18th century, Rousseau said in his well-known work, *The Social Contract*, "Man is born free, but he is always in chains." (1762/1968) Inequality is a common phenomenon existing in the human society. Whether it is a pre-industrial period, an industrial society, or a post-communist society, social resources are always unequally distributed among social members and social groups. Therefore, understanding and explaining this inequality has become the common mission of social scientists.

Education and employment are the two spheres most closely related to inequality. On the one hand, higher education is regarded as an important channel for upward social mobility (Collins, 1979; Dennis, 1988). But the extent to which higher education reduces the influence of family background on one's economic success is an open question. On the other hand, indicators that measure the performance of the labor market, such as income, occupation, etc., are also important dimensions of the measurement of socioeconomic status. They reflect the possession of valuable resources by different social groups or people with unequal social status. However, employment opportunities in the labor market are also often unequal, which is affected by the individual characteristics of workers (gender, age, nationality, etc.) and the structure of the labor market.

Inequality in education and employment is not a phenomenon within a country or region, but rather a global phenomenon. Developed countries and regions attract a large number of people from other regions or countries because of their rich educational resources and career opportunities. In the 1960s, there were three main receiving countries in 1965: the United States, France and Germany. Up to now, European countries (such as the United Kingdom, France and Germany) as well as the United States and Australia are still the main destinations for international student mobility, receiving over 50% of international students (UNSECO, 2019).

Due to the acceleration of globalization trends and changes in migration dynamics, some countries traditionally considered to be migrant-sending countries have gradually become migrant-receiving countries, or both (Wang, Li, & Deng, 2017).

As a traditional migrant-sending country, in 2017, according to statistics, there were 10.7 million Chinese migrants living and working overseas; at the same time, China attracted migrants of different technology types and ethnicities to come to China for employment and work, approximately a million international migrants registered in China(International Organization for Migration [IOM], 2019).

In order to achieve the UN's goal of "triple win" for migrants themselves, migrant-sending and migrant receiving countries, the situation within China is also worthy of attention as we focus on international migration. Since the economic reform in 1978, the Chinese economy has begun to take off. From 1979 to 2017, the average GDP growth rate was 9.5%. In 2017, GDP (at purchaser's prices) reached 12.31 trillion U.S. dollars, accounting for 15% of the world's total (World Bank, 2020). Accompanying it are various social problems that have emerged during the transition to a market economy. First, the income gap is widening. The Gini coefficient was reported at 0.3 NA in 1980, while in 2019, The index increased to 0.465 NA (CEIC Data, 2020). Second, after the expansion of higher education, college students flood into the labor market in large numbers, and graduate employment has become a common concern of the society. Since 1999, the Chinese government has adopted the higher education expansion policy, resulting in the rapid growth of higher education opportunities. A striking example is that in 1998, the gross enrollment rate of higher education was 5.86% and by 2018, the ratio had reached 50.60 percent (World Bank, 2020). The increasing enrollment rate corresponds to thousands of college graduates in the labor market who are in urgent need of solving the employment problem. According to the Ministry of Education, 8.34 million college students were reported to graduate in 2019. Third, uneven development between regions makes migration an important means to obtain career opportunities and educational opportunities. In 2017, 244 million people was estimated to move across regions within the country (Report on China's Migrant Population Development, 2017), which is close to the total global international migration (United Nations, 2017). In this vast country, the destinations of these migrants are not random: Due to the large difference in economic development between inland and eastern coastal areas, migration to eastern coastal areas for employment and settlement has become the way many migrants have achieved upward social mobility (Chan, 2015). By 2016, Beijing, Shanghai, and Guangdong have received 49.887 million migrants in total,

which accounts for 20.4% of the total migratory population (China News, 2017). Of course, Beijing, Shanghai, Guangzhou, Shenzhen -- the four most migrants-receiving cities themselves (or their major cities) are described by scholars as Sassen's "global cities" for their increasingly prominent role in the world economy and their great attraction to migrants (Sassen, 1991; Wang, Li, & Deng,2017).

1.1 RESEARCH QUESTION

Against this background, inspired by the two basic questions in the field of social stratification and mobility summarized by Lenski (1966/2013), *the basic sociological question* of this thesis is: *Who benefits from migration and why?* The former is a description of labor market performance in terms of resources (including income and employment sector entry) that different social groups with different characteristics gain (or lose) through migration. The second question attempts to answer the reasons (mechanisms) for the acquisition (or loss) of such resources by combining the existing literature and theories on migration/mobility.

Specifically, this dissertation focuses on monthly starting salary and entry into different type of work organizations, which are two key indicators of employment equality and socioeconomic status for individuals (Faggian, McCann, & Sheppard, 2007; Wu & Treiman, 2004; Xiao & Bian, 2018) to examine the link between migration and the labor market outcomes of college graduates in China's urban labor market. Drawing on data from the China College Student Survey (CCSS, 2010, 2013, 2015), which is a nationally representative survey, this dissertation uses quantitative analysis to empirically examine four main research questions:

1. Is there an economic premium attached to graduate migration in China? If yes, do all young people with different characteristics benefit equally from the migration premium?

2. Is there a double negative effect between gender and migrant status on college graduates' initial salaries and entry into the state sector for employment?

3. Is there migrant selectivity among graduate return migrants in terms of human capital characteristics? What is the impact of family background on graduate return migrants' labor market outcomes?

4. Is there a positive association between moving to first-tier cities (Beijing, Shanghai,

Guangzhou, and Shenzhen) and college graduates' monthly starting salaries in China's labor market? Due to the stringent local hukou barrier in Beijing, Shanghai and Guangzhou and Shenzhen, do graduate migrants have equal access to employment opportunities in government organizations and public enterprises compared to their local peers?

The relationship between these four questions is as follows: The first question is a descriptive question (i.e., "*Who benefits from migration?*"), which is answered for different migrant groups in the empirical chapter. The second, third and fourth question discusses the impact of the interaction between migration and gender (Chapter 4), migration and family political capital (Chapter 5), as well as migration and cities (Chapter 6) on socio-economic status attainment from the perspective of the interaction between migration and heterogeneity (gender), migration and family background and migration and urban space.

The case of China is at the center of the thesis mainly for the following reasons: Since the economic reform in 1978, migration and higher education expansion have become important factors in the process of China's modernization and are closely related to upward social mobility (Cebolla-Boado & Soysal, 2018): Rapid economic growth has stimulated large-scale migrations at home and abroad for educational and/or professional opportunities. While market forces continue to infiltrate into various fields (including education and labor market), the special institutional arrangements (i.e. *hukou* system) and the structure of the labor market (the hierarchical system of work organization) still shape the social structure (Bian & Logan, 1996; Xiao & Bian, 2018). This background provides a context for studying the relationship between individual's socioeconomic status attainment, higher education, and migration: How migration produces and maintains social inequality under a complex interaction between centralist state-control and market forces.

A range of previous studies has already dealt with the relationship among migration, higher education and labor market performance in China; however, the state of research exhibits a range of important research gaps:

First, in terms of social stratification and social mobility, at present, scholars focus their attention on the influence of ascribed characteristics (such as family background, hukou and gender) (He & Wu, 2018),achieved status (such as education level) (Xiao & Bian, 2018), social capital (Bian, 1997) or labor market structure (Li et al., 2015)

on the attainment of individual socioeconomic status, but pay little attention to the influence of geographical mobility and its interaction with other factors on individual socioeconomic status; second, in terms of higher education, similar to many western developed countries since the 1950s, China's higher education witnessed an expansion trend in the late 1990s. With regard to the topic of "the relationship between higher education and social mobility", however, research on higher education currently focuses on the influence of family background and factors in the education process on the access to educational opportunities and academic performance (Liu, 2015; Tam & Jiang, 2015), while there is a lack of research on the relationship between higher education and labor market. Last but not least, similar to many other developing countries, China has been experiencing the massive volume of internal migration. Because the rural-to-urban is quantitatively so important, many studies have been conducted to explore the labor market performance of low-skilled migrants in China (Fan, 2002; Wu & Treiman, 2004; Zhang & Wu, 2017), whereas research on higher-education and highly skilled migration within China is scarce.

Therefore, the purpose of this thesis includes the following aspects:

First, in the field of migration studies, economic performance of migrants in the labor market has been one of the central issues. Previous studies focused mostly on labor migration, but little is known about the relationship between graduate migration and labor market performance. This is an important shortcoming, because exploring graduate migration and its economic consequences is an interdisciplinary field that links social stratification research, higher education research and migration research. This exploration can help us better understand the internal dynamics among these three.

Second, previous studies on graduate migration have paid little attention to the interaction between migration and other social categories (such as gender, place of birth, etc.) and how this interaction maintains and produces (new) inequality. However, such interaction has been emphasized in cross-border migration studies (Faist, 2014). It is necessary to draw on international migration literature to understand migration as a mechanism of social stratification.

Finally, previous studies on the economic consequences of migration mainly focused on its impact on individual's income or occupational status, but not focus on the relationship between mobility and employment sector access. This can be identified

as a gap in the literature, because the hierarchical work organization system (work units, also known as *danwei*) is an important mechanism for understanding social stratification in post-communist societies/transitional societies (particular in China) : as an agent of redistribution economy, the state-owned sector is still the key sector to control economic resources in the labor market (Bian & Logan,1996).

1.2 DEFINITION

Before introducing relevant research, it is necessary to clearly define the key concepts of the research. The purpose of doing this is, first, to define the research object and maintain the scientific and rigorous nature of the research, and second, to limit the boundaries of the research so as to ensure the smooth progress of the research.

College graduates

College graduates, the definition of college graduates in this study is as follows: This study takes the graduates of ordinary colleges and universities (four-year undergraduate) graduated in 2010, 2013 and 2015 as the research object. In China, ordinary colleges and universities refer to educational institutions that implement higher education approved in accordance with the setting standards and approval procedures stipulated by the state, including full-time universities, independent colleges and colleges, higher vocational schools and other institutions. Ordinary colleges and universities enroll high school graduates who have passed the national college entrance examination. The research object of this study is a group of undergraduate graduates of various full-time institutions of higher learning in these three years (2010, 2013 and 2015). In the study, college and university will be used interchangeably, with no substantial difference (at least in this study).

Internal migration

Existing research mostly defines the internal migration of college graduates based on geographic location changes, that is, during the transition from higher education institutions to the labor market, if the geographical location of graduates' changes, they are defined as migrants. Conversely, they are defined as non-migrants. These studies used different measures of geographic location. One is based on geographical distance, such as Di Cintio and Grassi (2011). In the study on the flow of Italian graduates, they used a distance-based measure, where individuals are identified as

migrants only if they move at least 50 miles. The other is based on geographical region. If an individual leaves the area and moves to another region for employment, it is defined as migrant (for example, state in the US); if an individual is employed within the state, it is considered as non-migrant (Kazakis & Faggian, 2017).

Compared with previous studies, the meaning of employment mobility in this study is more extensive, not only limited to the geographical location, but also takes into account China's special institutional arrangements-Household registration system. Unlike population registration systems in many other countries, the Chinese hukou system was designed not merely to provide population statistics and identify personal status, but also directly to regulate population distribution and serve many other important objectives desired by the state (Chan & Zhang, 1999). Hukou is not only the social attribute of floating population, but also an important stratification mechanism of Chinese society. The "internal migration" of this study refers to the fact that in the transition of higher education to the job market, college graduates leave their original places of residence and move to other places to get jobs. Such geographical mobility then brings about the social mobility in the social structure. This process is essentially the process of obtaining the social economic status of college graduates as floating population. As the object of the research survey is fresh college graduates, internal migration of college graduates investigated in this study refers to graduates' migration behavior for the first employment.

In particular, the term, "internal migration" will be mainly used in the research, but "geographic mobility" will be used as a substitute in some places. This is because for the group concerned by the research, both internal migration and geographical mobility are terms frequently used by scholars. If other terms are used, it is easy to cause misunderstandings.

1.3 GRADUATE EMPLOYMENT IN CHINA

1.3.1 A HIERARCHICAL WORK ORGANIZATION SYSTEM

Work organizations, also called *danwei*, have been argued to play a key role in China's urban labor market in stratification literature (He & Wu, 2018; Wu, 2013; Wu & Song, 2013; Xiao & Bian, 2018).

Before the economic reform, between 1950 and 1978, there were three types of work organizations in China's urban labor market: government organizations, public institutions, and enterprises. The state regulates and allocates resources through various organizations. According to their relationship with the state in a redistributive economy, the three types of organizations formed a pyramidal hierarchical structure: party and government organizations are at the top, followed by public institutions, and then state-owned enterprises were at the bottom. In other words, party and government organs were the core institutions of redistribution. State-owned enterprises followed the policies set by the government, completed production tasks were planned by the state and sold products at predetermined prices. For individuals, these organizations provided both employment opportunities and social benefits such as social services, education, medical care, and retirement. Therefore, whether one can be employed in the above organizations determines one's socioeconomic status and it is also an important means of upward social mobility (Wu, 2013).

After introducing the market economy in 1978, this system has undergone great changes, mainly in the market-oriented reform of state-owned enterprises and the rise of the non-state sector. (Wu, 2013). In the pursuit of economic efficiency as the principle of reform, state-owned enterprises shrank in size and were forced to participate in competition under the market economy. The non-state sector (including self-employed, private, and foreign-funded enterprises), however, has developed rapidly and become an important force in promoting economic growth and absorbing urban labor force. In 2017, private enterprises accounted for about 60% of gross domestic product (GDP) and for 80% of total urban employment (Xinhua Net, 2018). In contrast, although government organizations and public institutions have also been carrying out reforms such as institutional streamlining, their functions of providing public services and redistributing social income and property have not changed greatly (Wu, 2013).

These organizations differ in the channels and methods of recruiting and recruiting employees. In the era of the planned economy, the recruitment of personnel in government organizations, public institutions, and (state-owned) enterprises must be approved by the government and the number of recruits is limited. Nowadays, government organizations and public institutions are still strictly controlled by the state; however, state-owned enterprises are less subject to government intervention

and have become more similar to private enterprises. In terms of recruitment methods, government organizations recruit and employ employees through a unified civil service examination. Public institutions are similar to government organizations, but local governments are responsible for recruitment. Once officially employed by government organizations and institutions, salaries and benefits are uniformly allocated by the state with fixed security. Based on market demand and competition, the non-state sector is independent of government intervention in personnel dispatching and depends completely on the independent decisions of employers (He & Wu, 2018).

Entry into different work organizations remains closely linked to an individual's socioeconomic status. Recent studies still use this classification paradigm to study inequality in China's urban labor market and find that government organizations, public institutions, and (state-owned) enterprises have advantages in offering higher salaries wages, better social welfare, and providing other social benefits (He & Wu, 2108; Wu & Song, 2013; Wu, 2013; Xiao & Bian, 2018). One advantage of being hired by a government organization, public institution, or (state-owned) enterprise is that they are more likely to obtain a local hukou. Therefore, it is not surprising that college graduates still consider getting a job from such an organization an attractive option.

1.3.2 RECENT REFORMS OF HUKOU POLICY

When the People's Republic of China was founded in 1949, to transform China from an agricultural country to an industrial country as quickly as possible, the state adopted the economic strategy of prioritizing the development of heavy industry. On one hand, urban residents are completely dependent on work organizations to ensure the labor force of industrial sectors; on the other hand, rural residents are completely bound to the land to provide low-cost agricultural products for industrialization (Wu & Treiman, 2004). In 1958, the hukou system was established, which divided all citizens into different social groups according to the type (*leibie*) and location of their hukou (*suozaidi*). *Hukou* type was divided into two categories: rural and urban, urban hukou residents could get housing, employment, education, healthcare, and other aspects of social welfare provided by work organizations. In contrast, rural residents had no access to any public services. The hukou location is where parents are

registered when an individual is born, and a local (urban) hukou holder is entitled to all types of social benefits from a particular locality. In other words, "the hukou *leibie* defined what type of services and welfare were available to individuals and the hukou *suozaidi* determined where individuals would receive them" (Chan & Buckingham, 2008, p.589). Therefore, household registration is not only a population registration and management system but also a stratification apparatus (Chan & Buckingham, 2008; Li, Gu & Zhang, 2015; Wu & Treiman, 2004).

Since hukou is closely related to whether and where to receive state-provided social benefits, mobility—changing one's current residence—is divided into two categories according to whether one can obtain hukou in the receiving place1. Hukou migrants can obtain various social benefits provided by the state and become official residents of the receiving places. Before the reform and opening up, there are only a few ways to become a hukou migrant: being hired as regular employees of state-owned enterprises (*zhaogong*), becoming a staff member of a government agency or public institution (zhaogan), joining the army (canjun), or being admitted to a higher education institution. Among them, attending university was an important means to realize hukou transfer (Chan & Buckingham, 2008).

Until the 1980s, as a result of the central government unified control and allocation of social resources, urban *hukou* residents, regardless of whether they live in big cities, small cities or towns, can enjoy these social benefits (Chan & Buckingham, 2008). Since the 1980s, the localization reform of the Hukou system has enabled local governments to have more autonomy, and local governments have established different access conditions for obtaining local hukou. Due to disparities in economic development, local governments differ in their provision of social welfare and benefits (Chan & Buckingham, 2008), the possibility of obtaining a local hukou varies across cities. Conditions for obtaining a local hukou in more developed large cities such as Beijing, Shanghai, Guangzhou, and Shenzhen are very strict. Even graduates with bachelor's degrees face many restrictions when obtaining a local hukou. For example, the hukou policy in Shanghai has specific requirements for graduate institutions (Project "211" or not), English scores, GPA, etc. (Sohu, 2018).

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1 "Non-hukou migrants" refers to people who cannot obtain local hukou and therefore cannot enjoy social welfare, namely, rural–urban migrants. Numerous studies have been conducted on rural–urban migration; see Chan & Buckingham (2008); Wu & Treiman (2004); Wu & Zhang (2017).

1.3.3 GRADUATE EMPLOYMENT AFTER THE HIGHER EDUCATION EXPANSION

Between 1950 and 1985, attending college, gaining a local urban hukou, and getting a permanent job were closely related (Fan, 2002). During this period, students received education for free after passing the College Entrance Exam. Upon graduation, they are guaranteed jobs assigned by the state (usually in the three types of organizations mentioned before, mainly government departments and institutions) without worrying about employment. A local hukou was also guaranteed alongside the assigned job (Chan, 2015).

From 1985, colleges started charging fees and the central job assignment system was gradually replaced by a dual track system in which students could choose to take an assigned job or choose their own career; since then, the job market has started to blossom. With the rapid development of the economy, college students are in short supply in the labor market. It was no problem for college students to obtain local hukou whether they chose to accept the assigned job or find a job by themselves (Chan, 2015).

In 1995, the job assignment system was officially canceled and a real job market started up for college students. Graduates are able to move to any place for a job and employment has become a two-way selection process in which graduates and employers are both free to choose suitable employee/rs, and employment agreements are only signed on the basis of mutual agreement (Fan, 2002; Li, Meng, Shi, & Wu, 2012). After the expansion of education in 1999, the number of college students surged and unemployment among college students became a hot issue of social concern (Bai, 2006; Chan, 2015). Since 2003, attending college no longer has anything to do with obtaining a local urban hukou. Students are free to choose whether to transfer their hukou to the university, but this temporary status expires upon graduation (Li & Zhang, 2010). Therefore, pre-college hukou status has become increasingly important for graduate employment. For example, many local civil servant exams and recruitment by public institutions have placed restrictions on pre-college *hukou* locality (China Labor Bulletin, 2011). If students choose to work somewhere other than their original residence, they can only work as migrants in the local area unless they can obtain a job from the state sector, such as a state-owned

enterprise or governmental organization that can provide a formal hukou transfer (Chan, 2015).

In summary, all these societal transformations show that in modern China, migration, hukou, and individuals' socioeconomic status are interrelated among college graduates. College-educated young people who choose to leave their pre-college hukou location and work in other localities are completely different from the "rural–urban migration" that has long been studied in previous literature and have grown as a new group, the so-called "new urban migrants." Indeed, studies have started paying attention to this phenomenon (Cheng, Guo, Hugo, & Yuan, 2013; Qin, Wang, & Lu, 2018; Wang, Li, & Deng, 2017) but these studies suffer from several limitations. First, some studies only provided a basic description of working and living conditions (Lian et al., 2013). Second, the comparison is usually made between local urban and rural migrants, and it remains unclear whether such a difference in their labor market performance is derived from their hukou locality or their hukou type (Qin et al., 2018). Third, previous studies usually use data from one or several large urban centers (Cheng et al., 2013; Wang, Li, & Deng, 2017) and there is a lack of understanding of the national graduate labor market. Therefore, this dissertation goes beyond exploring whether and to what extent graduates who decided to become involved in internal migration differ from those who chose to stay in terms of their economic returns in initial employment by also providing a complete picture of the migration process.

1.4 SIGNIFICANCE OF STUDY

1.4.1 THEORETICAL SIGNIFICANCE

This dissertation contributes to the current relevant literature in three critical ways. First, by analyzing the migration choice of Chinese college students in the higher education stage, the influence of it on their subsequent primary employment is studied. As is known to all, the initial employment is of great significance to the career development of individuals. Blau and Duncan (1967), in their classic social mobility analysis model, pointed out the influence of an individual's initial employment on his later career path, which has been regarded as one of the core indicators in the field of (sociology of work) and social stratification and mobility.

The factors considered for the impact of the first job can be divided into the following two aspects. On the one hand, it is the influence of personal characteristics, such as educational background, gender and race. On the other hand, family-related factors mainly refer to family background, parents' educational level and social network. The effect of geographic mobility on socioeconomic status is ignored. By studying the influence of geographic mobility on individual socioeconomic status, this project emphasizes the interaction between spatial mobility and social mobility, and makes a new understanding of social stratification and mobility from the perspective of migration /mobility.

Second, this thesis provides an important opportunity to integrate existing research on the employment of college graduates. In the previous discussions on the relationship between higher education and the labor market, researchers in the field of higher education have mainly focused on the influence of factors in the education process (such as students' academic performance, family background, etc.) on students' employment results. From the perspective of human capital, scholars in the field of migration (mainly economists) often regard migration as an investment in human capital and study its impact on individual labor market performance. This dissertation attempts to integrate these two lines: 1. The models below in each chapter include variables that measure student's educational performance and discuss their impacts on the dependent variables (income and sector entry) in response to a key issue of higher education research: "Does higher education promote or maintain inequality?"; 2. Drawing on the international migration literature, this dissertation go beyond human capital theory, examines the relationship between migration and the economic outcomes considering the impact of social structure and institutions. Therefore, the relevance of this dissertation goes beyond the realm of income/careers of college graduates to include broader sociological questions of inequalities and hierarchies.

Lastly, this study considered the entry into different work organizations when measuring the economic consequences of migration, which expanded the common focus on income (Cintio & Grassi, 2013; Jewell & Faggian, 2014; Kazakis & Faggian, 2017). In the research field of social stratification and mobility, social mobility in post-communist society/market transition society has attracted the attention of scholars and there has been a lot of theoretical debate. Based on empirical

evidence and theory in China, work organization (work unit, also known as *danwei*) plays an important role in producing and maintaining social inequality. But in the past, the research object was general work force, not college graduates. Therefore, this study fills the gap between stratification literature and higher education research by incorporating types of work organizations into the measure of labor market outcomes.

1.4.2 SOCIETAL SIGNIFICANCE

First, at the individual level. For college graduates themselves, the acquisition of the first job is not only crucial to their career development, but also an important event in their life course. As migrants, although they have higher education qualifications, they cannot fully integrate into the local society due to their migrant status (Wang, Li, & Deng,2017). Without local household registration, they are subject to many restrictions in obtaining employment opportunities, and their children's education will also become a major problem (Chen, & Feng, 2013). They have made great contributions to the destination, but they have not been given the corresponding social status and protection, and their citizenship has been deprived for many reasons. Therefore, the research on the mobility of college graduates and their social status will be helpful to clarify the deep mechanism of the mobility of college graduates, and to understand the specific situation of the social status of the floating population in higher education and the crux of the problem. This will provide a certain empirical basis for the policy formulation to solve the problem of floating population and further solve the employment problem of college graduates from the perspective of mobility.

Second, at the family level. Higher education is an important family investment for the families of college graduates. The "carp leap over the Dragon gate" effect brought by the previous universities no longer exists today. The importance of family background in the employment of college students has been repeatedly emphasized in the society. Under such circumstances, more and more people are questioning the role of college education in improving social inequality. Through the study of college graduates' employment, college students' families can have a better understanding of the relationship between education and employment, so as to make more beneficial educational choices for their families.

Finally, the social dimension. For a country, in the era of knowledge economy, highly skilled personnel are an important guarantee for its competitiveness in the global market (Faist, 2013). Therefore, as an important source of highly skilled talents, college graduates and their employment situation are of vital importance. For regions, the lack of college graduates will reduce a region's ability to build a competitive workforce (Smith & Wall, 2006). Especially in today's era of knowledge economy, the geographical mobility of college students is closely related to the development of regional economy. This study examines the impact of college graduates' education migration and work migration on their socioeconomic status acquisition, which helps to reveal the migrating process of college graduates and the stratifying mechanisms it implies. Further, it will provide policymakers with a detailed and reliable way to further improve relevant policies. The empirical evidence of the study has certain policy guidance significance for formulating corresponding reform and regulation countermeasures.

1.5 OUTLINE OF THE DISSERTATION

The overall structure of this dissertation takes the form of seven chapters, including this introductory chapter. Chapter 2 first reviews the existing theoretical literature in three areas related to the research question of this project, namely: research on stratification and mobility; research on higher education and research on mobility/migration; second, from the perspective of migration and higher education, Chapter 2 reviews the empirical evidence that is closely related to this study; by sorting out the existing studies, on the one hand, it clarifies the relevance of this research and other research; on the other hand, it also points out the direction of possible contributions and innovations of this research. Chapter 3 briefly introduces the data used in this study and the methods used to solve the sample self-selection problem. Chapter 4, 5 and 6 present the empirical chapters of this research. Chapter 4 investigates whether internal graduate migration interacts with gender and plays a role in producing labor market inequality among recent college graduates in China. In the Chinese graduate labor market, segregations in employment opportunities follow the lines of gender and the Household Registration (*hukou*) system. But few studies have examined the interaction effect between gender and *hukou*. Inspired by the "double disadvantage thesis" in international migration studies, I examine

whether female graduate migrants experience a double negative in terms of initial earnings attainment and work organization entry because of their gender and migrant status in Chinese graduate labor market. Return migration has been understood as negative self-selection by immigrant groups, or as a safety net with parental support during periods of instability in previous studies, yet its direct relation to intergenerational mobility has rarely been discussed. Chapter 5 explores urban China's labor market, whether graduate returning migrants are better off than their onward counterparts in terms of labor market outcomes and the role of graduates' family background characteristics in differentiating such results. Beijing, Shanghai, Guangzhou, and Shenzhen—as major metropolitan areas in China—offer good opportunities for economic and social mobility for in-migrants. As such, these locations have become primary employment destinations for recent college graduates. Meanwhile, these cities have the nation's most stringent hukou policies, which play a key role in the urban labor market segmentation between local residents and in-migrants. Therefore, Chapter 6 examines whether Beijing, Shanghai, and Guangdong have emerged as "upward social class escalator regions" (Fielding, 1992) for young adults in China. Given the segmentation between the state sector and non-state sector in China's labor market, another important indicator for predicting labor market success, namely job-sector placement, is incorporated into the evaluation of the consequences of geographic mobility. Finally, Chapter 7 summarizes the main findings from each empirical chapter and presents what conclusions can be drawn from this study; this chapter also highlights the dissertation's limitations and discusses the findings' implications for future research in this area.

2 LITERATURE REVIEW

2.1 RESEARCH ON SOCIAL STRATIFICATION AND SOCIAL MOBILITY

Social stratification is the most important phenomenon in social structure, so it has become one of the most important theoretical traditional fields in sociological research, and it is also one of the main characteristics of sociology different from other disciplines. Social stratification refers to the unequal distribution of social resources among social members and social groups. In other words, different social groups or people with unequal social status occupy those valuable resources in society, such as wealth, Income, prestige, educational opportunities, etc. The central question that researchers in the field of social stratification are trying to answer is: Who gets what and why? Among them, the former is a description of the status of various resources obtained by social groups or individuals; while the latter tries to answer the process, mechanism and method of obtaining such resources (Lenski, 1966/2013).

Later researchers generally agree that Max Weber (1922/1946) initiated the pluralist approach to social stratification. When discussing the power distribution within the community, Weber believed that class was determined by economy and differentiated according to market situation. Identity groups are determined by the prestige restricted by social evaluation and are distinguished according to the principle that people consume goods; Political parties are determined by power, reflecting the ruling function. Later studies on social stratification inherited Weber's theory to a large extent, and advocated social stratification from the three dimensions of economy, politics and society, namely, economic standards, political standards and social standards. Economic standard, also known as wealth standard, refers to the opportunity of social members in the market, that is, the ability of individuals to possess goods or services; Political criteria, also known as power criteria, is the ability of an individual or group to control and influence the actions of others; Social standards, or prestige standards, refer to the reputation or reputation an individual has gained in his or her social environment, which depends on his or her identity,

level of education and lifestyle. The pluralism of social stratification standards makes subsequent researchers do a lot of descriptive studies on the distribution of social resources in different social groups or members, and also makes the quantitative discussion on the individual characteristics of unequal distribution of resources an important feature of multidimensional approach to study social stratification.

Weber's thought not only provides a theoretical basis to describe the unequal distribution of resources, but also provides insight into the influence mechanism of social stratification. In Open and Closed Social Relations (Weber, 1978), Weber put forward the concept of Social closure. Social closure refers to the process in which Social groups set up and strengthen their membership, and its purpose is to maintain or maximize the interests of their own groups by means of monopoly. Neo-weber theorists, such as Anthony Giddens (1973) and Frank Parkin (1974), believe that although Weber himself did not associate this concept with his hierarchical thoughts, it is not difficult to see that it is the existence of this exclusive social process that leads to the emergence of class and status groups. Therefore, social closure can actually be considered as the operation mechanism to realize the macro structural level of social stratification.

The most influential theory of social stratification developed according to Weber's model is the Blau-Duncan model. The influence of family background on individual social mobility is also one of the core issues in the study of social stratification and mobility. In *the American Occupational Structure*, Blau and Duncan (1967) innovatively proposed the status acquisition model of individual social status attainment model, which became the research paradigm of status acquisition. They argued that ascriptive principles and achievement principles exist in the hierarchical system of any medium-sized complex society, and the more critical question was how to measure and estimate the relative importance of the two forces. To solve this problem, they designed a path analysis model with five variables: the father's education level, the father's occupational status, the children's educational level, the children's occupational status in their first job, and the children's occupational status in 1962. Among them, the occupational status of children is measured by income level, education level and occupational prestige. In the model, ascribed factors refer to the father's level of education and occupational status; achieved factors refer to the certain status and degree of education of the individual. By comparing the difference

in the degree of influence of the two factors, we can make a judgment on the degree of social openness. In the late 1960s, Sewell, Haller and Portes (1969) further extended the causal mechanism affecting occupational attainment. They believed that the Blau-Duncan Model omitted exogenous variables as mediators, namely, social psychological factors, which included reference group, important others, self-concept, behavioral expectation, etc. Based on the above considerations, the author constructed a social psychological model, namely the Wisconsin model. Compared with the Blau-Duncan model, it added variables such as "intelligence", "academic achievement", "significant others", "career ambition level" and "educational ambition level". Through the addition of these new variables, the variance explanation of occupational status increased from 33% in the Blau-Duncan model to 47%.

Classical status attainment model and social psychological model emphasize the influence of individual characteristics of social actors on the results of social stratification and ignore the constraints of structural factors on individual status attainment. Since the late 1970s, researchers have introduced social institutions into stratification research and status attainment models, and established the new structuralist school. In addition to family background, educational background and individual efforts, some social structural variables at macro level, such as the structure of the labor market and working organization, play an important role in social mobility and status attainment. In modern society, a variety of valuable resource allocation is carried out through the labor market, so the structure of labor market has become the focus of scholars, which is represented by the labor market segmentation theory (Piore, 1979).

According to labor market segmentation theory, the labor market is divided into two parts: The primary sector, is characterized by high income, stable job, good working conditions, more training opportunities, and good opportunities for career advancement. The secondary sector, by contrast, is characterized by low pay, job instability, poor working conditions, few training opportunities and few opportunities for advancement. More importantly, there is less mobility between the two sectors, meaning it is difficult for workers from the secondary sector to move to the primary sector. It is not hard to imagine a situation in which personal characteristics, such as education or training opportunities, are not the most important determinant of a

person's social mobility, but rather the nature of the sector in which he or she works. Even if two individuals with very similar personal characteristics enter into different sectors, their paths to upward social mobility can differ dramatically. For workers in the primary sector, access to education and training can increase their income, but not for workers in the secondary sector. In short, it is difficult for people to enter the primary sector from the secondary sector, which is not due to individual characteristics such as education level and achievement motivation emphasized by the traditional status acquisition theory, but due to the limitation of the structure of the labor market (Piore, 1979).

In addition, the labor market segmentation is affected by many factors, which can be divided into endogenous and exogenous mechanisms. Endogenous mechanisms refer to the segmentation of the labor market determined by the internal dynamics of the market economy (Smith & Zenou, 1997), such as the accumulation and aggregation of capital. The division of economic organization into monopoly and non-monopoly sectors has resulted in primary and secondary labor markets. Exogenous mechanism refers to the segmentation of labor market from non-economic factors, such as social segmentation, the most intuitive reason is the impact of social factors such as discrimination and social habits; Or institutional segmentation refers to labor market segmentation caused by regulations or policies. Different from the endogenous segmentation factor, the exogenous mechanism is derived from the labor market, and its obstacles cannot be cancelled only by the role of the market itself, which needs to be overcome and changed with the help of the government and society. Sociologists pay more attention to the research in this field.

The above theories on social stratification structure all understand social status as the basic elements of social stratification structure, and its existence is external to the social individual. Critics believe that there is interaction between social actors and social structure, and researchers need to conduct more research on the process of individuals gaining social status (Lin, Ensel, & Vaughn, 1981). Then came the social network model, also known as the social resource or social capital model. Granovetter introduced the concept of social networks to the study of status attainment. He found that in a person's job search, information from friends who are usually close was less useful than information from people with whom he had little or little contact. Therefore, the "weak ties hypothesis" (Granovetter, 1973) is

proposed: more non-repetitive or non-redundant information can be obtained through weak relationship, because two people with weak relationship are more likely to move in different fields, departments and places, and have access to different information. So weak ties can play a bigger role in building other social circles. This hypothesis has been widely discussed since it was put forward, and scholars believe that the role of weak relationship and strong relationship should be viewed from the perspective of context. For example, in China, Bian (1997) conducted a survey of job seekers in Tianjin and found that the interviewees' first jobs were mostly obtained through "strong relationships" (relatives, friends, etc.), which played a very important role in the background of job hunting at that time. Bian (1997) explained this phenomenon by saying that, under the unique social relationship of human favor in China, interpersonal communication attaches more importance to the degree of emotional communication and trust, and strong relationship is more useful than weak relationship, so he proposed the hypothesis of "strong ties".

Scholars in the field of inequality have done a lot of research on the stratification mechanism in capitalist society (Grusky & Weisshaar, 2018). Since the late 1970s, social inequality in socialist society has also attracted the attention of social stratification and mobility scholars (Eyal, Szelenyi, & Townsley, 1998). The discussion about market transition and the change of stratification mechanism mainly focuses on whether the stratification mechanism based on "redistribution economy" plays a continuous role in the market transition. The corresponding question is whether social classes, especially elites, are cyclical or regenerative in the process of market transition. Among them, scholars such as Ivan Szelenyi and Victor Nee argue that the transition to a market economy has led to the decline of elites based on a redistributable economy, creating new stratification mechanisms and new elites whose members are not from the elites under the old system.

Karl Polanyi (1944/2001) distinguished two types of human social economy: market economy and redistribution economy in his well-known work, Great Transformation: The Political and Economic Origins of our Time. A market economy is a self-regulating market system, that is, an economy guided by prices and only market prices, which organizes its entire economic life without external help or intervention. It is characterized by horizontal contact between producers and consumers through direct market transactions. Different from market economy, the process of

redistribution of expression is a kind of the exercise of political power, trade becomes a part of the regime, regardless of political power is in the form of tribes, the polis, authoritarian kingdom or other form of country, in the society, although the foundation of political power is different, but the production and distribution of the item is by concentration, storage, and redistribution of such an organic process. In this process, there is no horizontal connection between direct producers and consumers. Products and production surpluses are handed over to the central government, which redistributes these centralized goods and services according to the decisions of customs, laws, habits, ideologies and social groups with the right to redistribution.

Ivan Szelenyi (1978) accepted Polanyi's concepts of "redistribution economy", "market economy" and "non-market trade", and further analyzed the differences of stratification mechanism under the conditions of "redistribution economy" and "market economy". He believes that different social systems have distinct effects on the formation of social inequality. In the national socialist society, social inequality is mainly caused by the dominant redistribution system, while the transaction with the nature of market can offset the inequality brought by redistribution to a certain extent, which is beneficial to the lower class. Under the condition of market economy, social inequality is mainly produced by the dominant market economy system, and state intervention or redistribution is helpful to offset the inequality caused by market.

Ivan Szelenyi and his co-authors have since analyzed social structural changes in three central European countries: Hungary, Poland and the Czech Republic. They conceptualized the social structure as the space of stratification generated by the distribution of different proportions of social capital, economic capital and cultural capital. If, over the course of an individual's life, the importance of one type of capital changes relative to another, he or she will restructure his or her assets, converting devalued capital into appreciating capital, in order to maintain his or her original class status and stay on the same class trajectory. In Hungary, Poland and the Czech Republic, they outline three types of hierarchical structure according to the type of capital that is dominant, namely, ex-communist, communist and post-communist (Eyal et al., 1998).

In their analysis, the stratified system of post-communist society is quite different from that of capitalist society. The stratification system of capitalist society is based

on class stratification, in which economic capital plays a decisive role. In a socialist society, social capital, in its institutionalized form, political capital, is decisive and the source of power and privilege. The transition from a socialist society to a capitalist society is actually a transition from a modern hierarchical society to a class society. In this transition, cultural capital plays a dominant role in the maintenance and attainment of social status. The transformation of the former socialist privileges into corresponding economic or political capital in market transition depends on whether these people have sufficient cultural capital. Therefore, in the post-communist society, managers and technocrats with high cultural capital become the subjects of social elites, and managerialism also becomes a dominant spiritual temperament or ideology in the post-communist society (Eyal et al.,1998). With the transformation of cultural capital and different types of capital in a specific social space, such analysis shows that only technocrats can cycle to the new economic elite status for the redistributive elite. Therefore, the redistributive elite declines while the market elite regenerates.

Similarly, the market transition theory from Nee (1989) examines stratification mechanism in the context of social and economic institutions, and studies the new stratification mechanism generated during the transition from redistribution system to market system in China. Nee's basic views are inspired by the relevant discussions by Karl Polanyi and Ivan Szelenyi. He extended both theories to analyze China's transition from a planned economy to a market economy, and put forward the market transition theory (Nee, 1989). The market transition theory includes three propositions. 1. Market power thesis: The transition from a redistributive economy to a market economy will lead to the transfer of power. With the development of the market and the expansion of private property rights, people in the redistributive sector will lose power due to the weakening of their control over resources; People in the market sector gain power as they gain control over resources. 2. Market incentives thesis: Markets provide more incentives to direct producers than redistributive economies. Markets create new incentives for producers and productivity, reward responsiveness to consumer demand, and allow producers to use product and labor prices to achieve high returns for themselves. Since education is the most effective indicator of productivity, market incentives will be reflected in the return on education. 3. Market opportunity thesis: The transition to a market

economy will bring about a new market-centered opportunity structure and open up new social mobility channels. Opportunities such as private-sector entrepreneurship, links with foreign companies and voluntary job changes empower economic actors and embark on a path that is radically different from that of the power elite under national socialism. After that, Nee's theory has been criticized for its alternative relationship between "market economy" and "redistributive economy" in the social stratification mechanism of market transition (Bian & Logan, 1996; Parish & Mechilson, 1996; Walder, 1995). The critics' main question is whether there really are two completely different redistributive and market economies. Perhaps more important to examine is the effect of the mechanism of grafting or organic fusion of these two economic types on class differentiation in China. The main argument of these scholars can be summarized as follows: the stratification mechanism formed under the redistributive economic system has continuity, and the former elite will continue to be the dominant class in the market transition.

Representative viewpoints of "Power persistence/circulation of elites" include Rona-TAS (1994), Bian and Logan (1996), Parish and Mechilson (1996), and Walder (1995). The focus of these debates is how to view the role of redistributive power in the transition process, what changes have taken place in redistributive power, in a word, it is to study the effect and existence mode of redistributive power. These studies show that institutional barriers and redistribution of power should be considered as important factors affecting status attainment in China. The study of social stratification and mobility must analyze the institutional conditions in order to understand the mechanism and structural changes of social inequality.

2.2 RESEARCH ON HIGHER EDUCATION

The influence of higher education on social class/social mobility is one of the focuses of scholars studying stratification mechanism. Turner (1960) studied the impact of different educational systems on individual opportunities for upward mobility. By comparing the school system in the US and the UK, Tuner introduced the concepts of sponsored mobility and contest mobility. Contest mobility means that elite status can be achieved through the efforts of members of society; In contrast, in the sponsored mobility model, the membership of the new elite is given by the existing elite according to some set standards. In this situation, efforts or strategies are

ineffective. Collins (1979), an American sociologist, holds that education plays an extremely important role in career achievement in modern America, and advocates that education should occupy a central position in the analysis of the causes of social stratification and social mobility.

On the contrary, the other view denies the promoting effect of education on social mobility. The core of this school of scholars is that education has the function of maintaining and reproducing the existing unequal social class structure. In Schooling in capitalist America: Educational reform and the contradictions of economic life (1976), Bowles and Gintis analyzed the relationship between education and social division of labor and reproduction, and refuted the idea that capitalist Educational equality can bring social equality, that education cannot bring equality to the society, but makes the existing inequality legal. They examined some important rules in school institutions, and found that schools have completed two aspects of reproduction: one is the reproduction of labor force; Second, the system that helps to turn labor into profit and the reproduction of production relations. Bourdieu was equally keen to point out the problem of social class reproduction in education. Bourdieu's cultural capital theory (1984) argued that in the process of cultural socialization, school education, as a talent training intermediary, could reproduce the existing social order and social structure by legalizing the culture of the ruling class. With the help of school education, the intergenerational transmission of classes is realized. Therefore, education becomes a tool to solidify and replicate the class gap.

Some scholars hold a more eclectic view, that is, education does promote social mobility to some extent, but it also serves the function of maintaining existing inequalities. The contribution of education to the overall social mobility rate should be determined according to different social environments and the equality of education itself. Dennis (1988) concluded in *The American Class Structure* that the higher education system in the United States not only promotes the mobility of social classes in the United States, but also maintains the inheritance of social classes. Inspired by this point of view, later scholars have made more detailed studies on this issue (Grodsky, Warren, & Felts, 2008).

Since the middle of the 20th century, the expansion of higher education has become a universal trend. Many countries have adopted the strategy of higher education expansion to provide more university education opportunities. The purpose of this

policy is (Wan,2006) :(1) Promote national economic development, because better-educated citizens will have stronger productivity; (2) Reduce the level of educational inequality, as more educational opportunities increase the likelihood of social mobility; (3) To make it possible to achieve a more democratic society, because educated citizens are better able to participate in political decision-making. However, cross-country comparative studies on the expansion of higher education have found that this good vision is not always satisfactory (Breen, & Jonsson, 2005; Pfeffer, 2008; Shavit & Blossfeld, 1993) : In some countries, during the expansion of higher education, the equalization degree of higher education opportunity distribution has indeed increased; But other countries have not seen much change. In addition, in some countries, inequality in educational opportunities has risen, not fallen, during the expansion of higher education.

In view of this phenomenon, scholars have provided three theories to explain it: (1) MMI: Maximally Inequality. This hypothesis holds that education expansion does not result in equal distribution of educational opportunities; on the contrary, as long as the upper class or superior status groups are able to improve their education opportunities, Inequality in educational opportunities will be maintained. This is because the superior class has more advantages in economic, cultural and social capital, so the new educational opportunities brought by educational expansion are usually occupied by the children of the upper class. Higher education cannot be enjoyed by the lower classes unless the upper class reaches saturation (Shavit & Blossfeld, 1993). (2) EMI: Effectively Maintained Inequality. Lucas (2001) revised the MMI hypothesis. He held that even if the upper class in higher education reaches saturation, Inequality will be Maintained in a more effective way in higher education. Because in the distribution of educational opportunities, including the quantity and quality of the two aspects of inequality. The former means that children of the upper classes are more likely to receive higher education than children of the lower classes. Which indicates that the same level of education that exist in the hierarchy: in higher education, some types of higher education diploma has a higher value, the upper class for higher value of the university education opportunities more than the lower class, so as to make the education inequality is effectively maintain (Ayalon & Shavit, 2004). (3) the rational action model (Breen & Goldthorpe, 1997): For the upper class and the lower class, changes in status associated with a particular level of education

mean different things than the risk of failure to invest for a particular level of education. If class differences do not decline over time, class inequality in educational opportunities will not. On the contrary, if the adoption of some social policies causes these factors to change, then the inequality of educational opportunities is likely to decline.

These studies show that the mediating role of higher education between family background and individual economic achievement is very complex. Like many countries, China's higher education is also undergoing expansion. In this context, the more important question is what factors might exacerbate educational inequality. Therefore, in the study of the labor market outcome of college graduates, the factors related to higher education and students' family background should be considered as the important factors affecting their individual socioeconomic status, so as to reflect on the extent to which higher education alleviates or maintains social inequality in China.

2.3 RESEARCH ON MOBILITY/MIGRATION

In sociology, migration/mobility is never just a simple physical movement, but is considered a change in social status on the other (a sociological construct) (Uteng, 2006). For social actors, mobility and migration are completely different concepts. Scholars argue that the meaning of mobility and migration is quite different: "Mobility supposedly reflects the necessities of global economic competition and suggests how spatial and social mobility act in tandem to the best of all involved, whereas migration is connoted with problematic outcomes with respect to the social integration of immigrants into national policies and national welfare states" (Faist,2013, p.1643).

Scholars have given many explanations for this distinction. One is because the research scope of the two is different. Mobility usually refers to the movement within a country, it is a general principle of modernity and usually implies upward social mobility; migration refers to the movement across borders which is negatively valued and often criminalized (Beck, 2008). Furthermore, migration studies usually imply that the nation-state is the prerequisite for the scope of research, so the methodological orientation of the research can be regarded as methodological

nationalist (Beck, 2008). In recent years, many scholars in the field of migration begin to reflect on the traditional methodological nationalism of migration research (Amelina & Faist, 2012; Beck, 2008). Migration scholars' excessive attention to "ethnicity" makes them neglect to examine the dynamic relationship between migrants and the places of migrant departure and settlement (Schiller & Çağlar, 2009). Localities, such as cities, are equally important in migration research. Schiller and Çağlar (2009) commented that global cities researchers only focused on "the cities they had designated as global" (p.181). Therefore, "the thrust of the global cities hypothesis did not challenge migration researchers who worked in other localities to link their findings to the study of the uneven spatialization of globalization and the configuration of localities" (p. 181). As a result, they propose methodological repositioning of cities on a regional, national and global scale as a way to gain a comparative understanding of how migrants are accepted in cities of different global status.

Second, the research objects are different. Faist (2013) compared labor migration and high-skilled migration and pointed out that labor migrants are facing a "wanted but not welcome" situation, so whether they can successfully integrate into society has become a major social issue; in contrast, high-skilled migration people (including international students) are usually "wanted and welcome", and their mobility is related to the country's competitiveness in the global market. Therefore, mobility is regarded as "economically efficient and thus desirable" (p.1642).

Third, in the wave of globalization, the development of communications and transportation has made possible the frequent and multi-directional flow of people, ideas and cultural symbols (Sheller & Urry, 2006; Urry, 2012). Russell King (2012) reminded Although the definition of migration in the mobilities paradigm gets rid of the traditional constraints brought by the threshold of time and distance, and regards it as a form of spatial mobility, migration research should not be too embracing" this restless and sometimes celebratory image of constant mobility" (p.136). This is because, first, the tension between migration and settlement determines "migration is a kind of stability-within-movement", which means that migrants are not always In the state of migration, they need or are looking for a place to settle; second, although this is an era of globalization, not everyone has the ability to move freely. At its root, whether or not they can successfully move to the Global North, a space

with more wealth and opportunities, also depends on the personal characteristics of the migrants, such as education, occupation, nationality, or international immigration control policies.

Whether it is a scholar who studies mobility or a scholar who studies migration, both have noticed the connection between mobility/migration and social inequality. For example, in the view of Sheller and Urry (2006), mobility between physical and virtual places can become a source of status and power. In the field of migration research, Faist (2016) systematically reviews the relationship between migration and social inequality. Migration is highly selective. Therefore, although migration is considered to provide migrants with upward mobility, migration tends to deepen rather than reduce the unequal power structure caused by heterogeneity. Heterogeneity includes gender, race, age, religion, legal status, etc. Heterogeneous categories lead to inequality because "they ascribe groups and individuals to categories, and these categorical distinctions and cultural classifications have tangible implications for the distribution of material and symbolic resources" (p.326).

Gender is an important heterogeneity, and there are stable and lasting boundaries between its categories, so it is related to inequality (Faist, 2016). The intersect of migration and gender has been fully emphasized in international migration research. Boyd (1984) attributed such difficulties to the interaction between the dual negative effects of gender and country of origin. Consequently, foreign-born women experienced a double disadvantage that resulted in poorer labor market outcomes compared to both immigrant and native men. In her analysis of data gathered in a 1973 Canadian mobility study, Boyd (1984) investigated whether female immigrants experienced the most severe employment disadvantages and established the degree to which compositional differences could account for the double disadvantage they encountered. Her study's findings revealed that while there was a higher rate of labor market participation by immigrant women compared to their female Canadian-born counterparts, the former group nevertheless held a lower occupational status. Boyd (1984) contended that factors such as gender and birthplace were not sufficient in themselves to explain why this situation had arisen, and she put forward the double disadvantage theory to account for such differences on three key grounds. First, she argued that country of origin and gender-based discrimination may occur within the labor market, thus leading to particular cohorts being treated less favorably than

others. Second, factors such as ethnicity and language proficiency skills may impact this particular group's capability to participate in the workforce. Finally, discriminatory practices may have become embedded within organizational structures over time, with the result that only particular types of employees are offered for specific positions. Therefore, associating with a certain group can confer a negative status that manifests in the form of failure to recognize capacity, ultimately leading to less favorable economic outcomes.

Return migration is also a noteworthy phenomenon. In traditional analysis of migration theory, the return migration often means that the migrants fail to integrate into the destination, which is associated with the negative self-selection among migrants (Shumway & Hall, 1996; Sjaastad, 1962). In youth studies, some more gentle interpretations are given to the return of graduates. In the few years after college students left school, their life trajectory was at a relatively unstable stage (such as employment, housing, marriage, etc.), and return migration—returning to their parents' home provides individuals with a very important safety net (Sage, Evandrou, & Falkingham, 2013): Here, individuals can enjoy more support from their parents, and the resources their parents have also bring them more security through this period of drastic change.

The process of globalization promoted the rise of global cities, and this research field enabled migration/mobility scholars to discuss the inequality in the process of mobility from the perspective of urban space. The world economy is governed by a relatively small number of urban centers, where banking, finance, administration, professional services and high-tech production tend to be concentrated (Sassen, 1991). These global cities have attracted large numbers of highly educated workers to migrate to higher-paying jobs. In regional studies, these urban centers are depicted as "escalator regions", which are closely related to individual social mobility: when young people with sufficient human capital migrate to such cities (such as London), they are more likely to experience upward social mobility than their peers in other places. As a result, these cities, with their rich employment opportunities and resources, act like "escalators" in the region, sending young people to higher social classes.

Sum up the above literature review, there are a few points worth our reflection. First, the difference and connection between mobility and migration mean that geographic

mobility is closely related to socioeconomic status, but whether a higher social status can be achieved through geographic mobility depends on its scope (within a country or across borders), type (labor migrants or highly skilled migrants) or the ability to move freely. Secondly, migration — due to the influence of heterogeneity, self-selection of migrants and space and other factors, there is the possibility of production and maintenance of inequality. Although the international student mobility/the high-skilled migration is seen as a win-win-win situation, (countries of origin, destination and the highly skilled), in a country with institutional obstacles, it is worth exploring whether the geographic mobility of higher education migrants has more positive or negative connotations ("mobility" versus "migration"). Finally, most of the research on internal student mobility (migration) comes from economists and geographers, and there is a lack of relevant theoretical and empirical research by sociologists. This division corresponds to what King and Skeldon (2010, p.1631) has observed, "the study of migration had been fragmented along disciplinary lines*between sociologists, demographers, geographers, economists, anthropologists and psychologists, amongst others. This disciplinary compartmentalization does not map on to the fission between the internal and international migration traditions which, to some extent at least, replicates itself within several of these single disciplines." Of course, this study does not intend to integrate studies on internal student migration and international student migration from a broader theoretical perspective, but hopes to use some theories in international migration to explain the phenomenon of internal migration of college graduates in China. Because of the unique institutional arrangement (hukou system) and the segmented labor market, the situation of these college graduates can refer to international migrants to some extent.

2.4 RESEARCH ON COLLEGE GRADUATES' MIGRATION AND LABOR MARKET OUTCOME

Research on college graduates' migration and labor market outcome can be roughly divided into two categories according to the research perspective. One is the perspective of migration, which emphasizes the migration status of college graduates, so the focus is on the relationship between migration and the labor market

outcome of college graduates; the other is the perspective of higher education, which emphasizes the educated status of college graduates, so the research focus is on the consequences of education in the labor market.

1. Perspective of migration

Research on migration and employment outcomes for college graduates comes mainly from economists. Scholars have studied the influence factors of graduate mobility and the influence of mobility on employment outcomes. At the level of influencing factors, scholars have made studies from the aspects of individual demographic characteristics and regional factors (Crescenzi & Holman, 2017; Faggian, McCann, & Shephard, 2006, 2007; Greenwood, 1973; Liu, Shen, Xu, & Wang, 2017; Winter, 2017). In terms of personal demographic characteristics, Faggian, McCann and Shephard (2006) has produced a series of analyses of the migration of university graduates in the UK. Such studies have found that gender, marital status, race, age and education all influence graduates' employment migration behavior. For example, education is positively correlated with mobility: the higher the degree and the more prestigious the school, the more likely a graduate is to be mobile. In addition, the importance of family and social networks is also emphasized. Using mixed research methods, Crescenzi and Holman (2017) investigated the factors influencing the mobility of college graduates in Sardinia and Italy, and found that family, social networks and quality of life are important are shown to be important considerations. Winter (2017) also points to the importance of family and social networks in the decision to migrate in the study on US college graduates. Research on Chinese students further highlights the impact of family background on the migration location choice of educated young people from peripheral China. For example, Du (2017)'s study shows that, highly-educated individuals from different family backgrounds adopt different strategies of geographical mobility in terms of university and post-university location choice. Specifically, those from privileged families are more likely to migrate for higher education and return after graduation, whereas those from underprivileged families are more likely to stay still for education and then migrate for employment upon graduation.

In terms of regional factors, Greenwood's research on the employment mobility of American graduates in 1973 laid the foundation for such research. In this study,

Greenwood first calculated the employment mobility efficiency of graduates in various regions, then took 100 graduates working in large cities of the United States as the research objects, and analyzed the impact of average household income, unemployment rate, employment rate, and urban location on the inflow and outflow of graduates in various regions by using the general linear regression method. Similarly, studies on the migration of college graduates in China also show that regional differences are important factors to be considered. Using microdata, Liu et al. (2017) examine the migration decisions of graduates from school to university and work in China. Their results show that regional differences in wages are the main predictors that explain migration decisions. Besides, labor markets of metropolitan areas with larger shares of higher and scientific-level employment are related to stronger inflows of recent graduates, indicating a potential positive "production spillover" from this influx (Venhorst, 2017)

In terms of the impact of mobility on employment outcomes, the existing studies take income as the dependent variable and mainly discuss the relationship between mobility and the income of college graduates. Kazakis and Faggian (2017) explore migration decisions of graduates and its connection to their early Earnings in the USA. Using a multi-classification framework, they comprehensively considered the decision of graduates migrate for study and migrate for employment, and divided the samples into five categories: non-migrate (neither migrate for study nor for employment), late migrate (only migrate for employment); university stayers (only migrate for study and stay for employment) ; return migration (migrate for study and return home for employment) and repeat migration (migrate for study and move to a third place for employment) Results reveal that repeat migration is associated with higher average salaries, while late migration is associated with a salary penalty. Di Cintio and Grassi (2011) estimate wage gains internal migration of Italian university graduates three years after graduation. The effect of mobility is examined by comparing the income associated with different migrating choices. They found that large economic gains for individuals who move after graduation and smaller gains for those who migrate to study. Conversely, those who choose to go back home after having studied in regions different from that of origin suffer small losses.

The research of sociologists on the relationship between the mobility of higher education graduates and their socioeconomic status attainment can be divided into

two categories: mobility scholars; The other is migration scholars.

Student mobility, which often refers to international student mobility, "is not only about gaining the kinds of formal knowledges that can be imparted through high-quality university training, but also about other socially and culturally constructed knowledges" (Findlay, King, Smith, Geddes, & Skeldon, 2012, p.128). In the migration process, students not only accumulate human capital, cultural capital, but even symbolic capital. Those with cross-border migration experience have better-educated parents; They attend higher-level schools, are more involved in student organizations or volunteer activities and have more internships. In addition, although student mobility will not directly lead to employment success 4-5 years after graduation, most graduates with cross-border mobility experience will have higher salaries than those without mobility (Teichler, 2009).

In migration studies, college graduates are included in a wider social group for discussion (such as high-skilled talents), and these studies mainly discuss the economic performance of immigrants in the context of international migration. High-skilled migrants are supposedly in a better position because of their high human capital. Empirically high-skilled workers are also at risk of suffering from the decline in their social and economic status following migration. For instance, socio-economic outcomes of high-skilled immigrants are affected by migration policy, labor market institutions, and other factors (Bradatan, 2016). Bodankin and Semyonov (2016) found in their study in Israel that compared with Israeli-born, immigrants from different cultural backgrounds, despite of their college degrees, are found be economically disadvantaged in terms of labor-market performance (i.e. economic participation) and economic outcomes (i.e. attainment of professional occupation, occupational status and earnings). Only immigrants from Europe and the US are able to reach economic assimilation with high-skilled Israeli-born. Immigrants from other cultural backgrounds, such as Asian–African or the Former Soviet Union remain economically disadvantaged even after 20 years of residence. The findings indicate the economic disparities in high skilled immigrants due to discrimination in the labor market.

2. Perspective of college graduates

The research from this perspective mainly takes the relevant theories in the field of social stratification and mobility as the theoretical starting point to explore the

relevant factors affecting the employment outcomes of college graduates. The existing research can be divided into three aspects: individual characteristics, higher education institution characteristics and labor market structure characteristics.

Individual characteristics refer to the influence of Individual demographic characteristics, family background characteristics, social networks and other factors. The personal demographic characteristics include gender, number of siblings (Hu, & Shi,2018; Tsui & Rich, 2002), ethnicity (Campos, Ren, & Petrick, 2016) and political capital. The impact of gender on the labor market outcomes of higher education graduates has been much discussed (Joy, 2003; Li, 2017), the results show that male college graduates earn more than their female counterparts, and this result has been confirmed in many countries (Garcia-Aracil, 2008). Particularly in the Chinese context, individual political identity also affects their employment results: Chinese Communist Party membership brings economic benefits to party members (Mclaughlin, 2017). The characteristics of family background include parents' education level, occupation, income, etc. The purpose of this study is to analyze the extent to which achieved factors and ascribed factors affect individual employment outcomes (such as occupational status, income, etc.) in different institutional environments (Macmillan, Tyler, & Vignoles, 2015; Wakeling & Savage, 2015). The research of social networks focuses on the relationship between social capital and labor market outcomes (Franzen & Hangartner, 2006). Using the cross-country survey data (the 2001 International Social Survey Program), Franzen and Hangartner (2006) find that using social ties is a common job-search strategy among graduates in all countries; however, networks are helpful not concerning the monetary pay-offs, instead, they improve the non-pecuniary characteristics.

Institutional characteristics of higher education refer to the influence of institutional stratification (course length, fields of study and institutional quality) on labor market outcomes within higher education. Triventi (2013) used data from the 2005 REFLEX survey on European graduates (2000) from 4 countries (Germany, Norway, Italy, and Spain) and investigated college graduates' social origin and their wage and occupational status. Results indicate that institutional stratification plays a significant role, but the effect varies in different countries. For instance, the choice of field of study, course length, and type of institution accounts for most of the social origin effect in Norway. A study of Chinese college graduates found that,

college major, location, and ranking all affect college graduates' income and occupational attainment (Hu & Vargas, 2015). For example, STEM and professional majors are more likely to earn higher salaries, and also, college ranking is significantly correlated with the likelihood of assuming a managerial position. Besides, college location is significantly associated with salary levels meaning that those graduate from institutions located in metropolitan areas enjoy economic advantages.

In terms of the structural characteristics of the labor market, the segmentation of the labor market is a common phenomenon in many countries. In the United States, researchers (Roska, 2005) found that the gender difference in income was not only related to fields of study at college, but also related to the sectors in which individuals worked: graduates of female-dominated fields who are hired in in public and nonprofit organizations earn lower salaries but more likely to access to professional and managerial positions. The labor market of China is affected by factors such as hukou system, work organization system and regional disparities. Therefore, the segmentation of the labor market is not affected by a single factor; rather, it is the fragmentation of the labor market caused by a confluence of many factors. Xiao and Bian (2018) analyzed the 2010 Chinese General Social Survey and analyzed the interaction among hukou, college education and work origination, found that when rural-born individuals gain both urban hukou and college education, they enjoy equal job-sector placement and they earn significantly higher wages than the college-educated locals.

2.5 SUMMARY

By sorting out the relevant researches on the employment mobility and stratification of college graduates, we have a better understanding of the theoretical scope and existing empirical research basis that may be involved in the topic of "Internal migration of college graduates and labor market performance in China". It can be seen that social stratification research pay more attention to the influence of institutional conditions and social structure on individual social stratum; while higher education scholars pay more attention to the impact of factors in the education process on the employment of graduates. Both studies ignore the impact of the geographic mobility caused by education or employment. Research from

mobility/migration explores the relationship between geographical mobility and social mobility from a variety of perspectives. The core point of view is that in the process of mobility, social inequality is maintained and reproduced. Inspired by mobility/migration scholars, this study combines the existing research on social stratification, higher education and migration/mobility and aims to discuss the employment outcomes of college graduates from the perspective of migration/mobility. Specifically, this dissertation discusses the effect of migration on the labor market performance of college graduates and whether this effect is equal for all social groups with different characteristics.

3 DATA AND METHODS

3.1 DATA

Data used in this doctoral dissertation is from "China College Student Survey", which was conducted by China Data Center at Tsinghua University. The survey included four sub-surveys: the Study Engagement Survey of Chinese College Students, the Study and Career Development Survey of Chinese College Students, the Survey of Chinese College Graduates and the Follow-up Survey of Tsinghua University undergraduates (https://ccss.applysquare.com/index). Among them, the Survey of Chinese College Graduates was designed based on the theories of economics of education, labor economics and sociology of education, which aimed to reflect graduates' in the labor market performance and their individual career choice, and explored the impact of education on individual career.

The project used stratified probability-proportional-to-size random sampling to conduct sampling. The data used in this dissertation were three waves (2010,2013 and 2015) collected in the Survey of Chinese College Graduates. A total of 16,154 students participated in the survey. Respondents came from 60 universities located in 23 provinces. The sample was stratified by the location (Beijing, Shanghai, Tianjin, and northeastern, eastern, central and western China) and type of universities (Project 211 and others)[2]. The survey response rates were around 70% for the three years (Shi, Wen, Li, & Chu, 2014).

The questionnaire is complete as follows: All the respondents in the last semester of undergraduate study (four-year program) were required to fill in the questionnaire, which includes basic demographic characteristics, academic and social activities in college, part-time jobs and internships on campus and personal career orientation after graduation.

The data used in this study was limited to a sample that had not experienced migration

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[2] Following Li. et al. (2012), a weight at college-level was used to adjust the sample. Specifically, the sampled colleges were classified into eight categories by their type (whether it is a national-key college, i.e. "Project 211") and their regional location (Northeast, East, West, and Central). The weight of each college was constructed as the number of that category of college in the area in the population divided by the number of the same category in the sample.

before college, had chosen to seek a job after graduation and hds received (at least) one offer and provided salary information in the survey. The reason for this is that this study focuses on migration at the stage of higher education. Therefore, the sample was first limited to students who had no experience in migration before entering college (N=13,358). Next, those who did not find a job (N = 4,344) and those who were looking for a job at the time of the survey but did not get a job offer (N = 2,788) were excluded. For respondents (the last semester of undergraduate), if he/she does not plan to continue his/her studies, it is very common to find a job (Li et al., 2012). Ultimately, for those who received at least one job offer when they were surveyed, this survey collected information such as the location and salary of the highest salary. Elsewhere (Zhao & Hu,2019), I have pointed out the need to use prospective measures of respondents' employment as proxies for their actual work migration behavior. Due to the limitations of available research resources, there is no suitable tracking survey data for the employment status of college graduates. Therefore, the collection of future employment information about graduates who are still in school provides the best way to understand school-work transition of Chinese college students. After excluding the 320 cases with missing values of key variables (starting salary and account source), the final analysis sample was 5,906 respondents. The Little's test (1988) confirmed that The missing cases were deleted completely at random.

The sample defined in this study has a non-random possibility in the overall college student population. Therefore, in order to ensure that the research results are not affected by non-random selection, Heckman selection model was used to check the robustness of the results (see the next section for details of this method (Methods: Statistical methods for accounting for selectivity issues). Based on 5,906, the analysis results of the students are shown in Table A1 and Table A2. It can be seen that the sample selection parameters have no significant statistical effect in predicting the starting salary of graduates or the impact on the interpretation of other variables. Of course, although the robustness test results show that the sample selection bias does not have a very large impact on explaining the research questions of this dissertation, it is undeniable that the sample selection bias may still exist (Zhao & Hu, 2019). For example, both migration and job search behaviors may be affected by unobserved attributes such as personality and self-efficacy (Fernandez-Reino, 2016), but these

effects have been captured as much as possible by control variables.

3.2 VARIABLES

DEPENDENT VARIABLES

Two variables are used to measure labor market outcomes; the first is entry into different type of work organizations. As discussed above, students who seek employment and received at least one job offer were asked to provide detailed information of the highest-paying offer, including the monthly starting salary, type of work organization, and location. Specifically, nine types were listed in the questionnaire: governmental agencies, public institutions, social enterprises, state-owned enterprises, collective enterprises, joint-capital enterprises, private enterprises, self-employed, and other. Following previous studies (He & Wu, 2018; Wu & Song, 2013), I further coded them into three categories based on their relationship with the state: government organizations, namely governmental agencies and public institutions[3]; public enterprises including state-owned enterprises, social enterprises, collective enterprises, and the non-state sector, which contained the other four categories of joint-capital enterprises, private enterprises, self-employed, and other. The other outcome is the salary of the highest-paying job offer received by a student, measured in the unit of Chinese yuan. As stated in the previous sample definition, among the interviewees, those who have found a job and obtained at least one job offer are required to report their highest-paying job information. It should be noted that although some students do not necessarily receive the highest salary, this estimate reflects the upper limit of the premium brought by immigration, or the maximum economic return of the student after receiving the salary. The credibility of self-reported wages has been confirmed by previous studies (Li, Meng, Shi, & Wu, 2012). Finally, due to the skewed distribution of wage information, a logarithmic transformation of this variable was performed during the analysis (Zhao & Hu,2019).

INDEPENDENT VARIABLES

Variables that measured other demographic factors likely to affect labor market

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3 Although the government organizations and public institutions have different recruitment methods, previous studies have shown that they have similar effects on employment outcomes (as measured by income) compared to enterprises. Therefore, following previous studies (He & Wu, 2018; Wu, 2013; Wu & Song, 2013), this study also combined the two into one category.

outcomes were included in the following analyses. Age was included as a continuous variable. Minority students were identified from Han students considering the well documented disparities between ethnic minorities and Han in education and employment (Wu & Song, 2013). Students who were only children were identified from those who had siblings, as those without siblings may enjoy different family and educational resources and develop distinct migration aspirations under the one-child policy (Hu & Shi, 2018). Because there was a high level of correlation between the mother's and father's education, parental education was measured using the years of schooling completed by the mother or the father, whichever is longer. As family socioeconomic status plays a crucial role in determining both the migration patterns and life chances of Chinese young people (Du, 2018), the respondents' family income per capita in the year preceding the survey was controlled for. Besides, a set of variables measuring human capital and college performance were also controlled for. Undergraduate Grade Point Average (GPA) was standardized by college to measure students' academic performance in college. Communist Party membership was used as a dummy variable to account for the potential benefits of political affiliation in labor market (McLaughlin, 2016). Having won awards in college and participation in student associations were both included as a proxy for the social engagement on campus. Additionally, I distinguished between those who have taken College English Test-Band 4 (CET-4) (1) and those who have not taken it yet (0) since certificates of College English Test-Band 4 (CET-4) served as a prerequisite for graduation in many universities, and an indispensable educational credential for employment as well (Guo & Sun, 2014). CCSS classified the majors into thirteen categories and I further aggregated them into five broad fields of study based on the standard prescribed by China General Administration of Quality Supervision (2009): Natural sciences, engineering science and technology, agronomy, medicine and pharmaceutics, humanities and social sciences (including philosophy, law, economics, business, education, literature, history, art and military science). The types of postsecondary institutions were also included for its contribution to college graduates' earnings in the labor market: those who graduate from higher-quality institutions tend to earn more than those from lesser-quality colleges (Li et al., 2012). In analyses, colleges were divided into two categories (Yang & Chen 2016): national-key colleges, those were identified as "Project 211", and the other institutions, "non-

key colleges". A dummy variable of survey year was controlled for across models.

3.3 DESCRIPTIVE STATISTICS

Table 3-1 reports the basic descriptive statistics of dependent and control variables (i.e. Section 3.2, "Independent variables"), including mean, standard deviation, maximum and minimum values. One of the dependent variables, the starting monthly salary (logarithm) ranging from 6.91 to 9.90, the mean is 7.80, indicating that the average starting monthly salary of Chinese college students is 2440.60 *Chinese Yuan*. Another dependent variable, the employment sector, including government organizations, public enterprises and the non-state sector. More than half (61%) of college graduates enter non-state sector after graduation (i.e. joint-capital enterprises, private enterprises, self-employed or other); 28% of graduates go to public enterprises (which includes state-owned enterprises, social enterprises, collective enterprises), only 11% of the graduates entered government organizations, namely governmental agencies and public institutions.

In terms of the personal characteristics of the students, the majority of the respondents were originally from rural household registration (62%), with an average age of 23.02 years old, and the vast majority were Han (only 6% of ethnic minorities). In addition, although the one-child policy is China's national policy, in this study, non-only children are the main group of respondents: only 32% of the respondents come from one-child families. Family-related variables indicate that the education level of the parents of the respondent averaged 9.94 years (i.e. the first grade of high school).

Academic performance information is as follows. 29% of the respondents had joined the Communist Party of China during college and became party members. 64% have participated in student organizations and 59% have received various awards. Since the CET-4 certificate is one of the graduation requirements of many colleges and universities, most (91%) students have already obtained the CET-4 certificate. Students' majors show a clear trend of concentration. 43% of the respondents studied majors in humanities and social sciences, followed by 41% majoring in engineering sciences. Studying natural science, agronomy and medicine are relatively few, only 6%, 3% and 7% respectively. Finally, the classification of colleges and universities shows that the students of "Project 211" are still a minority group in the job market.

In this sample, only 3% of the respondents are from "Project 211" University.

Table 3-1 Summary statistics for the whole sample

Variables	Mean	Standard Deviation	Min.	Max.
Ln (starting monthly salary)	7.80	0.49	6.91	9.90
Employment sector				
Government organization	0.11	0.31	0	1
Public enterprise	0.28	0.45	0	1
Non-state sector	0.61	0.49	0	1
Rural *hukou* origin (yes=1)	0.62	0.49	0	1
Age	23.02	1.02	20	26
Ethnic minority (yes=1)	0.06	0.23	0	1
One-child family (yes=1)	0.32	0.47	0	1
Parental education (year)	9.94	3.61	0	19
Standardized undergraduate GPA	-0.00	0.87	-4.08	3.99
Missing	0.21	0.41	0	1
CCP member(yes=1)	0.29	0.45	0	1
Student organization participation(yes=1)	0.64	0.48	0	1
Awards(yes=1)	0.59	0.49	0	1
CET−4 certificate (yes=1)	0.91	0.28	0	1
Fields of study				
Natural sciences	0.06	0.24	0	1
Engineering sci. & tech.	0.41	0.49	0	1
Agronomy	0.03	0.16	0	1
Medicine and pharmaceutics	0.07	0.25	0	1
Humanities and social science	0.43	0.50	0	1
Type of college (Project 211) (yes=1)	0.03	0.17	0	1

3.4 METHODS: STATISTICAL METHODS FOR ACCOUNTING FOR SELECTIVITY ISSUES

Heckman selection model

Sample selection bias is an unavoidable problem in social sciences where non-experimental data are used as analytical samples. Because researchers can only observe specific individuals or families of certain variables, the selection of samples is not completely random and exogenous, the parameter estimation based on this is biased. Heckman (1979) stated that the sample selection bias fell into two categories: the self-selection bias caused by the self-selection of observed values into samples and the selection bias made by data analysts. Additionally, Heckman (1979) described many examples of self-selection bias, including wage differentials between migrants and non-migrants. Heckman proposed a famous two-stage approach to solve this problem. In the first step, the Probit model is used to estimate the probability of the individual entering the selection model; the value for correcting the sample selection bias is calculated for each sample according to the Probit model, i.e. the inverse Mill's ratio, λ; the second step, in the regression model estimating the outcome variable, the inverse Mill's ratio is added, along with other independent variables. In the second-stage equation, the sample selection bias exists if the inverse Mill's ratio is significant and vice versa.

Formally, the model is specified as follows:

$$G* = X\mathrm{T} + u2; G* = 1 \ if \ G* > 0 \ and \ G* = 0 \ otherwise \ (1)$$

$$lnS = \mathrm{M}\alpha + \mathrm{X}\beta + \eta \, \lambda \mathrm{G} + u1 \qquad (2)$$

In Equation (1), the repressor, λG, is a direct analog of the inverse Mills ratio proposed by the Heckman selection model. T is a parameter to be estimated. Equation (2) is an Ordinary least-squares (OLS) regression model to predict the salary outcome variable. S is the monthly starting salary for the college graduate, M denotes the college graduate's self-selection behavior, X represents a vector of individual

characteristics including gender, age, social engagement on campus, fields of study, types of college and types of work organization.

The Heckman selection model, with its simple and refined equation model framework and its advantages of being easy to apply to OLS regression model, has become a standard analytical tool to correct sample selection errors and has been widely used in the social sciences (Guo & Fraser, 2014). In this dissertation, the Heckman selection model was used to deal with two sample self-selection problems. Since the whole statistical analysis is based on college graduates' starting salary of their first jobs upon graduation and therefore only restricted to those who have already landed a job near their graduation, the Heckman model was employed to cross-validate the robustness of the results. In Chapter 4, a return migration selectivity control variable was included in models to account for migration self-selection issues (see details in Chapter 4).

Propensity score weighting

In Chapter 4 and Chapter 5, propensity score weighting was used to reduce selectivity bias in regression models. Although there is no consensus on how to use the method of propensity score analysis in survey data of complex design, Ridgeway, Kovalchik, Griffin and Kabeto (2015) provided strong evidence to support the use of propensity score weighting with sample surveys. In their recent paper, propensity score analysis with survey weighted data, through derivation, simulation, and a real data example, Ridgeway et al. (2015) compared the performance of four propensity score different methods: "1) no PSA; 2) estimating the propensity score excluding the sampling weights; 3) estimating the propensity score with the sampling weight as a covariate; 4) estimating the propensity score using the sampling weight as an observation weight" (Ridgeway et al., 2015, p.9). Of these four approaches, they found that "Only propensity score models using sampling weights as weights consistently provided good covariate balance across the scenarios." (Ridgeway et al., 2015, p.10). Furthermore, inclusion of sampling weights at all stages of propensity score model generally have the smaller root mean squared error (RMSE), indicating more precise treatment effect estimates (Ridgeway et al. 2015). Based on these findings, Ridgeway et al. (2015) recommended that "the most robust strategy is to use the sampling weights in the propensity score model and to use the sampling weight times the propensity score weight as the weight in the outcome analysis" (Ridgeway et al.,

2015, p.13). Accordingly, in Chapter 4 and Chapter 5, regression models were estimated by including the final weight, which is the product of a propensity score weight (correcting for graduate migration selection bias, Table A3 and Table A5 in Appendices) and the sampling weight.

4 DOUBLE DISADVANTAGE? INTERNAL GRADUATE MIGRATION, GENDER AND LABOR MARKET OUTCOMES AMONG RECENT COLLEGE GRADUATES IN CHINA

4.1 INTRODUCTION

Over the past several decades, there have been entrenched inequalities in the Chinese urban labor market. Segregations in employment opportunities have followed the lines of gender (He & Wu, 2018) and hukou (Huang, 2001; Li & Zhang, 2010; Wu & Treiman, 2004). On one hand, similar gender disparities to the western countries exist in employment and earnings (He & Wu, 2018; Kim, 2013; Meng & Zhang, 2000). Before the economic reform, the state played a key role in promoting gender equality in the labor market (He & Wu, 2018). With the deepening of market-oriented reform, the government's power shrank and gender income inequality in the labor market gradually expanded (He & Wu, 2018; Kim, 2013). In the general urban labor force population in 2003, the average salary for women was 13% lower than that for men; this widened to 21.0% in 2009 (Green Book of Population and Labor, 2016). With the expansion of higher education from the late 1990s, Chinese girls are both outnumbering and outperforming their male counterparts in tertiary education (OECD, 2011). However, scant research has been done so far to explore whether this helps improve female graduates' chances in the labor market.

Meanwhile, the hukou system significantly shapes graduate migrants' job attainment. Against the backdrop of reform in higher education and the labor market, attending college has no longer been a pathway to obtaining a local hukou or getting a state-sector job (Fan, 2002; Wu & Treiman, 2004). College graduates who work away from their hukou-registered cities suffer discrimination in their entry into the state sector (Cheng, Guo, Hugo, & Yuan, 2013). The advantages that urban *hukou*

residents enjoyed when accessing employment opportunities and social welfare over rural migrants have been well documented in previous studies (Huang, 2001; Li et al., 2015; Zhang & Wu, 2017), whereas little is known about whether the hukou system imposes constraints on graduate migrants in terms of labor market outcomes, even though they are equipped with similar human capital as their non-migrating peers.

In this paper, inspired by the "double disadvantage thesis" in international migration studies, I examine whether highly educated female graduates who choose to move outside their hukou-registered cities experience a double negative in terms of initial earnings attainment and work organization entry because of their gender and migrant status in China's urban labor market. This study is based on three waves of the nationally representative data, CCSS.

I found that on one hand, female graduate migrants have fewer opportunities to enter government organizations that provide institutional protection against gender discrimination (He & Wu, 2018) On the other hand, the effect of migration varies by work organization, and female graduate migrants who end up in the non-state sector are more likely to experience an income penalty in earnings attainment. These findings highlight the importance of considering the inequality caused by the hierarchical system of work organizations in the investigation of gender inequality in the Chinese graduate labor market and shed light on the role of the institution, the hukou system in determining the economic returns of migration for highly educated migrants in the Chinese context.

4.2 THEORETICAL BACKGROUND

4.2.1 "DOUBLE DISADVANTAGE THESIS"

Research carried out in the area of international migration has shown that immigrant women face many challenges when seeking to enter the labor market in a new host country (Boyd, 1984; De Jong & Madamba, 2001; Donato, Piya, & Jacobs, 2014; Raijman & Semyonov, 1997). After Boyd (1984), other researchers adopted the double disadvantage theory to explain the experiences that immigrant women typically encounter within different countries' labor markets (for example, De Jong & Madamba, 2001; Donato et al., 2014; Raijman & Semyonov, 1997). In an Israeli-

based study, Raijman and Semyonov (1997) reported that immigrant women did not usually enter the workforce and, thus tended not to take up employment. In addition, the latter authors contended that immigrant women from developing nations such as Asia and Africa could experience a further level of disadvantage, creating a triple disadvantage effect. Conversely, research carried out by De Jong and Madamba (2001) in the United States found that the double disadvantage theory was only evident among the Asian immigrant community, where females were generally more adversely affected in terms of gender and nativity-based discrimination. A more recent study undertaken by Donato et al. (2014) investigated whether a double disadvantage occurred among immigrant women who had settled in several different countries. This research showed that the double disadvantage effect was clearly evident in the case of immigrant women seeking to enter the workforce.

In China, previous studies have found that low-skilled female migrant workers encounter double disadvantage as a result of the household registration system and limited educational opportunities (Huang, 2001), thus mirroring immigrant women's experiences. Nevertheless, the question remains of whether changing the dynamics of China's higher education—the supposedly equalizing educational opportunities and fair competitions—would equally translate into highly educated women's opportunities in the labor market as they leave universities and enter the labor market. In the next section, I will review the previous literature following the line of gender and the hukou system and their impacts on labor market outcomes among female graduate migrants in China's urban labor market.

4.2.2 GENDER, HIGHER EDUCATION, AND LABOR MARKET OUTCOMES

Recently, gender differences in terms of participation in tertiary education have become less pronounced in China. This is evident in enrollment data, whereby Yeung (2013) reported that over a nine-year time span of 1998–2007, the number of female students registering rose from 400,000 to approximately 2.9 million. Within the subsequent two-year period, more females than males enrolled in tertiary education, with female student figures reaching 3.2 million in 2009.

This pattern emerged as a result of introducing two key policies, namely the educational expansion policy (Yeung, 2013) and the one-child policy (Tsui & Rich,

2002). The Chinese government introduced the former program in 1999 during the throes of the Asian financial crisis. Yeung (2013) identified that its primary objective was to boost economic growth by encouraging greater spending within education, most notably on tutoring fees and associated areas. Accordingly, Zhang and Chen (2013) contended that these structural changes were highly beneficial to women as they reduced the barriers that have traditionally impeded females from accessing higher education.

In addition, Tsui and Rich (2002) argued that China's one-child policy has helped establish greater gender equality within the education system. In the past, the Chinese family system was characterized as patrilineal, with few employment opportunities available to warrant parental investment in their daughters' education (Fong, 2002). However, following the introduction of the one-child policy in 1979, traditional family structures and beliefs were called into question, including the historical notion of female inferiority from an educational attainment perspective (Tsui & Rich, 2002). Instead, this new system urged parents to set high academic expectations for their child, irrespective of gender.

Significant gender differences that favor males are evident in terms of labor market outcomes, even though females have gained equal or greater access to education than their male peers. The economic status that women hold within Chinese society is predominately influenced by the state, with its role of promoting gender equality (He & Wu, 2018). This is evidenced by the fact that prior to the introduction of economic reform, the Chinese government developed several policies that sought to bridge the gender pay gap, which promoted the concept of "equal pay for equal work" (He & Wu, 2018). However, following the economic reform, market forces have had a more influential role in gender stratification in China. Recent research has shown that greater gender inequality is occurring while the country is undergoing a transition to a market economy (Kim, 2013; Meng & Zhang, 2000). Although a qualitative study from Liu (2017) showed that female graduates exert themselves to reduce their disadvantages caused by their gender in the job-seeking process, with less direct involvement by the state, they may experience greater discrimination in the socireform era (He & Wu, 2018).

4.2.3 HUKOU SYSTEM AND GRADUATE MIGRATION

Changes in hukou policy have made graduate migration emerge as a new phenomenon in internal mass migration. Before 2003, attending college was one of the few ways to obtain a local urban hukou in the city where the college was located (Wu & Treiman, 2004; Xiao & Bian, 2018). With the development of economic reforms, after 2003, students moving away for college are only issued a temporary residence permit for study purposes (Li, 2016; Li & Zhang, 2010). Upon graduation, they can transfer their hukou to the workplace as long as their employers can provide one. The quota is limited, even for bachelor's degree holders, so the process of hukou conversion is highly competitive (Li & Zhang, 2010).

Under such a policy change, college graduates who choose to work outside their hukou-registered localities are forced to participate in mass internal migration (Cheng et al., 2013). Similar to low-skilled migrant workers, graduate migrants are hindered from accessing employment opportunities that are usually offered to local residents because of their non-local *hukou* status (Li & Zhang, 2010). Despite the possible income advantage over non-migrants, empirical evidence shows that highly educated migrants are less likely to secure jobs in the state sector (Cheng et al., 2013).

In summary, similar to the experience of immigrant women (Boyd, 1984; Raijman & Semyonov, 1997; Donato et al., 2014), in China's urban labor market, female graduate migrants may suffer a double disadvantage because of their non-local status as defined by the hukou system and because of the increasing gender income inequality alongside market reforms. On one hand, the local/non-local hukou distinction has a more profound effect on female migrants that outsider status disqualifies them from jobs in government/public institutions. On the other hand, being women, they are economically disadvantaged in the non-state sector due to the persistence of gender income inequality. Thus, the hypothesis for the study is that female graduate migrants have less access to government/public institutions and earn lower labor market rewards in the non-state sector.

4.3 DATA AND METHOD

4.3.1 DATA

This study used data from the 2010, 2013, and 2015 CCSSs (see details in Chapter 3). The final analytic sample contained 5,906 respondents, among whom 2,594 were female graduates and 3,312 were male.

4.3.2 VARIABLES

DEPENDENT VARIABLES

Two variables were used to measure labor market outcomes; the first was entry into different type of work organizations. As discussed in Chapter 3, students who seek employment and received at least one job offer were asked to provide detailed information of the highest-paying offer, including the monthly starting salary, type of work organization, and location. The other outcome was log-transformed by monthly starting salary, which is fully discussed in Chapter 3.

INDEPENDENT VARIABLES

The key independent variables were gender and graduate migration. Gender was coded as a dummy (1 if female; 0 if male) and the present study defined graduate migration based on both the location of their first employment and where they lived before attending college. Specifically, locals were graduates who chose to be employed in the city where their hukou was registered before attending college, while graduate migrants were those who had moved to start their career in another location beyond their hukou city.

CONTROL VARIABLES

Variables that measured other demographic factors that were likely to affect labor market outcomes were included in the subsequent analyses; this included gender, age, ethnicity, number of siblings, parental education, and family income. The detailed specification can be found in Chapter 3 (see the "Independent Variables" section).

4.3.3 ANALYTICAL STRATEGY

Based on her study findings, Boyd (1984) argued that the dual adverse impact of gender and immigration could manifest in two forms. In one potential manifestation, both variables act independently of one another, thus leading to foreign-born women being less able to contribute to the economy. In adopting an additive model to examine the double disadvantage, the less favorable position held by immigrant women is viewed as resulting from not being born in their host country and being female. An alternative explanation is that the combined effect of being both non-native and female exerts a greater combined impact than each variable alone. This is demonstrated by the interactive effect of the combination of both disadvantages. More recent studies such as Raijman and Semyonov (1997) and Donato et al. (2014) generally used an interactive model to examine the double disadvantage effect. Therefore, following the conventional strategy, to understand whether female graduate migrants experience a double disadvantage in the Chinese graduate labor market, I first investigated whether gender interacts with graduate migration and influences the likelihood of employment at governmental organizations and public enterprises relative to the non-state sector (Table 4-2). Then, I examined the interaction effect between gender and graduate migration on earnings attainment and whether work organization plays a role in moderating that effect (Table 4-3). Specifically, two models are presented for the sector entry outcome. The baseline additive model examined the effect of gender and graduate migrant status on one important labor market outcome, measured by the likelihood of employment in government organizations and public enterprises relative to the non-state sector; while the second model includes an interaction term between gender and migrant status. As usual, a range of demographic and college performance variables are controlled for in both regression models. For the income outcome variable, two models were presented in the following analysis. The baseline additive model examined the effect of gender, graduate migrant status, and job-sector placement on the labor market outcome, which is measured by the natural log of the monthly starting salary with all control variables. The second model added the interaction effect between gender and graduate migration to assess whether female migrants experience disadvantages in terms of earnings attainment.

4.4 RESULTS

DESCRIPTIVE OVERVIEW

Descriptive statistics provided in Table 4-1 show that female locals, female graduate migrants, male locals, and male graduate migrants differ from each other in many aspects. First, female graduates tend to have a lower initial monthly salary than their male counterparts, regardless of their graduate migrant status. On average, male college graduate migrants earned 0.9% more than female graduates. Second, moving across cities for employment after finishing undergraduate studies was not significantly associated with higher starting salaries, regardless of gender. In the sample, male students who stayed in their hukou city for their first employment reported the highest monthly starting salary ($M_{male\ local}$ = 2,921.35, $SD_{male\ local}$ = 1,651.36), which is slightly higher than male migrants ($M_{male\ migrant}$ = 2,802.52, $SD_{male\ migrant}$ = 1,661.59); while female locals, although earning less than their male counterparts, on average received slightly higher starting earnings than their migrating peers. ($M_{female\ local}$ = 2,736.41, $SD_{female\ local}$ = 1,833.32; $M_{female\ migrant}$ = 2,654.14, $SD_{female\ migrant}$ = 1,502.07).

Concerning the second indicator of labor market outcome, sector entry of first employment, Table 4-1 shows that the majority of respondents ended up in the non-state sector (61% of the sample on average). Female graduates were more likely to be here: 66% were employed in the non-state sector compared to 50% for males. Compared with stayers, migrants were less likely to get a placement in a government organization. Eight percent of female migrants secured a job offer from a government organization compared to 6% of male graduates who moved to other regions for work. Among migrants, female migrants seem to have fewer opportunities to enter public enterprises, 18% of them are employed in such institutions, which is significantly lower than that of male migrating students (34%).

Despite the fact that more than half (62%) of respondents held rural hukou before college, locals were less likely to have this than those who had moved across provinces for employment. In terms of college performance characteristics, graduate migrants tended to have better performance in college regardless of gender. They were more likely to have higher undergraduate Grade Point Average (GPA), have

won awards in college, have joined the Communist party, and hold a position in a student association. It particularly holds for female migrants that they have significantly higher scores/percentages than the other groups. In addition, graduates from key universities ("Project 211" universities) are more likely to be involved in graduate migration. In accordance with the migration literature, migrants with employment purposes are generally positively selected from the population in terms of their human-capital characteristics (Huang, 2001; Kazakis & Faggian, 2017). Consistent with previous studies (Liu, 2017), in terms of fields of study, female students have a greater tendency to be concentrated in humanities and social sciences, while males are in engineering science and technology rather than the other fields of study (Natural science, agronomy, medicine, and pharmaceutics); however, a difference exists when considering graduate migrant status: female migrants are more likely to major in humanities and social sciences than female locals. Given the special status of the first-tier cities in the national economy (He, Zhai, Asami, & Tsuchida, 2016.; Liu et al., 2017), Beijing, Shanghai, Guangzhou, and Shenzhen are major destinations of choice for college graduates to start their career; on average, a third of all respondents choose to work in one of these four cities.

The following section uses multivariate models to examine how graduate migration intersects with gender and produces diversity in labor market outcomes, including sector entry and earnings attainment.

Table 4-1 College performance and labor market outcome characteristics: Means(and standard deviation) of locals and graduate migrants by gender

Variable	All	Female		Male		F/X2 difference
		Migrant	Local	Migrant	Local	
Ln (starting monthly salary)	7.80 (0.49)	7.76 (0.49)	7.76 (0.53)	7.82 (0.46)	7.85 (0.49)	<.001
Work organization						
Government organizations	.11	.08	.19	.06	.13	
Public enterprises	.28	.18	.23	.34	.36	
Non-state sector	.61	.74	.58	.59	.50	<.001
Rural hukou origin	.62	.66	.45	.71	.51	<.001
Age	23.00 (1.02)	22.91 (1.01)	22.67 (0.90)	23.22 (1.05)	22.99 (0.92)	.138
Ethnic minority	.06	.06	.06	.06	.04	.599
One-child family	.32	.24	.45	.26	.49	<.001
Parental education	9.94 (3.61)	9.56 (3.72)	10.78 (3.48)	9.53 (3.49)	10.45 (3.64)	<.001
Log (annual family income per capita) [a]	9.12 (1.15)	9.01 (1.17)	9.36 (1.11)	8.93 (1.11)	9.42 (1.12)	<.001
Missing	.01	.01	.01	.01	.02	.088
Standardized undergraduate GPA	-0.00 (0.87)	0.26 (0.79)	0.13 (0.80)	-0.15 (0.86)	-0.29 (0.98)	<.001
Missing	.21	.23	.25	.20	.16	.829
CCP member	.29	.33	.27	.31	.19	<.001
Student organization participation	.64	.67	.65	.64	.58	.001
Awards	.59	.71	.55	.58	.47	<.001
CET−4 certificate	.91	.92	.87	.93	.89	<.001
Field of study						
Natural sciences	.06	.07	.04	.07	.08	
Engineering sci. & tech.	.41	.22	.21	.62	.46	
Agronomy	.03	.01	.07	.01	.06	

Medicine and pharmaceutics	.07	.09	.15	.01	.03	
Humanities and social science	.43	.61	.53	.29	.37	<.001
Type of college (Project 211)	.03	.03	.02	.04	.03	<.001
Employment location: First-tier cities	.30	.28	.39	.25	.30	<.001
N	5,906	1,499	1,095	2,399	913	

Note: Samples are weighted to represent the population. CCP = Chinese Communist Party. CEE = College Entrance Examination. GPA = Grade Point Average. The same below in Table4-2and Table 4-3. Column proportions may not sum to 1 due to rounding. Standard deviations in parenthesis for continuous variables.

[a] Bottom-coded the 1st percentile to minimize the influences of outlier cases.

WORK ORGANIZATION ENTRY

Table 4-2 presents the multinomial logistic regression models that were used to estimate the effect of gender and graduate migration on the odds of being employed by a government organization and public enterprise, relative to the non-state sector. As Model 1 indicates, female graduates tended to have fewer opportunities to be employed by government organizations and public enterprises and the effect of gender is statistically significant on employment in public enterprises at $p < .01$. Exponentiating the coefficient (b = −0.57) into an odds ratio (OR = 0.57; $p < .01$) indicates that when other things are held constant, women are 43% less likely to be employed at a public enterprise than their male counterparts. This result seems to be consistent with previous research from He and Wu (2018), in which they argued that since market-oriented reforms, public enterprises have become more similar to private enterprises. "Thus, they may have already lost their role in promoting gender equality in the Chinese labor market." (He & Wu, 2018, p.727).

The first model also suggests that being a migrant upon graduation significantly decreases the likelihood of being employed at a government organization. Compared with graduates who chose to work in their hukou city, those who migrated elsewhere were 53% less likely to be placed in a government organization (b = −0.76; OR = 0.47; $p < .001$). This result is consistent with the previous finding that migrant workers in China may encounter more difficulties accessing employment opportunities provided by local governments than their local hukou counterparts even if they are equipped with similar human capital (Li et al., 2015).

To further examine whether gender and graduate migration interact with each other and produce a "double disadvantage" on recent female graduate migrants in terms of access to government organizations and public enterprises, Model 2 includes an interaction term between gender and graduate migrant status. Model 2 shows that the influence of moving between provinces for employment differs for women and men with regard to sector entry. Being a graduate migrant tends to more negatively affect women's likelihood of employment in government organizations and public enterprises. This particularly holds for government organizations, as the interaction term is significant at $p < .05$. Female graduates encounter significantly more difficulties seeking placements in government organizations when considering their

migrant status. Therefore, compared to their male counterparts, female graduates who choose to work outside their hukou city suffer a "double disadvantage" on employment in government organizations in the Chinese graduate labor market.

Table 4-2 Multinomial regression models predicting the likelihood of employment in government organization and public enterprise compared with the non-state sector

Variable	Model 1				Model 2			
	Government organizations		Public enterprises		Government organizations		Public enterprises	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Female	-0.254	(0.367)	-0.570**	(0.217)	-0.009	(0.361)	-0.515+	(0.284)
Migrant	-0.761***	(0.193)	-0.290	(0.210)	-0.413	(0.243)	-0.239	(0.240)
Female * Migrant					-0.706*	(0.352)	-0.107	(0.313)
Rural hukou origin	-0.236	(0.211)	-0.124	(0.148)	-0.229	(0.206)	-0.122	(0.148)
Age	0.045	(0.072)	-0.105	(0.086)	0.046	(0.072)	-0.105	(0.086)
Ethnic minority	-0.662	(0.408)	0.294	(0.199)	-0.653	(0.408)	0.294	(0.198)
One-child family	0.545**	(0.186)	0.181	(0.162)	0.553**	(0.183)	0.133	(0.129)
Parental education	0.048	(0.044)	0.041	(0.024)	0.051	(0.044)	0.941	(0.023)
Log (annual family income per capita)	0.006	(0.106)	0.105	(0.072)	0.001	(0.102)	0.105	(0.071)
Missing	1.040	(0.752)	0.193	(0.313)	1.061	(0.775)	0.195	(0.313)
Standardized undergraduate GPA	-0.137	(0.101)	0.198*	(0.089)	-0.136	(0.010)	0.199*	(0.089)
Missing	-0.180	(0.137)	-0.077	(0.114)	-0.186	(0.133)	-0.077	(0.115)
CCP member	0.017	(0.265)	0.205	(0.235)	0.009	(0.264)	0.203	(0.234)
Student organization participation	0.262	(0.197)	0.144	(0.167)	0.313	(0.160)	0.137	(0.169)

Awards	0.378	(0.344)	-0.067	(0.171)	0.387	(0.344)	-0.065	(0.172)
CET−4 certificate	-0.204	(0.227)	0.284	(0.237)	-0.190	(0.222)	0.285	(0.237)
Field of study (Humanities & social sci.)								
Natural sciences	-0.339	(0.410)	-0.059	(0.324)	-0.336	(0.408)	-0.059	(0.325)
Engineering sci. & tech.	-0.460	(0.274)	0.947***	(0.225)	-0.468	(0.270)	0.944***	(0.225)
Agronomy	-0.020	(0.601)	-0.802	(0.650)	-0.007	(0.596)	-0.802	(0.649)
Medicine and pharmaceutics	2.512***	(0.293)	1.237***	(0.345)	2.538***	(0.298)	1.240***	(0.349)
Type of college (Project 211)	0.386	(0.368)	0.323	(0.4288)	0.405	(0.358)	0.327	(0.423)
Employment location: First-tier cities	-0.509	(0.02	-0.511**	(0.196)	-0.534	(0.298)	-0.515**	(0.195)
Survey year (2010)								
2013	0.341	(0.235)	-0.136	(0.289)	0.349	(0.235)	-0.136	(0.290)
2015	0.336	(0.552)	-0.460	(0.379)	0.344	(0.552)	-0.460	(0.380)
Constant	-2.480	(1.666)	1.655	(1.930)	-2.583	(1.667)	1.649	(1.922)
McFadden's pseudo−r2	0.116				0.117			
N	5,159				5,159			

SALARY ANALYSES

Table 4-3 reports the results of the ordinary least-squares (OLS) regression for monthly starting earnings separated by work organization on a set of independent variables. As in the logistic regression on the work organization entry, three models are presented, one each for government organizations, public enterprises, and the non-state sector. In a logged wage regression, the coefficients indicate the percentage increase or decrease in income associated with a unit change in the independent variable. In Model 3, after controlling for demographic characteristics, college performance, employment location, and migrant self-selection bias, female graduates earned significantly less than their male counterparts across all different types of work organization, regardless of their migrant status. Graduate migration is positively associated with starting salary, although this is not statistically significant. In China, the geographical movement of highly educated young people is not necessarily beneficial for their labor market outcomes in terms of earnings after accounting for migrant selectivity. Another point worth noting is that contrary to previous findings that gender income inequality increases with the marketization of sectors (He & Wu, 2018), the results from Model 3 show that female graduates are paid significantly less for working at a government organization, but only marginally less in the non-state sector. One possible reason is that the samples used in the studies were different. He and Wu (2018) focused on women in the labor force with considerable work experience, but the sample used here was fresh college graduates who were about to start their first job. Therefore, the gender income gap among work organizations likely starts widening much later in work life.

Likewise, to further examine whether female migrants experience a "double disadvantage effect" in terms of earnings attainment at different work organizations, the interaction effect between gender and graduate migration on the income outcome is added in Model 4. At government organizations, although female non-migrant graduates earn less, the statistically non-significant interaction term between gender and migrant status indicates that female graduates are not in a less advantageous position if they are also migrants, whereas the negative effect between gender and migration in the non-state sector shows that female graduates tend to earn less when they choose to work outside their hukou city. Although the effect is marginally significant, it still shows that female migrants suffer an income penalty in the Chinese graduate labor market, particularly when they work in the non-state sector.

Revisiting Table 4-3 reveals other vital factors associated with the starting salary of college graduates in China. Students' personal attributes such as pre-college hukou origin and ethnicity are not significantly associated with their starting salaries, which suggests that their human capital investment in education may compensate for their disadvantages in such aspects. However, the family background of college graduates and family income in particular, has a significantly positive effect on their earnings attainment. Since the outcome variable is the salary of the highest-paying offer, those from more affluent families are able to spend more time seeking and waiting for a higher-paying job offers.

Interestingly, academic performance at college such as undergraduate GPA, awards, CCP membership, and English language certification do not significantly contribute to college graduates' better labor market outcomes in China, no matter the type of work organization for which they are employed, whereas all these attributes significantly increase the likelihood of being a migrant (see Table A2 in the appendices). Fields of study are rewarded differently by different work organizations; compared to graduates from humanities and social sciences, those majored in engineering science and technology and joined the non-state sector tend to receive significantly higher salaries. Public enterprises show a different pattern: natural science majors earn significantly more than humanities and social sciences, whereas medicine, pharmaceutics, and agronomy graduates are paid less across different types of work organization. Unsurprisingly, as it is predicted elsewhere (Li et al. 2012), those graduating from "Project 211" are better paid than others in the

Chinese graduate labor market. Meanwhile, employment location is significantly associated with the graduates' initial salaries; those employed in first-tier cities are more likely to receive higher salaries than those employed elsewhere. This result suggests that in China, Beijing, Shanghai, Guangzhou, and Shenzhen very likely serve as national "escalator regions" (Fielding, 1992). This issue is discussed in detail in Chapter 6.

Table 4-3 Regression models predicting monthly starting salary with interactions between gender and graduate migration

Variable	Model 3			Model 4		
	Government organizations	Public enterprises	Non-state sector	Government organizations	Public enterprises	Non-state sector
Female	-0.240***	0.004	-0.084+	-0.209**	0.009	-0.036
	(0.064)	(0.044)	(0.042)	(0.063)	(0.043)	(0.047)
Migrant	0.013	0.024	0.025	0.061	0.028	0.071+
	(0.053)	(0.030)	(0.026)	(0.073)	(0.035)	(0.039)
Female × Migrant				-0.098	-0.012	-0.091+
				(0.097)	(0.072)	(0.048)
Pre-college hukou status (rural)	0.054	0.018	-0.029	0.053	0.018	-0.026
	(0.080)	(0.052)	(0.044)	(0.080)	(0.052)	(0.042)
Ethnic minority	-0.148	0.034	-0.059	-0.157	0.034	-0.062
	(0.165)	(0.042)	(0.068)	(0.169)	(0.042)	(0.069)
Age	-0.080*	-0.037*	0.014	-0.0803*	-0.037*	0.013
	(0.039)	(0.016)	(0.013)	(0.039)	(0.016)	(0.012)
One-child family	0.024	0.114*	-0.033	0.0163	0.114*	-0.033
	(0.066)	(0.052)	(0.045)	(0.063)	(0.052)	(0.044)
Parental education	-0.001	-0.006	0.007	-0.000	-0.006	0.007
	(0.011)	(0.008)	(0.005)	(0.011)	(0.008)	(0.005)
Log (annual family income per capita)	0.078*	0.058**	0.033*	0.078*	0.058**	0.033*
	(0.033)	(0.017)	(0.015)	(0.033)	(0.017)	(0.015)
Missing	0.070	0.032	0.034	0.089	0.032	0.036
	(0.108)	(0.073)	(0.149)	(0.093)	(0.072)	(0.152)
Standardized	0.010	-0.014	0.025	0.014	-0.014	0.025

undergraduate GPA						
	(0.036)	(0.026)	(0.018)	(0.033)	(0.026)	(0.017)
Missing	0.109	0.008	-0.014	0.109	0.007	-0.014
	(0.057)	(0.065)	(0.046)	(0.057)	(0.065)	(0.045)
Awards	0.102	0.070	-0.001	0.109	0.071	0.002
	(0.068)	(0.046)	(0.034)	(0.069)	(0.046)	(0.032)
CCP member	-0.042	0.012	0.031	-0.050	0.013	0.030
	(0.056)	(0.046)	(0.031)	(0.055)	(0.046)	(0.032)
Student organization participation	0.049	-0.011	0.085**	0.046	-0.012	0.080**
	(0.057)	(0.038)	(0.032)	(0.057)	(0.038)	(0.030)
Taken College English Test	0.149*	-0.117*	-0.008	0.159*	-0.116*	-0.011
	(0.062)	(0.046)	(0.049)	(0.061)	(0.046)	(0.048)
Field of study (Humanities & social sci.)						
Natural sciences	0.004	0.230*	0.019	0.006	0.231*	0.016
	(0.095)	(0.097)	(0.040)	(0.097)	(0.097)	(0.040)
Engineering sci. & tech.	-0.003	0.092	0.111*	-0.009	0.0921	0.108*
	(0.073)	(0.063)	(0.051)	(0.0743)	(0.063)	(0.050)
Agronomy	-0.128	-0.215**	-0.097*	-0.128	-0.215**	-0.098*
	(0.101)	(0.068)	(0.046)	(0.102)	(0.066)	(0.045)
Medicine and pharmaceutics	0.098	0.100	0.187+	0.100	0.100	0.192*
	(0.133)	(0.093)	(0.096)	(0.130)	(0.093)	(0.094)
Type of	0.025	0.120+	0.479**	0.0323	0.121+	0.484**

	(1)	(2)	(3)	(4)	(5)	(6)
college (Project 211)			*			*
	(0.102)	(0.069)	(0.127)	(0.104)	(0.069)	(0.126)
Survey year (2010)						
2013	0.097	0.192***	0.196**	0.102	0.192***	0.193**
	(0.100)	(0.054)	(0.061)	(0.096)	(0.053)	(0.061)
2015	0.238*	0.322***	0.276***	0.243*	0.322***	0.281***
	(0.106)	(0.046)	(0.059)	(0.107)	(0.045)	(0.058)
Employment location: First-tier cities	0.394**	0.355***	0.366***	0.395**	0.355***	0.372***
	(0.118)	(0.075)	(0.067)	(0.117)	(0.075)	(0.065)
Constant	8.617***	7.911***	6.782***	8.607***	7.908***	6.786***
	(0.994)	(0.430)	(0.291)	(0.983)	(0.437)	(0.280)
Adjust R^2	0.265	0.343	0.251	0.267	0.343	0.253
N	614	1,694	2,851	614	1,694	2,851

Note: Reference category in parentheses. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges. Model estimates were obtained by including the final weight, which is the product of a propensity score weight (correcting for graduate migration selection bias, Table A3 in Appendices) and the sampling weight.

[+]$p<.10$, *$p < .05$, **$p < .01$, ***$p < .001$.

4.5 SUMMARY AND DISCUSSION

Studies on international migration have consistently argued that immigrant women are disadvantaged twice: first as immigrants and second as women (Boyd, 1984; Raijman & Semyonov, 1997). In China, given the existence of the unique institutional context—the household (*hukou*) system and the rising gender inequality during market reforms, the present research argues that female graduate migrants have similar experiences in the Chinese labor market. Analyses from recent college graduates indicate that female graduate migrants, i.e. female graduates who have moved cities for employment, tend to have less access to government organizations and suffer an income loss in the more marketized sector.

The more significant hardships experienced by female graduate migrants can be attributed to two types of constraints. The first constraint is associated with coexisting with large gender discrimination in the marketized sector. Results from Ordinary Least Square (OLS) models show that in the non-state sector, female graduates suffer a double negative effect in earnings attainment when choosing to work outside their hukou city. Clearly, the gender income gap is significant and the net effect of demographic factors, academic performance, and social engagement on campus and labor market characteristics. Although migration is seen as an investment in human capital (Becker, 1962; Faggian et al., 2007), it does not bring a financial return to female graduates; instead of being compensation for the gender disadvantage, female graduates earn notably lower labor market rewards for being migrants. Accordingly, a double disadvantage is documented for female migrants from the analyses. Female migrants are equipped with human capital accumulation comparable to other graduate groups; however, the findings demonstrate the persistent effect of gender, which remains significant and influential, particularly with regard to the income penalty of female migrants.

The second constraint is rooted in hukou locality and the limited access to government organizations and public institutions afforded to female migrants. Results from multinomial logistic regression models show that female graduate migrants were less likely to enter government organizations and public enterprises, particularly government organizations. Although government organizations, public institutions, and (state-owned) enterprises have advantages in offering higher salaries

wages, better social welfare, and other social benefits (He & Wu, 2108; Wu, 2013; Wu & Song, 2013; Xiao & Bian, 2018), hukou locality discrimination tends to be very serious in these sectors. Thus, being involved in internal migration for female graduates means that they have fewer opportunities to enter government organizations and public institutions where they are more likely to achieve higher socioeconomic status.

This study represents a unique contribution to the existing literature in several ways. Gender inequality and hukou-based stratification have been well-studied separately in previous studies (He & Wu, 2018; Li et al., 2015); enlightened by the literature on international migration (Boyd, 1984), the current study examines the interaction between gender and migration in producing diverse labor market outcomes among migrant groups. In addition, while the literature on internal migrants in China has mainly focused on rural–urban migration, this paper studies an emerging type of migration—that of college graduates—that has resulted from the state's changing role in higher education; although education has been expected to be a fair solution to employment inequalities (Wu & Treiman, 2004; Yeung, 2013), its effect has been diminished by existing barriers based on gender and hukou locality.

5 RETURNING HOME FOR A BETTER JOB? RETURN MIGRATION, FAMILY BACKGROUND AND LABOR MARKET OUTCOMES AMONG RECENT COLLEGE GRADUATES IN CHINA

5.1 INTRODUCTION

In much of the literature concerning the subject of migration, the choice to return home is typically depicted as a sign of failure. Thus, in relation to human capital traits, a selective approach is employed to determine whether a migrant's return is negatively reflected in their potential earning power (De Haas, Fokkema, & Fihri, 2015; Shumway & Hall, 1996). A slightly different approach is adopted regarding the return of graduates, as it is viewed in the context of parents acting as a safety net during the transitional period between adolescence and adulthood (Sage et al., 2013).

Significantly, strategies surrounding graduation migration are not simply governed by the graduates alone; migration patterns appear to vary according to their family background. Thus, different students demonstrate a range of geographical movements during their emergence into adulthood. According to McGregor, Thanki, and McKee (2002), among graduates in Northern Ireland whose fathers are engaged in professional work, those who attend universities in Northern Ireland are less likely to live outside Northern Ireland than those who study elsewhere. Likewise, research in China by Du (2018) indicates a link between migration and parental occupation. Thus, graduates from privileged backgrounds where the father's occupation can be equated to that of a manager, are more likely to return to their home district, while those from less privileged backgrounds are more likely to migrate away from their home province after graduation.

After the expansion of higher education, the role of family background in students'

educational attainment in China has diminished. Therefore, intergenerational mobility has more robust links to employment market opportunities than to educational attainment (Li et al., 2012). Thus, graduates from more affluent backgrounds may be able to access superior earning opportunities than graduates who—despite having equivalent academic experience—enjoy less socially and economically privileged circumstances.

Drawing on data from three waves of the CCSS (2010, 2013, and 2015), this study investigates the impact of graduate return migration on the labor market outcomes among recent college graduates in China. This paper extends previous research by examining the association between family background and college graduates' return migration behavior, and thus the labor market consequences of the intersection between geographical mobility and the intergenerational mobility. It shows that in the Chinese context, family background (such as parental political capital) should be included to the analysis of graduate return migration. In addition, it shows that graduate returnees do not fare worse than onward migrants in China's labor market; instead, they have the advantage of getting jobs in the state sector and receiving higher salaries.

The following sections are organized as follows. First, I summarize the literature on return migration from the migration literature and youth studies, and then I review the influence of family background on graduate employment. Next, I discuss the sample, variables of interest, and what analytical strategy is employed in the study. After that, I presented the empirical results of the estimates of the work organization entry model and salary analyses. In the Summary section, I discuss the findings and its potential theoretical implications.

5.2 THEORETICAL BACKGROUND

5.2.1 RETURN MIGRATION: CORRECTIVE STRATEGY OR SAFETY NET?

The conventional approach to migration adopted in much of the literature employs a model based upon human capital theory. Thus, migration is viewed as the means by

which individuals optimize their effectiveness through geographical relocation to localities that present the greatest opportunities for them to act productively (Shumway & Hall, 1996). In other words, they move to locations where they can accrue the greatest returns on their personal human capital (Sjaastad, 1962; De Haas et al., 2015). Consequently, returning after a period away is deemed to indicate a scenario in which reality fails to match expectations, such as failure to find employment and thus improve one's life in the host community. As stated by De Haas et al. (2015), return migration is regarded as *de facto* evidence of failure.

In addition, it is worth noting that one defining feature of many migrants is self-selection, which distinguishes them markedly from members of their native population who are stayers. This characteristic could be associated with wider differences between migrants and stayers, which might have implications for their earning potential (Shumway & Hall, 1996). In general, the self-selection of migrants has positive connotations in that such individuals are more advantaged or able than non-migrants and thus possess the capacity to surmount any problems they encounter (Wang & Fan, 2006). This is confirmed to some extent by research into return migrants, which indicates the preponderance of negative selection wherein return migrants characteristically present lower incomes. This particularly applies to return migrants from the countryside who tend to have lower levels of education, are comparatively unskilled, and manifest limited ability to adapt to urban existence (Wang & Fan, 2006). Similarly, research pertaining to return migrants who are graduates suggests that these individuals tend to possess lesser degree grades. Thus, returning to a native province constitutes what Davanzo (1976) refers to as a corrective measure. In other words, returnees have been less successful than they had anticipated (Di Cintio & Grassi, 2013; Jewell & Faggian, 2014).

In the specific group of graduates, return migration has also attracted the attention of scholars. Some scholars hold views similar to those of migration scholars, and think that return migration is negative: Rutten and Verstappen (2014) believe that moving away from their parents' home is the first step towards independence and adulthood. Therefore, the return of graduates is often described as prolonged adolescence (Roberts, Noden, West, & Lewis, 2016). It is even more straightforward to point out that the parent's home is a back-up option and should only be resorted to when all other

approaches have failed (Roberts et al., 2016). However, there are also different voices. Drawing upon recently collected primary data from a retrospective survey of the migration histories of a cohort of students who left the University of Southampton (UK) between 2001 and 2007, Sage et al. (2013) carefully examined the highly-educated migrants Reasons and motivations. They found that nearly half of the respondents had returned to the parental home at some stage within 5 years of graduating from university, and finding a job (20.8%) and buying a house (10.8%) became the main reasons for returning home. Therefore, they proposed a new explanation for the return migration of graduates: Return migration is more likely to be a strategic action, and this choice can be seen as a legitimate and rational way to negotiate what is usually encountered in early adulthood. problem. In this process, the parental home played the role of a safety net, providing them with financial support and psychological comfort in times of instability.

5.2.2 FAMILY BACKGROUND AND GRADUATE EMPLOYMENT IN CHINA

There is substantial evidence that indicates the crucial role played by family background in determining the life opportunities of young people in China (Du, 2018; Walder & Hu, 2009). There is abundant evidence in research into contemporary Chinese society to suggest that a graduate's academic record and their family background are both determiners of their job market success (Li et al., 2012; Liu, 2016). This situation is particularly marked in the case of cadre parents, i.e. parents who hold managerial positions in the Chinese civil service. Their children may not be inherently more intelligent than their non-cadre peers, but they will experience advantages such as having superior education resources in early childhood and later gaining places at elite colleges (Yang & Chen, 2016). The concept of guanxi, or social connections, is commonly considered alongside family background in discussions surrounding the issue of the intergenerational transfer of status (Du, 2018; Huang, 2008). Liu's (2016) qualitative study on employment among graduates suggests that middle-class parents are actively involved in their children's search for employment, regulating their job searches and using their social and cultural capital to maximize their children's opportunities.

5.3 DATA AND METHOD

5.3.1 DATA

Analyses were based on data from three waves of the CCSS (2010, 2013, and 2015). The final sample contained 5,906 respondents (see Chapter 3). Further, in the current study, I excluded those who never moved for either higher education or employment because of the specific research interest (N = 1,171). Thus, 4,735 respondents were left in the analytical sample, among whom 835 were return migrants and 3,900 were onward migrants.

5.3.2 VARIABLES

DEPENDENT VARIABLES

To examine the relationship between return migration and the labor market outcomes of fresh college graduates in China, two measures are used as dependent variables in the following analyses. The first was entry into different types of work organization. The second outcome was the log-transformed monthly starting salary, which is the same measure as in Chapter 4.

GRADUATE MIGRANT STATUS

In the present study, college graduates were divided into two groups according to their migrant status: Graduate return migrants are individuals who chose to return to their hukou city for their first employment upon graduation, graduate onward migrants are those who choose to make a move and work outside their hukou city after leaving college.

GUANXI (SOCIAL CONNECTIONS)

Social connection in job-seeking was used as a proxy for *Guanxi*. In the CCSS survey, respondents in their last term of undergraduate studies who were job seekers were asked whether they had ever used help from acquaintance, relatives, or friends when job

seeking. If the graduate had been helped by social connections for employment, the variable was given a value of 1 and was 0 otherwise.

FAMILY BACKGROUND

Five measures were used as proxies for family background. The first measure was a dummy variable for individuals from single-child families. The number of siblings has a long-term influence on parental investment in education and individuals' own migration decisions (Hu & Shi, 2018). The second was parental education, which was measured by the years of schooling completed by the mother or the father, whichever was longer. The third measure was a continuous variable: family income per capita in the year preceding the survey. Family socioeconomic status is important for determining both migration patterns and life opportunities of young Chinese people (Du, 2018). Similar to the salary outcome variable, a log-transformation was applied to this predictor before inclusion in the analysis. The third predictor was a dummy variable of cadre parent status. Following Yang and Chen (2016), a graduate was identified as 1 if at least one of their parents held a position in a government organization or public institution, and as 0 otherwise. Lastly, parents' CCP membership was 1 if at least one of their parents was a CCP member and 0 otherwise.

CONTROL VARIABLES

Variables that measured other demographic factors likely to affect labor market outcomes were included in the following analyses such as gender, age, and ethnicity. A detailed specification can be found in Chapter 3 (see the "Independent Variables" section).

5.3.3 ANALYTIC STRATEGY

To examine whether graduate return migrants are better off or worse off compared to their onward counterparts in China's urban labor market, I first investigated the impact of return migration on the likelihood of employment in governmental organizations or public enterprises relative to the non-state sector (Table 5-2). Then, I examined its association with salary outcome (Table 5-3). Since the dependent variable of work

organization entry is a nominal variable with three categories, multinomial logistic models are used and three models are presented for my analysis. The baseline model displays differences in employment at government organizations and public enterprises relative to the non-state sector between graduate return migrants and graduate onward migrants and includes control variables. The second model includes important indicators of family background and examines their sector entry effects. The last model considers the interaction effect between familial capital and return migration to investigate the extent to which it moderates the link between graduate return migration and work organization entry. All regression models included control variables, i.e. variables that measure other demographic factors likely to affect labor market outcomes.

Regarding the monthly starting salary, a return migration selectivity control variable was included in models to account for migration self-selection issues. For this, the analysis applied Heckman's two-step procedure. In the first step of this procedure, the self-selection control factor λ, which is also known as the inverse Mill's ratio, was computed by estimating a probit regression (Heckman, 1979; Shumway & Hall, 1996). In the second step, λ was included as an additional explanatory variable when estimating the effect of return migration on the monthly starting salary (see Table A1 for results of the migrant selection tests). Ordinary least squares regression models are employed and four models are presented in the following analysis. Specifically, the baseline model examined the income effect of graduate return migrant status without considering migrant self-selectivity. The second model accounted for migrant selectivity with all independent variables described in the variables section and different work organization settings. The last two models examined the effects of migration, individual characteristics, family background, and work organizations separately on return and onward migrants' initial earnings. These two models were designed to explore whether the abovementioned factors influenced the earnings attainment of graduate return migrants and those of graduate onward migrants similarly.

5.4 RESULTS

DESCRIPTIVE STATISTICS

Table 5-1 reports a basic overview of the graduates' characteristics in our sample. Return migrants differ from onward migrants in many aspects.

In terms of the key variables of interest, namely social connection in job-seeking and family background, graduate return migrants tend to use more help from their social networks than graduate onward migrants do. Thirty-three percent of the graduates who move back to their home cities indicated that they have used social connections when job seeking, compared to 22% of students who move to other cities and reported that they have gained support in the job-seeking process from acquaintances, relatives, or friends. Besides, graduates who choose to return home for a job are more likely to be singletons from one-child urban families with higher family income, cadre parents, and more familial political capital.

This is a different story for individual-level demographic characteristics and education-related variables. Compared to onward migrants, return migrants are less likely to have better college academic performance such as having a higher undergraduate Grade Point Average (GPA), winning awards in college, joining the Communist party, or participating in student associations. This is in line with the migration literature that return migrants are often negatively selected from the population for human capital characteristics (Shumway & Hall, 1996; Kazakis & Faggian, 2017).

Interestingly, even though graduate return migrants are not equipped with more human capital from college, they are not necessarily worse than onward graduate migrants with respect to labor market outcomes. First, in the sample, graduates moving back to their home province for their first employment reported higher monthly starting salary than those moving across provinces upon graduation ($M_{return} = 3{,}018.81$, $SD_{return} = 1{,}606.15$; $M_{onward} = 2{,}903.69$, $SD_{onward} = 1{,}737.64$). On average, college graduate return migrants tend to earn 0.5% more than onward migrants and the income difference is significant at the 0.1 level.

Second, regarding another important indicator of labor market outcome, sector entry of

the first employment, Table 5-1 shows that although more than half of respondents reported that they were employed in the non-state sector (63% of the sample, on average), this was less likely to be the case for migrants who chose to return home relative to graduates who moved across provinces for employment: 52% of them ended up in the non-state sector while this was 65% for onward migrants. Compared with students who migrated to other cities, return migrants seem to have more opportunities to enter the state sector; 15% of them were employed in governmental institutions, which is significantly higher than that of onward migrants (7%). In addition, 33% of return migrants were hired by public enterprises, while 28% of return migrants secured job offers from such enterprises.

In the following section, multivariate models were used to examine the difference between return migrants and onward migrants in job-sector placement and earnings attainment, and the extent to which the difference could be understood as the impact of family background.

Table 5-1 Descriptive statistics of college graduates by graduate migrant status

Variable	All	Return migrant	Onward migrant	F/X2 Difference
Ln (starting monthly salary)	7.80 (0.48)	7.83 (0.49)	7.79 (0.47)	.097
Work organization				
Government organization	.09	.15	.07	
Public enterprise	.29	.33	.28	
Non-state sector	.63	.52	.65	
Guanxi	.26	.37	.25	<.001
One-child family	.27	.40	.25	<.001
Parental education	9.68 (3.60)	10.28 (3.61)	9.54 (3.59)	<.001
Ln (annual family income per capita) [a]	9.04 (1.16)	9.38 (1.19)	8.96 (1.14)	<.001
Missing	.01	.14	.11	.010
Cadre parent status	.05	.08	.04	.134
Parents' CCP member	.22	.30	.20	.020
Rural hukou origin	.66	.50	.69	<.001
Age	23.07 (1.03)	22.97 (0.96)	23.10 (1.04)	<.001
Female	.42	.54	.40	.002
Ethnic minority	.06	.05	.06	.247
Standardized undergraduate GPA	-.002 (0.88)	-.07 (0.97)	.01 (0.86)	.195
Missing	.21	.20	.21	.639
CCP member	.30	.24	.32	.007
Student organization participation	.65	.65	.65	.367
Awards	.62	.55	.63	.253
CET−4 certificate	.93	.90	.93	.259

Field of study				
Natural sciences	.07	.07	.07	
Engineering science and technology	.44	.31	.46	
Agronomy	.01	.01	.01	
Medicine and pharmaceutics	.05	.08	.04	
Humanities and social science	.43	.54	.42	<.001
Type of university (Project 211)	.04	.03	.04	.092
Employment location: First-tier cities	.24	.11	.27	<.001
N	4,735	835	3,900	

Note: Samples are weighted to represent the population. Figures reported for continuous variables are mean and standard deviations (in parentheses), and for categorical variables are proportions. Column proportions may not sum to 1 per cent due to rounding. CCP = Chinese Communist Party. CEE = College Entrance Examination. GPA = Grade Point Average. The same below in Table 5-2 and Table 5-3.

a Bottom-coded the 1st percentile to minimize the influences of outlier cases.

WORK ORGANIZATION ENTRY

Table 5-2 presents the results from multinomial logistic regression models that estimate the effect of graduate return migration on the odds of being employed at a government organization or public enterprise, compared to the non-state sector. Model 1 shows that graduates who move back to their home cities for jobs have more opportunities to get placements in government organizations and public enterprises and the effect of return migration is statistically significant across models. Since these work organizations tend to recruit graduates with pre-college local hukou, it is unsurprising that return graduate migrants enjoy advantages in accessing such employment opportunities compared to migrants who move to other cities.

It is notable that some control variables are significantly associated with the work organization entry of college graduates in China. Even though attending college is considered an important channel of upward social mobility for students with rural origins

(Yeung, 2013), the significant negative coefficients of pre-college rural hukou across models suggests that graduates with rural origins may have fewer opportunities to enter government organizations and public enterprises compared to their counterparts with urban origins. Female graduates are less likely to be employed in government organizations and public enterprises, and the effect of gender is significant for public enterprises. Similar to other countries (Roksa, 2005), among graduates in China, fields of study strongly influences entry into different work organizations: compared to graduates in humanities and social sciences, those from engineering sciences and technology are more likely to be employed in public enterprises than in the non-state sector; whereas graduates who study medicine and pharmaceutics tend to have more opportunities to work in government organizations.

After family background characteristics are added to Model 2, the coefficients for return migration become larger and retain statistical significance at the .01 level. This result suggests the moderating effect of familial capital in the association between graduate return migration and graduates' sector entry. Besides, *guanxi* is found to be negatively associated with the likelihood of being employed at a government organization or public enterprise, although the association is not significant. Individuals who have ever used some form of social ties (*guanxi*) seem not to have substantively benefited from such usage in terms of job attainment. This result differs slightly from previous literature, which argues the importance of social ties in getting jobs in urban China's labor market (Huang, 2008). One potential explanation for this might be that since the civil service reform in 1990s, the public service sector has recently relied more heavily on examinations for recruitment (Burns & Xiaoqi, 2010). Therefore, government jobs are more selective on applicants' merits instead of their social connections. Model 2 also suggests that other types of familial capital are not significantly associated with graduates' job placement except for the political capital and parental CCP membership, which significantly increase the likelihood of being employed in government organizations.

To further examine how family background contributes to graduate migrants' labor market outcomes in terms of access to government organizations and public enterprises, an interaction term between graduate migrant status and parental party membership is

added to Model 3. Model 3 shows that the influence of political capital moderates the association between graduate return migration and sector entry. The return migrant * parental party membership coefficient indicates that the positive association between graduate return migration and entering government organizations and public enterprises is stronger among individuals who have at least one parent who is a CCP member. This particularly holds true for government organizations as the interaction term is significant at the .05 level. Return migrants are directly helped by parental political capital in job attainment in the state sector. Therefore, in addition to local hukou status, family background (particularly parental political influence) plays a prominent role in the relationship between graduates moving back for jobs and employment in the state sector in the Chinese graduate labor market.

Table 5-2 Multinomial regression models predicting the likelihood of employment in the government organization and public enterprise compared with the non-state sector

| Variable | Model 1 | | | | Model 2 | | | | Model 3 | | | |
| | Government organization | | Public enterprises | | Government organization | | Public enterprises | | Government organization | | Public enterprises | |
	Coef.	S.E.	Coeff.	S.E.	Coef.	S.E.	Coeff.	S.E.	Coef.	S.E.	Coeff.	S.E.
Return migrant (ref.=Onward migrant)	0.563**	(0.209)	0.418*	(0.180)	0.629**	(0.192)	0.515*	(0.206)	0.060*	(0.259)	0.478*	(0.234)
Rural hukou origin	-0.900***	(0.237)	-0.553***	(0.159)	-0.175	(0.262)	-0.316	(0.173)	-0.233	(0.214)	-0.275	(0.171)
Age	0.040	(0.099)	-0.173	(0.122)	0.017	(0.120)	-0.126	(0.105)	0.091	(0.102)	-0.150	(0.123)
Female	-0.587	(0.461)	-0.676**	(0.257)	-0.547	(0.341)	-0.643*	(0.262)	-0.465	(0.398)	-0.653*	(0.263)
Ethnic minority	-0.704	(0.437)	0.281	(0.241)	0.084	(0.476)	0.158	(0.312)	-0.775	(0.402)	0.232	(0.254)
Standardized undergraduate GPA	-0.058	(0.138)	0.081	(0.057)	0.073	(0.132)	0.213*	(0.092)	-0.044	(0.120)	0.088	(0.058)
Missing	-0.602***	(0.166)	-0.099	(0.109)	-0.391	(0.209)	-0.277	(0.177)	-0.433*	(0.209)	-0.059	(0.115)
CCP member	0.057	(0.320)	0.146	(0.300)	0.430	(0.329)	0.135	(0.271)	0.075	(0.320)	0.155	(0.307)
Student organization participation	0.382	(0.200)	0.290	(0.198)	0.341	(0.246)	-0.030	(0.208)	0.310	(0.216)	0.273	(0.181)

Awards	0.385	(0.419)	-0.014	(0.231)	-0.024	(0.337)	0.044	(0.224)	0.273	(0.368)	-0.010	(0.229)
CET−4 certificate	-0.203	(0.286)	0.331	(0.299)	-0.182	(0.344)	0.435	(0.349)	-0.277	(0.296)	0.291	(0.304)
Field of study (ref. = Humanities & social sci.)												
Natural sciences	-0.892	(0.474)	-0.031	(0.376)	-0.866	(0.468)	0.088	(0.385)	-0.923	(0.505)	-0.042	(0.384)
Engineering science and technology	-0.841**	(0.265)	0.878**	(0.306)	-0.826**	(0.272)	0.944***	(0.260)	-0.821**	(0.254)	0.908**	(0.304)
Agronomy	-1.942	(1.214)	-3.097***	(0.818)	-1.216	(1.103)	-3.609***	(0.668)	-2.722*	(1.224)	-3.500***	(0.909)
Medicine and pharmaceutics	2.240***	(0.354)	0.390	(0.446)	2.408***	(0.405)	0.916	(0.611)	2.264***	(0.321)	0.376	(0.458)
Type of university (Project 211)	0.853**	(0.320)	0.426	(0.279)	0.785*	(0.358)	0.610	(0.467)	0.856**	(0.317)	0.418	(0.283)
Guanxi					-0.061	(0.267)	0.198	(0.190)	-0.401	(0.257)	0.141	(0.199)
One-child family					0.650**	(0.246)	0.062	(0.186)	0.361	(0.210)	-0.083	(0.171)
Parental education					0.020	(0.027)	0.009	(0.028)	0.020	(0.042)	0.016	(0.035)
Log (annual					-0.036	(0.087)	0.054	(0.081)	-0.044	(0.118)	0.060	(0.103)

family income
per capita)

Missing					1.331	(0.704)	0.204	(0.308)	1.779***	(0.898)	0.177	(0.410)
Cadre parent status					-0.390	(0.465)	-0.331	(0.514)	0.233	(0.414)	-0.012	(0.268)
Parents CCP member					0.672***	(0.178)	0.210	(0.131)	0.432	(0.278)	0.210	(0.173)
Return migrant *Parents CCP member									0.843*	(0.389)	0.099	(0.371)
Employment location: First-tier cities	-0.419	(0.328)	-0.583**	(0.213)	-0.368	(0.286)	-0.504*	(0.219)	-0.400	(0.353)	-0.573**	(0.215)
Survey year (ref.=2010)												
2013	0.449	(0.336)	-0.155	(0.327)	0.171	(0.296)	-0.404	(0.296)	0.469	(0.308)	-0.162	(0.324)
2015	0.451	(0.677)	-0.541	(0.454)	0.550	(0.573)	-0.538	(0.387)	0.525	(0.614)	-0.537	(0.459)
Constant	-2.413	(2.238)	3.117	(2.659)	-2.626	(2.824)	1.306	(2.387)	-4.147	(2.479)	1.758	(2.759)
Pseudo R2	0.115				0.139				0.139			
N	3,964				3,964				3,964			

Note: Reference category in parentheses. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges. Model estimates were obtained by including the final weight, which is the product of a propensity score weight (correcting for graduate return migration selection bias, Table A5 in Appendices) and the sampling weight.

$^{+}p<.10, *p < .05, **p < .01, ***p < .001.$

SALARY ANALYSES

Table 5-3 reports the parameters of the ordinary least-squares (OLS) regression analyses predicting monthly starting salaries of college graduates in China. Three models are designed to disentangle the earnings influence of return migration versus onward migration among college graduates in China, and to what extent students' family background and the labor market characteristics (i.e., different work organization entry) contributes to the potential income difference between return migrants and onward migrants. Model 4 shows that, after controlling for all the other variables, the return migration variable has a positive but insignificant effect on the starting salaries of graduates. This result suggests that, for college graduates in China's urban labor market, whether they return to their per-college hukou-registered city or move to a new city has no impact on their economic gains. After including the migrant self-selection bias, in Model 5, the coefficient of the return migration variable remains positive and statistically insignificant. The migrant selectivity variable is not significant, either. Therefore, in the context of the Chinese graduate labor market, graduate return-migrants are not much different from the onward migrants with respect to the characteristics that determine initial earning attainment. Graduate migrants are not negatively selected into return migration.

Interestingly, Model 5 suggests that family background characteristics are not directly related to graduates' monthly starting earnings. This finding is inconsistent with previous research, which reported that having a cadre parent is associated with a wage premium of as much as 15% (Li et al., 2012). The discrepancy in the findings is probably a result of differences in the data that was used; my study was limited to graduate migrants (i.e., those who have moved at some point after finishing undergraduate studies).

As expected, the coefficient associated with work organizations is statistically significant. Relative to entering the non-state sector for the first job, entering government organizations or public enterprises is associated with a 12.4% and 5.2% increase in the starting salaries, respectively. This is consistent with previous studies which find that government organizations, public institutions and (state-owned) enterprises have advantages in offering higher salaries, better social welfare, and

other social benefits (He & Wu, 2108; Wu & Song, 2013; Wu, 2013; Xiao & Bian, 2018). Although return migrants do not perform better in human capital characteristics, this result implies that the slightly higher salaries of return migrants, as shown in Table 5-3, is probably due to their advantages in entering these positions as return migrants.

With respect to the control variables, female graduates are significantly paid less than their male counterparts, which corresponds to the results in Chapter 4. College performance characteristics, such as student organization participation and awards, are positively associated with an individual's starting salary. As reported elsewhere (Li et al., 2012), graduates from "Project 211" are better paid than others in the Chinese graduate labor market. Not surprisingly, individuals working in first-tier cities are more likely to receive higher initial salaries than others.

Models 6 and 7 investigate the effects of migration, individual characteristics, and family background and work organizations for return and onward migrants on the initial earnings, separately. Results show that graduate return migrants and onward migrants share some similarities. As predicted for the total sample, the coefficients associated with the lambda for both migrant groups are not significantly different than zero. This confirms that migrant selectivity is not a major reason for the income difference between graduate return migrants and graduate onward migrants. In terms of family background influence and college performance, the income effects of fields of study and type of university are very different for return and onward migrants. For graduate return migrants, the association between fields of study and the salary outcome is consistently statistically insignificant; while among onward migrants, individuals who majored in natural sciences and engineering science and technology received significantly higher salaries, and those in agronomy are paid lower, compared with those majored in humanities and social sciences. Besides, for example, individuals who graduate from "Project 211" are paid 17.9 % more when they chose to work outside their hukou city, whereas those who chose to return home hardly enjoy any advantage.

The work organization variables show a similar pattern for both migrant groups. Being employed in government organizations and public enterprises are positively associated with the starting salaries of return migrants and onward migrants. However, for return migrants, only the effect for government organizations is

marginally significant, while for onward migrants, only the effect for government organizations is significant at $p < .05$. Consistent with the above finding that working in the state sector (including government organizations and public enterprises) may be the cause for the difference in salary outcome, this result further indicates that return migrants have slightly higher initial salaries mainly because they are at an advantage in terms of entry into government organizations and public enterprises for employment.

Table 5-3 OLS regression models predicting monthly starting salary of college graduate migrants in China

Variable	Model 4		Model 5		Model 6 (Return migrants)		Model 7 (Onward migrants)	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Return migrant (ref.=Onward migrant)	0.043	(0.027)	0.026	(0.025)	-	-	-	-
Migration (λ)			-0.022	(0.026)	-0.022	(0.051)	-0.015	(0.027)
Work organization (ref.= Non-state sector)								
Government organization	0.146*	(0.072)	0.124+	(0.068)	0.130+	(0.072)	0.129	(0.079)
Public enterprise	0.062**	(0.019)	0.052**	(0.017)	0.096	(0.061)	0.039*	(0.019)
Guanxi	-0.047	(0.029)	-0.048	(0.029)	-0.059	(0.058)	-0.045	(0.030)
One-child family	0.037	(0.027)	0.039	(0.031)	-0.029	(0.048)	0.058	(0.035)
Parental education	0.002	(0.003)	0.004	(0.003)	0.010	(0.007)	0.001	(0.005)
Log (annual family income per capita)	0.037**	(0.011)	0.031**	(0.013)	0.032	(0.021)	0.032**	(0.014)
Missing	0.041	(0.040)	0.056	(0.047)	-0.016	(0.069)	0.086	(0.046)
Cadre parent status	0.025	(0.047)	-0.018	(0.049)	-0.105	(0.070)	-0.001	(0.057)
Parents CCP member	0.0002	(0.020)	0.004	(0.022)	0.068	(0.053)	-0.012	(0.027)

Rural hukou origin	-0.003	(0.019)	0.003	(0.023)	-0.008	(0.035)	0.008	(0.031)
Age	-0.018	(0.012)	-0.021	(0.012)	-0.017	(0.020)	-0.021	(0.013)
Female	-0.084***	(0.019)	-0.087***	(0.024)	-0.133***	(0.037)	-0.073*	(0.029)
Ethnic minority	0.068	(0.042)	0.025	(0.031)	0.064	(0.072)	0.013	(0.033)
Standardized undergraduate GPA	0.006	(0.015)	0.010	(0.013)	0.009	(0.019)	0.011	(0.016)
Missing	-0.015	(0.028)	-0.017	(0.026)	0.016	(0.060)	-0.023	(0.026)
CCP member	0.017	(0.018)	0.025	(0.022)	0.034	(0.051)	0.026	(0.028)
Student organization participation	0.048***	(0.008)	0.031*	(0.012)	0.041	(0.065)	0.027	(0.018)
Awards	0.066***	(0.015)	0.057**	(0.017)	0.076*	(0.032)	0.046*	(0.023)
CET−4 certificate	0.006	(0.036)	-0.009	(0.037)	-0.039	(0.083)	0.0001	(0.040)
Field of study (ref. = Humanities & social sci.)								
Natural sciences	0.109***	(0.028)	0.122***	(0.033)	0.025	(0.065)	0.143***	(0.039)
Engineering science and technology	0.108**	(0.034)	0.129***	(0.033)	0.064	(0.049)	0.147***	(0.039)
Agronomy	-0.101	(0.070)	-0.089*	(0.033)	0.007	(0.112)	-0.121**	(0.042)
Medicine and pharmaceutics	0.190	(0.107)	0.146	(0.115)	-0.069	(0.109)	0.222	(0.116)
Type of university (Project 211)	0.148***	(0.040)	0.152***	(0.041)	0.045	(0.064)	0.173***	(0.042)
Employment location: First-tier cities	0.204***	(0.053)	0.187**	(0.058)	0.273**	(0.089)	0.179**	(0.062)

Survey year (ref.=2010)								
2013	0.288***	(0.041)	0.289***	(0.040)	0.239***	(0.059)	0.306***	(0.039)
2015	0.421***	(0.054)	0.425***	(0.051)	0.351***	(0.080)	0.442***	(0.050)
Constant	7.712***	(0.268)	7.828***	(0.270)	7.915***	(0.544)	7.778***	(0.289)
Adjust R2	0.236		0.236		0.193		0.360	
N	4,730		3,964		817		3,147	

Note: Reference category in parentheses. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

$^+p<.10,$ *$p < .05,$ **$p < .01,$ ***$p < .001.$

5.5 SUMMARY AND DISCUSSION

Using data from the national representative survey on recent college graduates in China, this study investigates the influence of graduate return migration on sector entry and initial salaries in the Chinese graduate labor market. Unlike existing research, in which graduate migration behavior is usually analyzed as an individual behavior of college graduates themselves, the present work emphasizes the role that family background plays in the graduate migrating process and provides new insights in understanding the intergenerational mobility of socioeconomic status from a migration perspective. Several questions have been addressed in this regard. Do graduates who moved back home after finishing undergraduate studies have better outcomes than those moving elsewhere? Does selection bias affect the income gains from return migration? How does family background influence the labor market outcomes of graduate migrants?

First, this study lends support to previous findings in the literature on China's *hukou* system and its impact on the labor market outcomes (Cheng et al., 2013; Li et al, 2015; Zhang & Wu, 2017). The results reveal that, after controlling for the effect of demographic characteristics, human capital accumulation in college, and family background, graduates moving back to their home cities for job were still more likely to get a placement in government organizations and public enterprises, relative to onward migrants. The observed unequal access to the state sector jobs could be attributed to the local and non-local difference defined by hukou (Chan & Buckingham, 2008; Xiao & Bian, 2018). Return migrants are local hukou holders in the city where they found a job; it is not surprising that they enjoy advantage to be provided with more employment opportunities from the state sector. Thus, in Chinese society, the consequence of graduate return migration is deeply influenced by the unique institutional arrangement.

Second, the findings indicate the important role of family political capital in determining the labor market outcomes of graduate return migration. In terms of entry into different types of work organizations, the interaction term between return migration and parental Party membership is statistically positive, indicating that graduate return migrants were even more likely to enter government organizations

and public enterprises if at least one parent is a CCP member. Broadly consistent with earlier studies examining the role of family background (McGregor et al, 2002; Du, 2018), this work finds a positive relation between privileged family background and the probability of employment attainment in the state sector after graduation. Furthermore, youngsters from privileged family backgrounds take advantage of parental resources to enter the state sector if they move back home more than those who moved outside. Therefore, return migration is considered to be a strategy for upward social mobility taken by college graduates from privileged families, and family background plays an important role in shaping differences in labor market outcomes among the graduate migrating population. Despite the fact that the studied group is highly educated young adults, their labor market outcomes are deeply influenced by their family background rather than their human capital investments during college.

In addition to revealing the role of family background as discussed above, the analyses shed light on migrant selectivity issues of graduate return migration. In line with previous literature (Cintio & Grassi, 2013; Jewell & Faggian, 2014), descriptive figures indeed show that graduate return migrants are not as successful as they hoped in terms of college performance on campus. Interestingly, individuals who chose to return have slightly higher earnings than those who moved elsewhere. How can we explain this small gap in earnings? Results from salary analysis shows that in China's urban labor market, the choice of college graduates of returning to their hukou city itself has no impact on their economic returns in labor market—that is, migrant selectivity is not the reason for difference in initials salaries between graduate return migrants and graduate onward migrants. The positive association between entering the state sector and earnings attainment suggests that the income premium of return migrants may be because they have more opportunities for employment in the state sector. Apparently, in China's labor market, return migrants, unlike their western counterparts, are in a favorable position. They are more likely to be channeled into the sector that offers more promotion opportunities, fringe benefits, and job stability (Wu & Song, 2013) because of their local hukou status and the influence of family political capital; and such advantage in the job-placement compensates their disadvantage in human capital characteristics and enables them to earn higher salaries than their migrating peers.

The findings in this study are subject to at least three limitations. First, the current study only examines the economic outcome of return migration. Studies from other areas have shown that the choice of moving back may also be related to other aspects of life, such as marriage (Crescenzi & Holman, 2017) and elderly parent care (Sage et al., 2013). Further work needs to be done with more focus on non-pecuniary influence of return migration from a life course perspective. In addition, this study employs a solely quantitative approach (without qualitative analysis). Future research could incorporate the qualitative perspective for analysis, or to adopt a mixed-method research design. This could help researchers gain an in-depth understanding of the motivation of college graduates to choose to return home after finishing undergraduate studies. Third, results from logistic regression models in Appendices (Table A12) show that, unlike in previous studies, Guanxi (social connections) seems to be not actively involved in graduate employment—neither the return migration decision, nor the labor market outcomes. Thus, future research should investigate whether Guanxi still plays a role in the migration decision process of highly educated migrants. Notwithstanding these limitations, the current findings add to a growing body of literature on the consequences of return migration and how geographic mobility intersects with intergenerational mobility and contributes to the labor market outcomes in a non-Western context.

6 MOVING TO „BEI-SHANG-GUANG"? INTERNAL MIGRATION, LOCAL HUKOU BARRIER AND LABOR MARKET OUTCOMES AMONG COLLEGE GRADUATES IN CHINA

6.1 INTRODUCTION

Young people, who are at the start of their work lives, move around to seek opportunities to achieve upward social mobility (Fielding, 1992; Findlay, Mason, Houston, McCollum, & Harrison, 2009). Within a state, large urban centers, especially global cities, are key sites to attract a large number of highly educated migrants for their privileged role in the national space economy (Findlay et. al.2009; Wang et al., 2017).

The "escalator region hypothesis," which was first framed by Fielding (1992), has been argued to be of great help to understand the role of large urban centers in the complicated relationship between labor market outcome and migration. The escalator region hypothesis holds that, in a country's urban system, some cities, typically the large urban centers, like escalators, can help the young people who move there to improve their socioeconomic status faster than people moving to other localities because of the abundant employment opportunities. Specifically, Fielding (1992) used a three-stage model to categorize the escalator region: At the beginning of their career development, young people are attracted to "step on the escalator region". In the escalator region, young people are able to get promotion in professions and move up a social ladder quickly. In middle age or later in their careers, these migrants will choose to "step off the escalator" (Fielding, 1992; Findlay et al., 2009; Newbold & Brown, 2012).

To the best of the present author's knowledge, studies that have tested test the escalator region hypothesis are mostly grounded in western economies. For instance,

in the UK, after Fielding's research on the London metro area (Fielding, 1992), a large body of literature has paid particular attention to London and its surrounding labor market in South-East England (Findlay et al, 2009; Gordon, 2015; Gordon, Champion, & Coombes, 2015; Van Ham, Findlay, Manley, & Feijten, 2012). Apart from London, in England, the second- order cities such as Birmingham, Manchester, and Leeds also perform as human capital escalators, and in-migrants to these cities were found to experience the similar upward social mobility to that were found for migrants into London (Champion, Coombes, & Gordon, 2014). Edinburgh, as the regional capital of Scotland, has emerged as the most crucial regional escalator in Scotland (Findlay et al., 2009). In Canada, not surprisingly, Toronto, the most significant metropolitan area of the country, serves as the national escalator region, and workers moving there earn more than others who migrated to other cities or those who stayed put (Newbold & Brown, 2012; Newbold, 2015).

China provides a compelling case to test the escalator hypothesis in a non-western setting for two reasons. First, since the start of the economic reform in 1978, large cities located on the eastern and southern coasts have become the most efficient and productive economic centers for capital investment and production (Hao & Tang, 2018). Although there are no generally accepted criteria for the other tiers, Beijing, Shanghai, Guangzhou (the provincial capital of Guangdong), and Shenzhen (the major city of Guangdong), are commonly ranked as the "first-tier cities" among scholars and the public (He et al., 2016). As a result, these places have become the most powerful magnets for internal migrants. By 2016, Beijing, Shanghai, and Guangdong had received 49.887 million migrants in total, which accounted for 20.4 % of the total migrating population (China News, 2017). Second, in China, state institutions are influential in shaping the migration process (Fan, 2002). The household (*hukou*) system, which divided all Chinese citizens into urban-rural and local-nonlocal based on their hukou type and hukou locality, is central to understanding the migration process in this transitional society (Fan, 2002). Local hukou holders can get housing, employment, education, health care, and other aspects of social welfare provided by the local government and in-migrants are in an inferior position as they have limited access to public resources (Li et al., 2015). Especially in Beijing, Shanghai, Guangzhou and Shenzhen, the leading destination for internal migrants nationwide, the strict hukou policy turned the numerous college-

educated migrants into a marginalized group in terms of living condition and job opportunities. In the media, they are often portrayed as *yi zu* (ant tribe), who are living in overcrowded, poorly constructed housing like ants (China Youth Daily, 2015).

The present study broadly makes two noteworthy contributions to the current migration literature. First, this is the first study using data from a nationally representative survey with rigorous analysis to examine the existence of escalator effects on social mobility in China. Given its special status in the regional hierarchy, the first-tier region has been commonly assumed to be the emerging escalator region in China in the literature (Fielding, 2010; Liu et al., 2017); however, previous work has failed to address to what extent the young highly educated in-migrants to that region experience substantial increase in upward social mobility. Therefore, the primary objective of this study was to explicitly investigate whether graduates moving into the major urban centers (Beijing, Shanghai, Guangzhou, and Shenzhen) fare differently in China's urban labor market relative to others who migrated to other parts of the country as well as to those have not migrated. Second, previous studies tend to focus on the short-term effect of migration, typically in the form of earnings. However, this is particularly limiting in terms of understanding the social inequality in China's labor market. Therefore, except for the traditional focus on the earnings effect, employment in different types of work organizations of college graduates is included in the examination of the link between migration and social mobility.

The remainder of this paper is organized as follows. It begins by reviewing the escalator theory and the empirical context in China. It then examines the previous work on the segmented structure of urban China's labor market, with a focus on the role of the key institution — the household registration system (hukou system) — in determining the migration process and labor market outcome in China. Next, it follows by the introduction of the data and the statistical method (propensity score matching) employed to correct for the self-selectivity of migrants. The next section presents results from models with migrant selection correction in two dimensions: the income effect of migration into Beijing, Shanghai, Guangzhou, and Shenzhen, and the regional differences in opportunities for sector entry. Finally, the potential implications of these findings are thoroughly discussed by highlighting the critical role of hukou locality in the segmented labor market between migrants and local

residents in urban China.

6.2 THEORETICAL BACKGROUND

MIGRATION, ESCALATOR REGION, AND LABOR MARKET OUTCOME

The contribution of geographic mobility to labor market outcome has been well addressed in previous literature. Migration can be viewed as an investment in human capital carried out by individuals who maximize their utilities (Becker 1962; Sjaastad, 1962). Agents tend to participate in the migration process if the total benefits are thought to be higher than the total costs (Sjaastad, 1962). Therefore, geographical mobility will improve an individual's socioeconomic status by bringing higher earnings or occupational status (Flippen, 2013).

The socioeconomic benefits of migration, however, are not evenly distributed across regions. Globalization and occupational changes associated with post-Fordist economic restructuring have led to a growth in intra-urban social disparity (Walks, 2001). The headquarters of large multinational companies are increasingly concentrated in a few large urban centers, and some megacities serve as strategic locations to control the world economy. In this regard, scholars put forward many concepts to understand the role of these large urban centers in the process of globalization (for instance, "the world city hypothesis" put forwarded by Friedmann (1986) and the concept of the "global city" proposed by Sassen (2001). Accordingly, within a country, the economic reorganization of space produced uneven regional distributions of job opportunities along with a hierarchical system (Hao & Tang, 2017; van Ham et al. 2012). For individuals, the difference in resource concentration among cities means the different access to life chances. Cities at higher levels of the urban hierarchy are associated with more life chances than those at lower levels. Consequently, people can obtain more job opportunities as well as improve their well-being when they move up the hierarchical urban system (Hao & Tang, 2017). Therefore, migration is not only a means of maximizing an individual's lifetime utilities, but also a way to achieve upward social mobility which is mediated by the geographical location (usually large urban centers or global cities).

The concept of the escalator region (Fielding, 1992) has proven useful in

understanding the role of large urban centers in the link between social mobility and migration (Findlay et al, 2009; Gordon, 2015; Gordon et al., 2015; Van Ham et al, 2012). Fielding (1992) used a three-stage model to categorize the escalator region. First, "stepping on the escalator" — the region should have the ability to attract youthful cohorts of mobile people who are equipped with proper qualifications and seeking career advancement though relocation. Second, "being taken up by the escalator" — the region not only provides more opportunities for upward social mobility, but the high density of job opportunities allows people living in the region to earn higher salaries (Findlay et al., 2009). Third, "stepping off the escalator" — Fielding (1992) also suggests the possibility that the region would lose some of the migrants who had achieved higher socioeconomic status to other regions of the economy: "These out-migrants would be in the middle to later stages of their working lives, or at or near to retirement. They would migrate partly to 'cash in' the assets gained during their social promotion in the escalator region" (Fielding, 1992, p. 4). Out-migration often takes place among people in their forties and fifties (Fielding, 1992), or at least nearly the age of 30 (Findlay et al., 2009). The "stepping off" part of the escalator hypothesis, however, is beyond the focus of the present study; instead, this study seeks to examine the effect of moving to an escalator region on migrants' labor market performance at the start of their working lives and whether they are at an advantage in comparison with other migrant groups in the urban hierarchy.

In the Chinese context, the so-called "first-tier cities" (He et al., 2016), Beijing, Shanghai, Guangzhou, and Shenzhen, are argued to serve as national escalator regions. Before the economic reform of the late 70s, urban development largely depended on resource allocated by the central state (Zhang & Tao, 2012). With the introduction of market forces to the economy and society since 1978, Beijing, Shanghai, Guangzhou, and Shenzhen have gradually become the leading mega cities among Chinese cities. First, each of these cities has a distinct function in the system: Beijing is the political and cultural center, Shanghai is the economic and trade center, and Guangzhou and Shenzhen are important economic centers (Chiu, 2012). Second, these cities are leading the nation in economic development: In 2016, the average GDP per capita of Beijing, Shanghai ,Guangzhou, and Shenzhen reached 125,497 yuan (approximately 19,139 US dollars), which is twice as much as the national

average of 59,660 yuan (approximately 8,836 US dollars) (Chinese Statistical Yearbook, 2017). Beijing, Shanghai, Guangzhou, and Shenzhen have highly diversified economies. They are not only home to headquarters of the world's 500 largest companies, national high-tech industrial zones and private enterprises, but also have a high concentration of central state-owned enterprises (Finance Yearbook of China, 2016). It is not surprising to expect that these four cities are the primary migrating destination for graduates nationwide who strike for better labor market outcomes (Chiu, 2012). Therefore, my first hypothesis is as follows:

Hypothesis 1: Moving to Beijing, Shanghai, Guangzhou, or Shenzhen for employment is positively associated with monthly starting salaries of college graduates in China's labor market.

GRADUATE MIGRATION AND LOCAL HUKOU BARRIER IN BEIJING, SHANGHAI, GUANGZHOU AND SHENZHEN

The abovementioned theory on global cities and escalator region are not sufficient to understand the migration in China, where influence of the institutional factors (i.e., hukou system), has much stronger explanatory power (Fan, 2002; Wang et al., 2017). As the "government-sanctioned, geographically bound, and institutionally based opportunity structure," the household registration system is key to understanding the internal migration process in China (Wang et al., 2017, p. 3). Changes in hukou policy have made graduate migration emerge as a new phenomenon in the mass internal migration. Before 2003, attending college was one of the few ways to obtain a local urban hukou in the city where the college was located (Wu & Treiman, 2004; Xiao & Bian, 2018). With the development of economic reform, since 2003, students moving away for college are only issued with a temporary residence permit for study purposes (Li, 2016; Li & Zhang, 2010). Upon graduation, they can transfer their hukou to the workplace location as long as the employers can provide one. Since the quota is limited, even for bachelor's degree holders, the process of hukou conversion is highly competitive (Li & Zhang, 2010). Previous research shows a positive association between economic development level of cities and the degree of difficulties of obtaining its local hukou (Zhang & Tao, 2012). Shanghai, Beijing,

Shenzhen, and Guangzhou, as the cities/provinces[4] with the highest GDP in the country (Chinese Statistical Yearbook, 2017), are found to set the highest entry qualifications for (local) urban hukou acquirement among Chinese cities (Zhang & Tao, 2012).

Despite the strict local hukou policy in these megacities, with more employment opportunities, better infrastructure, and better social benefits available, they still attract a significant number of internal migrants from the whole country: 40 percent of the current residents in such cities are non-local hukou holders, with their hukou registered elsewhere (Chiu, 2012). Similar to low-skilled migrant workers, graduate migrants are also hindered from access to employment opportunities from the state sector because of their non-local *hukou* status (Li & Zhang, 2010). Empirical evidence shows that, although highly educated migrants tend to earn more than non-migrants, they are less likely to secure a job in the state sector (Cheng et al., 2013). A recent survey in Beijing on college graduate migrants reported that most jobs in state-sector are only provided to local residents, and graduate migrants are excluded even from the application process (Wang et al., 2017). Therefore, I hypothesize the following:

Hypothesis 2: Due to the strict local hukou policy in Beijing, Shanghai, Guangzhou, and Shenzhen, compared with individuals living in their *hukou* registered cities, college graduates who migrated into Beijing, Shanghai, Guangzhou, or Shenzhen for employment have fewer opportunities to enter government organizations and public enterprises, relative to non-state sector.

6.3 DATA AND METHOD

6.3.1 DATA

Analyses were based on data from three waves of the CCSS (2010, 2013, and 2015). The final sample contained 5,906 respondents (see details in Chapter 3).

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4 Shanghai and Beijing are two of the four (the other two cities are: Chongqing and Tianjin) provincial-level municipalities under the direct administration of the central government of China.

6.3.2 VARIABLES

DEPENDENT VARIABLE

To assess the "escalator region" effect on the labor market outcome of fresh college graduates in China, I used two measures as dependent variables in the following analyses. The first one was entry into different types of work organizations. The other outcome was log-transformed monthly starting salary, which is the same measure as used in Chapter 5.

GRADUATE MIGRANT STATUS

In the present study, college graduates are divided into four groups based on two key indicators: hukou-registered city and employment-located city: Graduate B-S-G-migrants are those whose hukou was registered in other cities before college, but who intend to move to Beijing, Shanghai, Guangzhou, or Shenzhen (hereafter abbreviated as B-S-G) for first employment upon graduation; graduate B-S-G-locals refers to individuals who are initially from "the first-tier cities" and start a career in the same city; the other two groups, migrants and stayers, are commonly employed outside the escalator region, but the former chose to move to cities outside their home city after leaving college, and the latter stayed in their hukou city for college and subsequently for work.

CONTROL VARIABLES

Variables that measured other demographic factors likely to affect labor market outcomes were included in the following analyses, such as gender, age, ethnicity, and number of siblings, as well as parental education and family income. Detailed specification could be found in Chapter 3 (see the "Independent Variables" section).

6.3.3 ANALYTIC STRATEGY

In order to examine whether Beijing, Shanghai, Guangzhou, and Shenzhen together

serve as an escalator region in China, I first used an OLS regression model and a multinomial logistic regression model to estimate the effect of moving to that region on the two dependent variables: salary outcome and work organization entry. Each prediction model included all control variables (i.e., variables that measured other demographic factors likely to affect labor market outcomes that have been mentioned above). Second, due to the potential self-selection bias that is associated with migration, propensity score matching was further used to estimate the escalator region effect on graduates' monthly starting salary. Logistic models were used to calculate propensity scores for comparisons between B-S-G-migrants and others (matching covariates included the control variables that have been described above, plus the fixed effect of *hukou* city before attending college). Separate models are run for the income outcome variable, and for the different comparators (B-S-G locals, other migrants and other stayers). The average treatment effect on the treated (*ATT*: i.e., the average income impact of migration) was estimated in propensity score matching.

6.4 RESULTS

DESCRIPTIVE STATISTICS

As shown in Table 6-1, labor market outcomes of the respondent graduates, which are measured by the monthly starting salary and job placement of the first employment, significantly vary among graduates choosing to move into different regions upon graduation for employment (the F tests and Chi-square tests shown on the last column). First, economic gains to migration appear to vary between regions. Migrants into the first-tier cities, Beijing, Shanghai, Guangzhou, and Shenzhen, in general, have average higher monthly starting salaries than their local counterparts in the same region. Among those starting their career in B-S-G for instance, in-migrants earned 3% more than local graduates. However, among those residing in other regions, migrants seeking employment opportunities outside their hukou city is associated with an income loss. Migrants in general earned 0.6% less than their stayer peers.

Second, regardless of migrant or stayer status, being employed in B-S-G conveys the

greatest income benefit. In-migrants to B-S-G reported the highest initial salary (M = 3,491.85, SD = 2,087.27), graduates living locally in that region have lower average starting earnings (M = 2817.02, SD = 1,613.97), but still higher than that of others elsewhere (Other migrant: $M_{Other\ migrant}$ = 2572.03, SD $M_{Other\ migrant}$ = 1,402.48; $M_{Other\ stayer}$ = 2,811.97, SD $_{Other\ stayer}$ = 1,884.66).

With respect to work organization entry, Table 6-1 shows that the majority of respondents tend to work outside the state sector (61% of the sample, on average). Notably, college graduates choosing to work elsewhere than their home region are markedly less likely to be employed in the government organizations than their non-migrating counterparts in the same region, which particularly holds for in-migrants to B-S-G. Only 6% of them secure a job offer with a position from the government organizations, compared with 15 % of the stayers in the same region. In contrast, migrants have more chance to get a placement in public enterprises. 20% of in-migrants into B-S-G enter such enterprises, relatively lower than that of locals living in these provinces (24%), while migrants elsewhere are more likely to be placed in public enterprises than their local peers. Given the high entry level to obtain an urban local hukou in B-S-G and that most of the government-related jobs are only available to residents, this may reflect the difficulties for migrant population in securing a job in the government organization in B-S-G due to the local hukou barriers (Li et al., 2015; Zhang & Tao, 2012).

Differences between migrants and their local peers in some other variables should be reported as well. The majority of migrants tend to be male graduates, while the opposite case holds for stayers, irrespective of their destination region (province). Migrants, on average, are more actively engaged in academic activities in college, especially among those who moved to B-S-G upon graduation. For example, in-migrants to such a region tend to have higher undergraduate GPA, win more awards, attain Chinese Communist Party membership, and hold a position in a student organization. In addition, students from key universities ("Project 211" college) are more likely to relocate for a career than to not. Field of study varies by students' migrant status. Among stayers, the proportion of students are enrolled in humanities and social sciences is larger than that in engineering and technology, which is in sharp contrast with migrants, among whom approximately half are from engineering and technology.

Table 6-1 College performance and labor market outcome characteristics: Means and standard deviation by graduate migrant group (unmatched)

Variable	All	BSG-Migrant	BSG-Local	Other Migrant	Other Stayer	F/X2 Difference
Ln (starting monthly salary)	7.80 (0.49)	7.97 (0.46)	7.83 (0.49)	7.73 (0.46)	7.78 (0.52)	<.001
Work organization						
Government organization	.11	.06	.15	.07	.17	
Public enterprise	.28	.20	.24	.30	.31	
Non-state sector	.61	.75	.61	.62	.51	<.001
Rural hukou origin	.62	.62	.38	.70	.53	<.001
Age	23.00 (1.02)	23.08 (0.98)	22.75 (0.75)	23.01 (1.06)	22.83 (1.02)	.138
Female	.47	.46	.66	.39	.58	<.001
Ethnic minority	.06	.06	.07	.06	.04	.599
One-child family	.32	.26	.60	.25	.38	<.001
Parental education	9.94 (3.61)	9.44 (3.87)	11.34 (3.49)	9.59 (3.48)	10.18 (3.54)	.001
Log (annual family income per capita)a	9.12 (1.15)	9.13 (1.19)	9.62 (1.09)	8.90 (1.11)	9.25 (1.13)	.016
Missing	.01	.01	.01	.01	.02	.050
Standardized undergraduate GPA	-0.00 (0.87)	0.09 (0.90)	-0.06 (0.88)	-0.00 (0.85)	-0.03 (0.90)	<.001
Missing	.21	.16	.22	.23	.23	.829
CCP member	.29	.31	.24	.32	.23	<.001
Student organization participation	.64	.69	.62	.64	.62	.001
Awards	.59	.69	.47	.62	.55	<.001
CET−4 certificate	.91	.95	.89	.92	.88	<.001
Field of study						
Natural sciences	.06	.06	.03	.07	.07	
Engineering sci. & tech.	.41	.41	.31	.47	.30	
Agronomy	.03	.00	.16	.01	.01	
Medicine and pharmaceutics	.07	.03	.03	.05	.15	
Humanities and social science	.43	.51	.46	.40	.47	<.001
Type of college (Project 211)	.03	.04	.01	.04	.03	<.001
N	5,906	981	700	2,881	1,344	

Note: Samples are weighted to represent the population. CCP = Chinese Communist Party. CEE = College Entrance Examination. GPA = Grade Point Average. The same below in Table 6-2 and Table 6-3. Column proportions may not sum to 1 due to rounding. Standard deviations in parenthesis for continuous variables.

[a] Bottom-coded the 1st percentile to minimize the influences of outlier cases.

MULTIVARIATE RESULTS

Table 6-1 shows that college graduates who move into B-S-G are substantively different from others with respect to the labor market outcome, such as starting salary and job-sector placement. However, it is unclear whether these differences are due to differences in human capital and demographic characteristics of migrants or to escalator region effects. To further examine the link between moving to different regions and labor market success, multivariate analyses were employed to control for such differences in human capital and demographic characteristics.

The first investigation is focused on whether there is a positive income effect of moving into B-S-G among college graduates in China. In Table 6-2, Model 2 reports results from the OLS regressions that predict the monthly starting salary of college migrant groups. In particular, work organization entry is controlled for as well as other control variables in the regression model. As can be seen from Table 6-2, a significant positive association is found between moving to/staying in B-S-G for employment and the initial earnings attainment of college graduates. Migrants into Beijing, Shanghai, Guangzhou, and Shenzhen receive the most substantial income premium, of as much as 18.0 percent (p <.001) more than non-movers staying in other parts of China. Residents living in B-S-G also enjoy a considerable income advantage over stayers residing in the other regions, which is slightly less than the income premium for escalator migrants (16.5 percent, p <.01). Interestingly, compared with stayers, migrants into regions other than B-S-G for the first employment tend to suffer an income penalty from their migration (0.6% percent, but statistically insignificant). These results support the first hypothesis of this study that migration into B-S-G brings an earnings advantage.

The case for the link between migration into the first-tier region, B-S-G, and labor market outcome provides a different picture when it comes to work organization

placement, however. Model 3 is designed to test the second hypothesis about the impact of moving to B-S-G for a career on graduates' sector entry in China. Given the categorical nature of the dependent variable, a multinomial logit regression model is used in the following analyses with the non-state sector as the baseline category. Consistent with the second hypothesis, there is no significant positive association between entering the state sector (including government organization and public enterprises) and migrant behavior among college graduates in China. Compared with stayers elsewhere, migrants are significantly less likely to be placed in government organizations, regardless of employment destinations. Specifically, exponentiating the coefficient (b = −0.71) of migrants elsewhere into an odds ratio (OR = 0.49; $p <$ .01) indicates that migrants into other regions are 51% less likely to enter government organizations; likewise, migrants to B-S-G are 72% less likely to do so (b = −1.29, OR = 0.28; $p<.001$). Similarly, results obtained from the contrast between placement in public enterprises and non-state sector show that new entrants moving to the B-S-G's labor market as well as migrants elsewhere are significantly less likely to be employed in public enterprises than other non-migrating young people living in other regions. Specifically, in-migrants to B-S-G are 58% less likely to enter a public enterprise (b = −0.86, OR = 0.42; $p<.001$), relative to the non-state sector; while migrants to other cities are 36% less likely to do so (b = −0.45, OR = 0.64; $p<.05$). This finding implies that jobs from government organizations are more selective concerning local urban hukou among all types of work organization placement.

Results from control variables are in good agreement with previous findings in the literature (Cheng et al., 2013; Li et al. 2012; Xiao & Bian, 2018). Relative to their male counterparts, female graduates are less likely to receive a higher monthly starting salary or get a placement in the state sector. Academic performance of students, including awards at college and student organization participation, fields of study and type of attended college ("Project 211") are found to be positively associated with both predictors of graduate labor market outcomes.

ACCOUNTING FOR MIGRANT SELECTIVITY

Propensity score matching is employed to correct for the migrant-selection problem in multiple regression. Table 6-3 reports the estimates of labor market outcome in terms of salary associated with migration to B-S-G. Except for the estimated ATT,

which is estimated based on the logarithm form of the salary outcome, the percentage of change in salary between the treatment (B-S-G migrants) and control (other migrant group) groups based on the unlogged salary is also reported in the table. Additional analyses such as sample balancing checks are presented in the Appendices Table A9, and the results show that the PSM procedure performed well because the bias between the control and treatment groups ae considerably reduced. As the focus of this study is not on the migration decision process, the results for the logistic regressions estimating the propensity scores are presented in the Appendices (Table A8).

Results of the propensity matching analysis confirm that from multiple regression predicting salary in Table 6-3, migration into B-S-G results in a statistically significant increase in monthly starting salaries. Compared with individuals living outside B-S-G, in-migrants to B-S-G reported a statistically significant increase in their monthly starting salaries, which is consistent with the first hypothesis which posits that such migration conveys an earnings advantage. On average, a migrant into B-S-G earned 27.6% more than one who stayed in another region to start their career (ATT = 0.244, $p < .001$). Meanwhile, migrants into B-S-G enjoy a starting salary of 27.9% higher than those who moved elsewhere in the system (ATT = 0.246, $p < .001$). However, compared with local graduates originally living in B-S-G, in-migration to B-S-G is associated with relatively lower income gains (11.2%, ATT = 0.105, $p < .001$).

In Table 6-3, the effects for differing work organization settings were included in the regression adjustments. After controlling for work organization placement, the results show that the economic gains from moving to B-S-G remain statistically significant in comparison with other migrants and other stayers. This clearly shows that job-related migration of highly educated young people to the large metropolitan areas, still, generates a positive economic premium when considering the labor market characteristics.

Table 6-2 Regression models predicting labor market outcome of college graduates in China

Variable	(ln)Monthly starting salary Model 2		Work organization entry (Non-state sector) Model 3 Government organization		Public enterprise	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Migrant group (ref.=Other stayer)						
Other migrant	-0.006	(0.018)	-0.712**	(0.268)	-0.446*	(0.181)
BSG-local	0.165***	(0.039)	-0.043	(0.240)	-0.358	(0.253)
BSG-migrant	0.180**	(0.058)	-1.289***	(0.186)	-0.860***	(0.174)
Female	-0.077**	(0.023)	-0.374	(0.333)	-0.625***	(0.165)
Rural hukou origin	-0.020	(0.026)	-0.622**	(0.227)	-0.193**	(0.073)
Age	-0.015	(0.010)	0.053	(0.058)	-0.108***	(0.030)
Ethnic minority	0.024	(0.044)	-0.426	(0.367)	0.209	(0.115)
One-child family	0.052	(0.034)	0.455**	(0.153)	0.108	(0.118)
Parental education	0.004	(0.002)	0.082**	(0.032)	0.022	(0.015)
Log (annual family income per capita)	0.031**	(0.010)	0.014	(0.054)	0.122*	(0.048)
Missing	0.079	(0.046)	-0.316	(0.446)	0.010	(0.286)
Standardized undergraduate GPA	0.004	(0.016)	-0.069	(0.071)	0.001	(0.044)
Missing	-0.022	(0.032)	-0.205	(0.124)	-0.120*	(0.061)
CCP member	0.021	(0.018)	0.084	(0.225)	0.267	(0.175)
Student organization participation	0.050***	(0.010)	0.143	(0.089)	0.076	(0.086)
Awards	0.048*	(0.018)	0.450	(0.248)	0.130*	(0.054)
CET−4 certificate	-0.012	(0.023)	-0.307	(0.185)	0.166	(0.143)
Field of study (Humanities & social science)						
Natural sciences	0.079*	(0.034)	-0.069	(0.382)	0.046	(0.261)
Engineering sci. & tech.	0.095**	(0.032)	-0.385	(0.295)	0.699***	(0.179)
Agronomy	-0.150***	(0.031)	0.184	(0.348)	-0.746	(0.461)
Medicine and pharmaceutics	0.195*	(0.086)	2.509***	(0.221)	0.883**	(0.279)
Type of college (Project 211)	0.152***	(0.037)	0.571	(0.310)	0.498*	(0.239)
Work organization (ref.=Non-state sector)						
Government organization	0.111	(0.057)	-	-	-	-
Public enterprise	0.059***	(0.016)	-	-	-	-
Survey year (2010)			0.394	(0.222)	-0.109	(0.298)
2013	0.286***	(0.041)	0.384	(0.526)	-0.491	(0.373)

2015	0.388***	(0.050)	-2.637*	(1.327)	1.888*	(0.797)
Constant	7.809***	(0.231)	-1.212	(1.834)	4.083***	(1.166)
Adjust R2	0.204		0.099			
Wald chi2(98)	-		108,869.70			
Prob > chi2	-		.000			
N	5,906		5,906			

Note: Samples are weighted to represent the population. Reference category in parentheses. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001*

Table 6-3 Propensity score matching estimating average treatment effect on the treated, using kernel matching

Treatment group (n matched)	Control group (n)	Matched			RA		
		ATT	(S.E.)	%of impact	ATT	(S.E.)	% of impact
Differences in starting salary							
BSG-migrant (797)	Other stayer (1,239)	0.244***	(0.031)	+27.6	0.254***	(0.036)	+28.9
BSG-migrant (941)	Other migrant (2,452)	0.246***	(0.022)	+27.9	0.240***	(0.038)	+27.1
BSG-migrant (971)	BSG-local (700)	0.106**	(0.038)	+11.2	0.134***	(0.037)	+14.3

Notes: Kernel matching restricted to the region of common support, with a radius of 0.06. RA = regression adjustment for different work organization settings (full results for the estimation of propensity scores see Table A8, for sample balancing properties see Table A9, and for results for post-matching regression adjustments see Table A10). Matching covariates include all characteristics listed in Table 6-3 plus fixed effects for the *hukou* city before college.

* $p < .05$. ** $p < .01$. ** *$p < .001$.

6.5 SUMMARY AND DISCUSSION

Among young educated people, large urban centers, especially the global cities, are key migration destinations because of their privileged role in the national space economy (Findlay, et. al.2009; Wang et al., 2017). As such, in China, Beijing, Shanghai, Guangzhou, and Shenzhen have become the popular migration destination for recent college graduates. Based on data from a nationally representative survey, this study examined whether the so-called "first-tier region", Beijing, Shanghai, Guangzhou, and Shenzhen, have become an "upward social class escalator region" (Fielding, 1992) for the young adults in the Chinese labor market. Besides, propensity score matching was

employed to address the migrant selectivity problem in analysis. Consistent with the escalator theory, after accounting for observed demographic and human capital characteristics and migrant selectivity, in-migrants to Beijing, Shanghai, Guangzhou, and Shenzhen have been found to experience a substantial income premium from their mobility, and this economic benefit is higher than that experienced by migrants elsewhere in the system. This finding provides supportive evidence that Beijing, Shanghai, Guangzhou, and Shenzhen together function as escalator regions in China. Besides, local graduates in Beijing, Shanghai, Guangzhou, and Shenzhen are more likely to earn higher monthly starting salaries than other non-migrants in China. In line with empirical evidence from other countries (such as Canada, Newbold, 2015; Newbold & Brown, 2012; the UK, Fielding, 1992; Findlay et al., 2009), this result is twofold. On the one hand, Chinese graduates who chose to move into large urban centers is associated with an immediate gain in income, which support the first hypothesis of the present study that similar to other major metropolitan areas in Western developed countries, the four first-tier cities (Beijing, Shanghai, Guangzhou, and Shenzhen), together operate as an escalator region in China. On the other hand, these results further support the earlier studies (Newbold; 2015), suggesting that migration is not necessarily associated with an income benefit, but mainly depending on the metropolitan size of the destination. Compared with the economic gains observed for individuals move into large metropolitan areas, the gains to migration into other areas is diminishing with movement down the regional hierarchy (Newbold, 2015). Another important indicator for predicting the labor market outcome in segmented China's urban labor market, entry into different type of work organizations, was also included into the assessment of the economic consequence of graduates' migration. Different from results on the positive association between migration and salary, migration into Beijing, Shanghai, Guangzhou, and Shenzhen, however, did not lead to employment attainment in the state sector. Local peers have more chances than their migrating counterparts, especially in terms of achieving a job in governmental institutions. Thus, in line with our expectation in the second hypothesis, this finding provides supportive evidence that graduates migrants into "escalator region" (Beijing, Shanghai, Guangzhou, and Shenzhen) may be not at an advantage over non-migrants in terms of Work organization placement. In comparison

with migrants moving to other cities, in-migrants to Beijing, Shanghai, Guangzhou, and Shenzhen are more disadvantaged in employment in governmental and state-enterprise. This difference could be attributed to the local hukou policy, which varies from city to city. Beijing, Shanghai, Guangzhou and Shenzhen, where the barriers or social boundaries associated with hukou are stronger than any other areas (Wang et al., 2017; Zhang & Tao, 2012), it is not surprising to see that migrants encounter more difficulties to enter the state sector as a starting point of their work life.

Finally, several important limitations need to be considered. First, the cross-sectional nature of the data limits the ability to untangle the relationship between migration into large metropolitan areas and the economic gains to that movement. Given the data at hand, it was only possible to assess the immediate income benefit associated with migration. However, as it has been identified elsewhere in the literature (Newbold & Brown, 2012), migration could have a long-term effect on earnings attainment. In large centers, workers are provided with more opportunities for occupational mobility, from which workers gain more experience and gradually attain more earnings over time (Glaeser & Mare, 2001). A continued exploration into whether migration to Beijing, Shanghai, Guangzhou, and Shenzhen will be associated with a change in the income growth rate, in the long run, is warranted.Second, the current analyses in this study only examined the "escalator effect" at the national level. In the UK, previous research shows that except for London, which serves as the "national escalator region" (Newbold, 2012), the "escalator effect" also exists in a particular region: For instance, Edinburgh and Glasgow seem to be the regional escalator in Scotland, which offer more opportunities for upward social mobility to workers moving there than elsewhere(Van Ham et al., 2012). More research is needed to provide a complete picture of the hierarchical nature of migration and investigate the existence of "escalator effect" at different regional levels in order to better understand the complex Chinese urban hierarchy. Also, regarding selectivity issues, only background characteristics of respondents' academic performance and personal attributes (gender, age, ethnicity…) are controlled for in the selection model. There is a reason to believe that apart from the existing influence factors, some other vital elements are involved in the migration decision making the process, such as ambition (Gordon, 2015), attitudes and commitment (Gordon et al.,

2015). Future research, particularly those with a strong focus on China, is well-advised to seek these improvements. Finally, to the respondents of the survey in this study, i.e. the new entrants to the Chinese labor market, the choice of where to seek employment is related to other aspects of life, including housing ownership, marriage and family support as well (Cui, Geertman, & Hooimeijer, 2016; Qian & Qian, 2017). Therefore, it would be interesting to investigate the influence of migrating into Beijing, Shanghai, Guangzhou and Shenzhen, namely the "escalator region," on the life young adults in general, as opposed to evaluating changes in employment alone. Despite all of the potential limitations, this work is amongst the first to examine the escalator effects in a non-Western setting, and it contributes to existing knowledge on escalator theory by providing empirical evidence from an emerging market country, China. Besides, results also reflect that the unique institutional arrangement, the hukou system continues to be the significant driver of migrants' labor market outcomes China.

7 CONCLUSION

7.1 SUMMARY OF FINDINGS

This dissertation investigates the effect of graduate migration on labor market outcomes among college graduates in China. The introduction states the main research questions of the study, following the line of gender, family background, and regional socio-economic disparities, it also provides a general overview of graduate labor market in China. Besides, it includes the main contributions of the dissertation and outline of the research. Then, Chapter 2 reviews relevant theories in the fields of social stratification and mobility, higher education and migration, and empirical studies on the performance of college graduate migrants in the labor market. Chapter 3 introduces the data and methods used in this dissertation. Chapter 4, the first of the three empirical chapters, investigates whether and how internal graduate migration interacts with gender in producing inequality in employment opportunities among recent college graduates in China. Chapter 5 explores whether graduate return migrants are better off than their onward counterparts in terms of labor market outcomes in urban China and the role of family background characteristics of graduates in differentiating such results. Lastly, Chapter 6, examined whether Beijing, Shanghai, Guangzhou and Shenzhen, the first-tier cities, have emerged as an "upward social class escalator region" (Fielding, 1992) for the young adults in the Chinese graduate labor market. This dissertation has several key findings.

Similar to immigrant women who are disadvantaged twice in labor market both of being immigrants and women (Boyd, 1984; De Jong & Madamba, 2001; Donato et al., 2014; Raijman & Semyonov, 1997), in Chinese graduate labor market, female migrants have limited employment opportunities where segregations in employment opportunities follow the lines of gender and the Household Registration (*hukou*) system. Findings from Chapter 4 show the interaction effect between internal graduate migration and gender in producing inequality among recent college graduates in China in terms of Work organization entry and earnings attainment. The key independent variables are gender

and graduate migrant status, which was defined based on both the location of their first employment and where they lived before attending college. Specifically, locals were graduates who chose to be employed in the city where his/her hukou was registered before attending college, while graduate migrants were those who moved to start career in another location outside one's hukou city. The outcome variables are the log-transformed monthly starting salary and the type of work organization: government organization, public enterprise or non-state sector. Results from multinomial logistic regression models and OLS models show that, on the one hand, female graduate migrants were less likely to enter government organizations which afford institutional protection against gender discrimination. On the other hand, female graduate migrants are significantly paid less than their male counterparts in the non-state sector. Therefore, in China's urban labor market, female graduates suffer a double negative effect in earnings attainment and work organization entry.

Return migration (i.e., in the migration literature) is often characterized either as a corrective action of the previous "unsuccessful" migration experience; or a backward step in the progression to independent adulthood (Cintio & Grassi, 2013; Roberts et al., 2016). However, whether to be involved in graduate migration is not a decision entirely made by students themselves. Instead, young people from different family backgrounds may adopt different strategies of geographical mobility in their transition to adulthood. Chapter 5 investigated a particular graduate group (i.e., those who chose to return to the hukou-registered city for employment upon college graduation) and how they performed in China's labor market. Results reveal that graduates moving back to their home cities for job enjoy more opportunities to be hired in government organizations and public enterprises, relative to onward migrants, and this was enhanced by the introduction of family political capital: the interaction term between return migration and parental Party membership was statistically positive, indicating that graduate return migrants were even more likely to enter government organizations and public enterprises if they at least one parent is a CCP member. Besides, graduate return migrants have slightly higher earnings than onward migrants; however, the effect of migrant selectivity indicated that they were not much different from the onward migrants concerning the human capital characteristics that determine starting salaries. Their income advantage could be

attributed mainly to the positive effect of job attainment in the state sector.

Among the young educated people, large urban centers, especially the global cities are key migration destination because of their privileged role in the national space economy (Findlay, et. al.2009; Wang et al., 2017). Chapter 6 examined whether Beijing, Shanghai, Guangdong have emerged as an "upward social class escalator region" (Fielding, 1992) for the young adults in China. Results reveal that, after accounting for observed demographic and human capital characteristics and migrant selectivity, migrating into Beijing, Shanghai, Guangzhou, or Shenzhen was found to be positively associated with earnings attainment, and the economic benefit from relocation was more significant than that experienced by migrants elsewhere in the system. Due to the unique institution, the hukou system in the Chinese context, work organization entry, was also incorporated into the evaluation of the consequence of graduates' geographic mobility. Unlike results on the positive association between migration and income, migration into Beijing, Shanghai, Guangzhou, or Shenzhen did not lead to employment attainment in the state sector. Local peers had more chances than their migrating counterparts in terms of achieving a job in governmental institutions and public enterprises. Therefore, these results cast doubt on the potential for Beijing, Shanghai, and Guangdong to act as escalators for individuals wishing to achieve upward social mobility in China's urban segmented economy.

7.2 CONCLUSION AND DISCUSSION

7.2.1 THE IMPACT OF INTERNAL MIGRATION ON THE SOCIOECONOMIC STATUS OF COLLEGE GRADUATES

In the field of higher education, the relationship between education and employment has long been a topic of concern for scholars and policy makers (Schomburg & Teichler, 2007). Teichler (2018) summarized three arguments concerning the relationship between them from the perspectives of quantity, structure and organization. First, over-education problem, that is, the supply of graduates in the labor market matches the labor demand in the employment system. Since the 1950s, the expansion of higher education has become a universal trend in the world. Under this background, the supporters and opponents of the expansion policy have given contradictory empirical evidence. Secondly, mismatch problem, that is, the matching problem of college graduates' major and occupation type. This question is closely related to the first argument. The first argument concerns the number of graduates; Teichler (2018) points out that quality of graduates is also of concern: there should be a similar structure between majors and career types. Thirdly, the investment and return of higher education. Economists have done a lot of research on the relationship between economic investment in education and subsequent economic returns, and the positive correlation between the two has been confirmed by many empirical studies from economically developed countries. But it is also worth rethinking. National education expense systems, excessive supply of graduates in the labor market caused by education expansion, school type (public or private) and students' majors, all these factors will have different influences on the income return of education (Teichler, 2018).

The above debate suggests that the research in the field of higher education is still mainly concerned with the influence of education-related mechanisms (national education system, type of school or major, etc.) on employment outcomes. In this study, the influence of factors related to higher education has been verified: For instance, in Chapter 4, academic performance at college such as undergraduate GPA, awards, CCP membership, and English language certificate do not significantly contribute to college

graduates' higher starting salaries in China, no matter the type of work organization for which they are employed. Fields of study are rewarded differently by different work organizations; compared to graduates from humanities and social sciences, those majored in engineering science and technology and joined the non-state sector tend to receive significantly higher salaries. Public enterprises show a different pattern: natural science majors earn significantly more than humanities and social sciences, whereas medicine, pharmaceutics, and agronomy graduates are paid less across different types of work organization. Unsurprisingly, as it is predicted elsewhere (Li et al., 2012), those graduating from "Project 211" are better paid than others in the Chinese graduate labor market.

The more important finding of this study is that the mobility that occurs at the stage of higher education has a non-negligible impact on the employment results of college graduates. The relationship between migration and social mobility has been fully concerned in mobility research and migration studies. In mobility research, mobility is often associated with individual freedom In modern society, so it has the implication of upward social mobility (Beck, 2008). Kaufmann, Bergman and Joye (2004) argue that mobility is not only a means to obtain human capital, but also a kind of capital in itself with the ability to carry out geographical mobility. Even with the same human capital, migrants still enjoy greater economic returns than non-migrants. The research results of this dissertation also show that in China, as economic reforms continue to advance, students have more freedom to make use of geographical mobility to find the most suitable job for themselves, so as to maximize the economic return brought by work.

In migration studies, the integration of socioeconomic status of migrants is an important research area (Chiswick, 1999; Faist, 2013; Portes & Zhou, 1993). Compared with other types of migrants (such as refugees and asylum-seekers), those who migrated for economic reasons had higher socio-economic status and better labor market performance. Migration selectivity thesis proposed that economic migrants, on average, tend to be "more able, ambitious, aggressive, entrepreneurial, or otherwise more favorably selected than similar individuals who choose to remain in their place of origin" (Chiswick, 1999, p.181), in other words, migrants have a better economic performance because those who want to be economically successful choose to migrate. The results of

this dissertation challenge the idea of self-selection of migrants. Results from the empirical chapters show that in general, there is a positive association between geographical mobility and the initial salaries of college graduates, even after controlling for their migration-related characteristics. Mobility experience itself, rather than migrant selectivity, helps graduate migrants to achieve higher earnings.

Of course, there may be other reasons for this finding besides the explanations given here, such as the influence of employers' preferences in the labor market. Kuhn and Shen (2014) collected callback information from an Internet Job board serving private sector employers, urban Chinese employers'preferences between workers with and without a local residence permit (*hukou*) was investigated. They found that, in the low-skilled labor market, as migrants are more willing to have longer work hours and put more effort to secure a job, employers prefer migrant workers to locals who are identically matched to the job's requirements. Drawing on this finding, we can speculate that college Graduate migrants can get higher wages probably because they are more willing to work for longer and more intensive jobs. However, due to the limitations of data in this dissertation, the questionnaire does not involve the evaluation of job seekers by employers. Therefore, further data are needed to support whether this explanation holds true for the performance of the labor market of college graduate migrants.

My dissertation suggests that although there is a positive association between migration and salary outcome, migration has an inhibiting effect on entering the primary sector in the labor market. As emphasized by migration scholars, existing institutional and structural factors in the society have an important impact on the consequences of migration (Boswell, 2008; Dale, 2001).In western economic developed countries, labor market segmentation is mainly reflected in the difference in employment outcomes among different ethnic groups and races (Altonji & Blank, 1999; Cummings, 1980). Under China's planned economy system, the labor market in urban society is characterized by the division between state-owned sector and non-state-owned sector. Similar to the major sectors in developed countries, jobs in the state-owned sector at the heart of the redistribution system can significantly improve the socio-economic status of workers by providing better social benefits (such as local hukou for non-local hukou holders), but these jobs are mainly provided to local hukou holders, while non-local

hukou holders have little access to employment opportunities (Xiao & Bian, 2018; Wu, 2013). Although the market transition theory holds that with the development of the market and the expansion of private property rights, the redistributive sector will lose its power due to the weakening of its control over resources (Nee, 1989), more empirical studies show that even today, more than 40 years after the reform and opening up, the state sector still has advantages over the non-state sector (or the market sector) in the labor market (He & Wu, 2108; Wu & Song, 2013; Wu, 2013; Xiao & Bian, 2018). Different from the mechanism of labor market segmentation in developed countries, the existing hukou system is the main channel to send workers to different sectors in China's labor market divided by state-owned and non-state-owned sectors. Hukou hinders the geographical mobility of college graduates, making it impossible for migrants to find free employment through mobility. On the contrary, there are many obstacles. Results from Chapter 3, Chapter 4 and Chapter 5 all indicate that compared with those who chose to be employed in the *hukou* city, graduate migrants were less likely to enter government organizations and public enterprises, although they were equipped with similar human capital characteristic.

From the above discussion, it can be seen that for college graduates, migrant status has a dual nature in China. On the one hand, the change of geographical location has the meaning of "mobility" —migrants gain higher economic benefits from migration; on the other hand, this change also has the meaning of "migration" — new entrants to the labor market who choose to move are more likely to be excluded from the main sectors of the labor market. As a highly educated migrant group, they are limited by institutional factors (*hukou*) and labor market structure. The opportunities for graduate migrants and local residents are unequal. Therefore, in this sense, they did not manage upward social mobility through migration. In a study of second-generation immigrants in the United States, Portes and Zhou (1993) found that immigrants and their descendants adopted the strategy of "selective acculturation", that is, they only integrated into the mainstream society of the United States in some aspects, because "being An American" was not always an advantage. Contrary to this finding, in this doctoral thesis, the socioeconomic consequences of the immigrant groups I studied were not the result of their own selective integration; They are similar to their reference group in international migration. Due to

the influence of structural factors such as policies and systems, they cannot fully integrate into the local society. In fact, researchers have noticed this phenomenon. Inspired by research on lower-international migrants in developed countries, Wang et al. (2017) used the concept of migrant precarity to analyze the precarity among highly educated migrants in Beijing and noted that "the new urban poverty has occurred in the city, as a result of the questionable policies regarding social distribution and welfare" (p. 1).

In addition, the results of this research prove that cities play an important role in production inequality in the process of mobility. The literature on global elite or expatriates point out that the era of globalization meant not only the global movement of goods, capital and services, but also the free mobility of people (Sassen 1991; Urry, 2012). Highly skilled migrants have often been associated with global elite. They are considered free-floating mobiles because they are less constrained by institutions and nation-states (Sklair, 2005). Recent studies, however, show that high-skilled migrants interact with local societies in the receiving context and navigate different pathways for local incorporation (Plöger & Becker, 2015; Wang et al., 2017). In Chapter 5, results show that, on the one hand, in-migrants to Chinese megacities, that is, Beijing, Shanghai, Guangzhou, and Shenzhen, have been found to experience a substantial income premium from their mobility, and this economic benefit is higher than that experienced by migrants elsewhere in the system; on the other hand, in comparison with migrants moving to other cities, graduate migrants Beijing, Shanghai, Guangzhou, and Shenzhen are less likely to be hired in employment in government organizations and public enterprises. This result suggests that these highly educated migrants are not "free-floating mobiles" in China, but rather that their mobility and its consequences are restricted by institutions and structures.

The research results of this project also show that in China, citizenship has been stratified in terms of hukou locality. In western countries, citizenship has been argued to be stratified in terms of social categories, such as gender, "…as policymakers have treated men and women differently in the policymaking process, perpetuating ascribed roles and institutionalizing gender inequality." (Mettler,1999, p.). In the Chinese context, citizenship has been interlocked with the hukou (household

registration) system for over half a century. With the introduction of hukou reform, the hukou location, rather than the hukou classification, has become more important in determining access to resources and defining one's life chances. The larger the city is, the more valuable is its hukou because there are more government-provided benefits. Beijing, Shanghai, Guangzhou and Shenzhen, where the barriers or social boundaries associated with hukou are stronger than any other cities (Wang et al., 2017; Zhang & Tao, 2012), as a result, migrants encounter more difficulties in labor market if they wanted to settle down in these cities as a starting point of their work life.

7.2.2 MAINTENANCE OF INEQUALITIES: INTERACTION BETWEEN MIGRATION AND OTHER SOCIAL CATEGORIES

The research results of this dissertation indicate that, although graduate migration is usually considered as "a process wherein higher-education students …for the purpose of career advancement or upward social mobility " (Li, Lo, Lu, Tan, & Lu, 2020, p.4); however, mobility has not reduced existing inequalities. The important thing is, to understand specific mechanisms in the migrating process by which migration maintain and production of inequality, because "identifying the key social mechanisms is an important step to reconstructing the causal the processes that are relevant to inequalities" (Faist, 2014, p.214). Faist (2014) summarized four general social mechanisms to produce and reproduce inequalities: Hierarchization, exclusion, opportunity hoarding and exploitation and distinguished the mechanism acting on small groups and networks of individuals and the society as a whole. This study believes that in the Chinese context, migration produces inequality through *exclusion* (Immigration Policy and Citizenship at the societal level) and *opportunity hoarding* (Opportunity structures in employment markets at at the societal level). Exclusion is a process through which social groups maximize advantages by limiting access to privileges and life chances to an inner circle of selected persons (Weber, 1978). Certain identifiable external characteristics such as race, language, religion, social identity, descent and place of residence can be used as an excuse for social exclusion. To maintain their monopoly interests, interest groups would

establish a legal system to limit competition by enforcing formal monopolies. This was the origin of Weber's identified group monopoly. The hukou system in China is a typical example of exclusion-based on legal boundaries enforced by the state. Although some scholars argue that, the impact of hukou-based legal exclusion is no longer of fundamental importance in limiting migrant workers' life chances (Zhan, 2011). The research results of this paper still want to emphasize the socio-economic differentiation brought about by hukou system classification (especially local-nonlocal). Just as immigration policy measures and citizenship which is closely related to legal affiliation in international migration, the nature of legal exclusion provided by hukou restricts their access to the same job opportunities as local residents, although it does not limit the mobility of graduates. The other associated mechanism is opportunity structures in the labor market. The opportunity structure refers to "the nature of employment opportunity that are available and known, and open to people" (Reskin & Hartmann, 1986, p.76). For graduate migrants, the hukou system does shape the opportunity structure in the labor market, that is, compared with local people, migrants have fewer job opportunities. But more importantly, it is important to note that the hukou system works in conjunction with the segmented labor market: what migrants lack is not jobs that are generally available, but jobs in the superior sectors of the fragmented labor market. Therefore, migration produced inequality through exclusion (in the sense of legal aspect) and opportunity structure.

Previous studies in the field of social stratification pay little attention to the intersection of regions, cities and places related to geographical mobility, and social categories divided according to class, gender and race. (Urry, 2012). Rather than being natural, categories, such as gender and race, are socially constructed, and they not only influence individual identities but also provide principles of organization in the social system (Browne & Misra, 2003). As a result, the interaction between social categories are not only applied to a group of people, but has influence on social groups. This dissertation suggests that, migrant status interacts with pre-existing inequalities such as gender and shapes outcomes among college graduates in China's urban labor market. Chapter 4 shows that female graduates suffer more difficulties in the labor market if they are migrants at the same time. Thus, the results imply that migration may serve to entrench

pre-existing socioeconomic inequalities between men and women.

7.2.3 FAMILY BACKGROUND, EDUCATION AND MIGRATION: REPRODUCTION OF SOCIAL CLASS

Since Blau and Ducan (1967), many studies have been conducted on the relationship between family background and individual economic achievement. In the field of social stratification and higher education, one of the focal points of debate is the extent to which higher education reduces the influence of family background on an individual's economic success (Bloome, Dyer, & Zhou, 2018; Hout, 1988; Torche, 2011; Witteveen & Attewell, 2017, 2020). Current research can be divided into two groups: one group views education as a channel for achieving upward mobility, and the influence of family background on an individual's socioeconomic status has disappeared. The research of Hout (1988) puts forward this viewpoint in a clear way. Using data from the General Social Survey 1972–85，he observed that the effect of family background on personal status was found only in people without a college degree, "college graduation cancels the effect of background status"（Hout, 1988, p.1358）and stated that "this finding provides a new answer to the old question about overcoming disadvantaged origins: A college degree can do it."（Hout, 1988, p.1358）Later, Torche (2011) expanded this research by including more educated groups, and found that family background and personal socioeconomic status (including social class, socioeconomic index, occupational prestige, earnings, and family income) contained a U-shaped curve: Among less-educated people and higher-educated people, the intergenerational association is strong；whereas it weakens or disappears among bachelor's degree holders. The findings echo the Hout's (1988) point of view. Witteveen and Attewell (2020) summarized this as "equalization thesis" – "occupational positions have become more dependent on rational selection through the educational system in highly industrialized countries, erasing the influence of family background in high-skill job matching" (Witteveen & Attewell, 2020, in press). The other argues that family background still plays an important role and that higher education is only a means of transmission between generations. Using data from nationally representative follow-up surveys,

Witteveen and Attewell (2017) examined the income differences of college graduates of different family backgrounds, and the results not only confirm the effects of family background but also show that income differences between graduates from different family backgrounds are substantial four and ten years after graduation. Although educational expansion somewhat inhibits the parent-offspring association, this reduction in persistence was far from enough to offset the increase in persistence associated with growing educational inequality and rising educational returns (Bloome et al.,2018). Contrary to the equalization hypothesis，Witteveen and Attewell (2020) present a "reproduction thesis": "modern educational systems – including higher education expansion – have not led to the predicted increased fluidity between origin and destination" Witteveen & Attewell, 2020, in press).

The results of this thesis support the above reproduction hypothesis that family background still has a very important influence on the employment outcomes of college graduates. The study found that there was a significant positive correlation between family income and personal income (Chapter 6 and Table A2). Intergenerational mobility is a central concept in stratified research as an indicator of the relationship between the socio-economic status of parents and adult children, indicating the extent of inequality of opportunity. In the past, sociologists paid more attention to occupational and class mobility, but in recent years, income mobility has become a more commonly used indicator in academic circles due to its conciseness of indicators and availability of data (Torche, 2015). Social capital theory suggests that the resources embedded in personal social network play an important role in the labor market, and the family influences the career of the child through social network, thus affecting the child's income (Grannovetter, 1973;Bian, 1997);cultural capital theory emphasizes the importance of cultural quality and ability (Lareau & Weininger 2003). For example, parents of the middle class, their views on education and their family's emphasis on education are conducive to students' future achievements (Liu, 2016). Since the outcome variable used in this study measures the salary of the highest-paying offer, there is no qualitative information on how parents can use social capital and cultural capital. This results possibly Imply that those from more affluent families are able to spend more time Seeking and waiting for a higher-paying job offer. This finding echoes studies from

Amstrong and Hamilton (2013) and Witteveen and Attewell (2017). Amstrong and Hamilton (2013) pointed out the mechanism of high-income families influencing graduate income – "parental bridging" – Compared with low-income families, rich parents were more likely to actively help new graduates from school by paying off loans or subsidizing their living expenses, until their children found a good job. They may also pay for their children's travel and other costs of moving to places with lots of jobs. Instead, low-income students may face quickly find jobs after graduating from economic pressure and therefore are likely to take less well - paid openings. Witteveen and Attewell (2017) added another possibility: employers may prefer graduates from wealthy families because of their elegant manners or appearance, or because their resumes are more likely to include internships, trips abroad and so on.

In addition, although parents' political capital has no significant impact on personal income, it has a significant impact on whether college migrants can enter into the employment of advantageous sectors (Chapter 5). Political capital is of special importance in China. Li et al. (2007) argue that Communist Party membership reflects unobserved ability and family background, because the Party conducts a "lengthy and extended selection procedure that not only ensures the political loyalty of applicants but also ensures the superior quality of Party members" (Li et al., 2007, p.1505). Nee (1989) put forward the market transition theory that the growth of market forces will reduce the importance of political capital such as Party membership. Bian and Logan (1996) challenged Nee with the theory of the persistence of power the theory of the and argued that China's market reforms have not fundamentally changed the control and distribution of political power over resources, because the two major system prerequisites have not been shaken: one system is the ruling position of the Communist Party, so the meaning of political power in controlling society remains unchanged, The second system is the hierarchical work organization system. The state-owned department is still the key department that controls economic resources and is the agent of redistribution. Previous studies have studied the intergenerational transmission of status in the early period of reform (Walder & Hu, 1996), or the influence of parental political capital on education acquisition (Yang & Chen, 2016). The results of this dissertation show that power maintenance still exists in the field of college graduates' labor market. Political elites are

more likely to pass on their dominant position to their children, and the formation of elites is exclusive.

It can be seen that family background influences individual economic achievement in various ways, such as access to higher education (Breen & Jonsson, 2005; Pfeffer, 2008; Shavit & Blossfeld, 1993), social network (Grannovetter, 1973; Bian, 1997) and cultural capital (Liu, 2016). The important finding of this research is that the influence of family background on one's economic achievement can also be realized by influencing one's migration behavior. Leung (2013) in her research on the relationship between scientists and researchers' international mobility and their career development, she developed Bourdieu's concept to understand the phenomenon of international academic mobility. She conceptualizes geographical mobility itself as a form of capital, rather than a process of capital conversion and accumulation. This is because，"geographical mobility can be conceptualized as a set of actually usable resources and power that can be converted into other forms of capital, which subsequently can be accumulated and transformed to further mobility, both in geographical (as in subsequent overseas travelling for varied purposes) and social (as in personal and career advancement) senses"(Leung, 2013, p.4). The research results of this study show that, graduates who choose to return home for a job are more likely to be singletons from one-child urban families with higher family income, cadre parents, and more familial political capital. Moreover, for graduates, families with political capital will greatly increase the probability that graduate returns migrants to enter government organizations and public enterprises. Therefore, In the case of college graduate internal migration in China, the return migration behavior of graduates is the resource and power of a dominant family: by influencing their children's migration, the children from the dominant family can obtain higher socioeconomic status with the help of mobility, thus realizing the intergenerational transmission of class. Geographical mobility has become the way of the reproduction of social class.

7.3 POLICY RECOMMENDATIONS

This dissertation suggests that in China, the way that internal migration affects college graduates' labor market outcomes among is complex. Although there is a positive association between migration and salary outcome, migration has an inhibiting effect on

work organization entry. Results from Chapter 4, Chapter 5 and Chapter 6 all indicate that compared with those who chose to be employed in the hukou city, graduate migrants were less likely to enter government organizations and public enterprises, although they were equipped with similar human capital characteristic. Therefore, to improve the employment situation of college graduate migrants, this thesis proposes targeted policy recommendations from the following three aspects.

1. Labor market: The results of this study find that although female college graduates perform better than male college graduates in terms of education, their choice of work organization type and starting salary are not as good as the latter. The obstacles faced by female college students in employment should be taken seriously, especially the female college students who choose to move, who have experienced double discrimination from gender and *hukou*. It is necessary to formulate operable regulations, policies and measures to improve gender equality in the labor market. At the same time, laws and regulations should be established to enhance workers' awareness of equality and their ability to protect rights, so that women can learn to use legal means to fight for and protect their rights. In addition, such local protectionism should be corrected in policy design due to the unequal employment opportunities of local and non-local people brought about by the hukou system

.2. In the field of higher education, 59% of the national key universities are located in the eastern coastal area (Yao, Wu, Su, & Wang, 2010). This uneven geographical distribution has led many young people to choose move across the country in order to get better educational opportunities. Scholars (Yao et al., 2010) suggested that college admissions should be given to rural students for more places, and more financial support should be given to remote and poor universities; some scholars (Yang & Chen, 2016) believe that the problem of inequality in the field of higher education needs to first improve the allocation of educational resources at the stage of basic education. This study believes that it is equally important for students to have more free choices in the education migration. For rural students, attention should be paid to the improvement of rural education resources, including teachers, schools, etc.; in the college admission stage, professionals or organizations should fully explain the education and employment situation of each higher education institution, so that students and parents can have a

deeper understanding of the school; What's more, the establishment of various types of colleges and universities, such as vocational skills schools, and the further improvement of the higher education system will enable students to have more choices when applying for colleges and universities.

3. With regard to the household registration system, the welfare and rights attached to the household registration should be stripped away to break the system bottleneck of the social mobility of the floating population. From a policy perspective, the above conclusion indicates that it is urgent to change the system arrangement of hukou. From Chapters 4 to 6, the introduction of hukou locality in analyses clearly points out the inequality encountered by individuals in the labor market due to the household registration itself. The hindrance of the household registration system to the floating population is not only reflected in the labor market, but also greatly restricts their residence, marriage and even children's education (Chen & Feng, 2013; Cui et al., 2016; Qian & Qian, 2017). In fact, the Chinese government has introduced a series of hukou reform policies to promote the mobility of talents. As early as 2009, Zhongshan city in Guangdong province announced a points-based hukou policy for migrant workers. All migrant workers who meet certain conditions are eligible to obtain a hukou in Zhongshan city by counting points after being authenticated by relevant authorities. Since then, first-tier cities such as Shenzhen, Beijing and Shanghai have implemented point-based hukou policies, among which an individual's education level is an important indicator of bonus points (https://news.sina.com.cn/c/2019-04-13/doc-ihvhiqax2312409.shtml). On December 25, 2019, the General Office of the State Council issued the "Opinions on Promoting the Reform of the System of Labor and Talent Mobility". This policy indicates that the state will adopt different policies according to the number of permanent residents in cities: First, the restriction on permanent urban residence registration in cities with a permanent urban population of less than 3 million shall be completely lifted. Second, the conditions for permanent urban residence registration in large cities with a permanent urban population of between 3 million and 5 million shall be fully relaxed. Third, the point-point policy for permanent urban residence registration in mega cities with a permanent urban population of more than 5 million shall be improved. The adjustment of national population policy and the development of new urbanization will

lead to the development of urban circle and urban agglomeration, and the relationship between different cities will be closer. Driven by the urban circle and urban agglomeration, people move more frequently between cities, and the household registration barrier between cities may gradually disappear. But it is also important to note that despite these policy changes, *hukou* policies in first-tier cities are still very strict, and the difference in life opportunities between locals and outsiders is still huge. Given the importance of first-tier cities in China's economic system, regional development inequalities with other regions are likely to widen further. It is not difficult to imagine that how to solve the problem of floating population in first-tier cities will become an urgent policy problem to be solved in the future.

7.4 LIMITATIONS AND FUTURE RESEARCH

Finally, several important limitations need to be considered. First, the dissertation was limited by the use of a cross-sectional design conducted, and it was not able to investigate the long-term impact of migration on college graduates' labor market outcomes. Through the lens of the life course, it has been increasingly acknowledged that "migration is relational, linking lives over time and space" (Coulter, Ham, & Findlay, 2016, p.1) rather than 'as an event at one point in time affecting a single decision maker' (Findlay, McCollum, Coulter, & Gayle, 2015). Also, given the concept of "repeat migration" (DaVanzo 1981), it is urged to consider that migration may have a long-term effect on individuals' labor market performance (Glaeser & Mare, 2001; Sjaastad, 1962; Van Ham et al., 2012). Due to data limitation, this study only provides a static snapshot of young people's primary labor market outcomes. For example, in Chapter 6, the "escalator region" effect was only assessed by the immediate income benefit from graduate migration. Future research should attempt to collect longitudinal data that trace a representative sample of higher education leavers after graduation in order to have a better understanding of the long-term consequences of migration.

Second, although this dissertation tried best to include as many variables as possible to correct for migrant self-selection bias, it should be acknowledged that there is still a possibility that unobserved traits, such as personality, risk-taking, and confidence, are also related to the labor market outcomes of graduates. For example, individuals who

are willing to migrate share some personal characteristics that lead them to, in the end, receive a better labor market outcome no matter whether they migrate or not (Cebolla-Boado & Soysal, 2018). Thus, it is suggested that the association of these factors is investigated in future studies.

Third, because the CCSS only collects information from students studied at the undergraduate level, this dissertation was exclusively focused on the effect of graduate migration on the labor market outcomes among bachelor's degree holders. However, migration is associated with education, and individuals with the different educational background may benefit differently from geographic mobility. For example, Kazakis and Faggian (2017)'s research has shown that in the U.S., late migrants earned 17.3% less than non-migrants in the total sample is 17.3%; whereas the penalty is much lower among Ph.D. holders (1.5%). Future work from China to include individuals at different education levels (such as B.A., M.A., and PhD.) would be of great help in knowing the same issue in the Chinese context.

Fourth, this dissertation merely examined the economic outcomes of migration. While both earnings attainment and work organization entry are essential indicators of the social and economic status in China (Li et al., 2015; Xiao & Bian, 2018), the consequence of migration is related to other aspects of life, including housing ownership, marriage, and family support (Cui et al., 2016; Qian & Qian, 2017). Existing studies on issues such as marriage market and housing ownership are based on data from one or two cities. For example, a study from Nanjing shows that highly-skilled migrants are more likely to acquire a home later in life than their local counterparts (Cui et al., 2016). In the major cities such as Shanghai, which adopted the most stringent hukou policy within China, whether having a local hukou plays a crucial role in the marriage market. Research has found that locals with lower education tend to use their hukou advantage to get married with migrants with higher level of education, thus enhancing their family's economic status (Qian & Qian, 2017). One possible area of future research would be to conduct follow-up surveys of the college-educated cohorts of the current CCSS sample. This could help researchers gain a more complete picture of the graduate migration process and its importance for determining individuals' life opportunities.

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9 APPENDICES[5]

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5 Table A1-Table A2 are online supplemental materials for the paper, *Migration premium? The economic returns to youth inter-province migration in post-reform China*, which could also be found online: https://www.tandfonline.com/doi/suppl/10.1080/13676261.2019.1587153?scroll=top

Table A1 Probit model predicting graduate employment selection of college graduates in China, sample from CCSS ($N = 13,358$)

Variable	Coef.	S.E.
Rural hukou origin	−.122**	(.039)
Age	−.104***	(.027)
Female	.003	(.047)
Ethnic minority	−.059	(.061)
One-child family	.158**	(.049)
Parental education	.030***	(.007)
Log (annual family income per capita)	−.151**	(.050)
Missing	1.295***	(.139)
CEE score	−.035	(.035)
Missing	.594***	(.062)
CEE type (liberal arts)	.105	(.067)
Standardized undergraduate GPA	−.034***	(.010)
Missing	-1.481***	(.104)
CCP member	.110*	(.044)
Student organization participation	.109*	(.049)
Awards	−.243***	(.035)
CET-4 certificate	−.255**	(.083)
Field of study (Humanities & social sci.)		
Natural sciences	.273*	(.107)
Engineering sci. & tech.	.069	(.074)
Agronomy	.293	(.238)
Medicine and pharmaceutics	.117	(.267)
Type of university (Project 211)	.353***	(.099)
Survey year (2010)		
2013	.082	(.090)

2015	.250	(.128)
Constant	2.348***	(.663)
N		13,358

Note: Reference category in parenthesis. CCP = Chinese Communist Party. CEE = College Entrance Examination. GPA = Grade Point Average. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over universities.

*p < .05. **p < .01. ***p < .001.

Table A2 Ordinary least squares regression models predicting monthly starting salary correcting for graduate employment selection correction (N = 5,906)

Variable	Model 1 (without sample selection correction)		Model 2 (with sample selection correction)	
	Coef.	S.E.	Coef.	S.E.
Graduate migration (ref.=Non-migrant)				
Late migrant	.048	(.029)	.048	(.029)
Return migrant	.057*	(.026)	.057*	(.026)
College stayer	.027	(.026)	.026	(.026)
Repeat migrant	.081**	(.029)	.081**	(.029)
λ (Graduate employment selection)	-	-	.007	(.072)
Rural hukou origin	−.018	(.016)	−.018	(.015)
Age	−.011	(.007)	−.012	(.008)
Female	−.064***	(.014)	−.064***	(.014)
Ethnic minority	−.008	(.019)	−.008	(.020)
One-child family	.003	(.014)	.004	(.017)
Parental education	.005*	(.002)	.005	(.002)
Log (annual family income per capita)	.021**	(.007)	.020*	(.010)
Missing	.002	(.021)	.007	(.058)
CEE score	.034***	(.009)	.034***	(.009)
Missing	.017	(.023)	.020	(.043)
CEE type (liberal arts)	−.060**	(.021)	−.059**	(.022)
Standardized undergraduate GPA	.003	(.009)	.003	(.009)
Missing	−.007	(.019)	−.015	(.083)
CCP member	.036**	(.012)	.036**	(.013)
Student organization participation	.016	(.013)	.017	(.014)
Awards	.035**	(.010)	.034*	(.016)
CET-4 certificate	.006	(.023)	.005	(.024)

Field of study (Humanities & social sci.)				
Natural sciences	.026	(.026)	.027	(.030)
Engineering sci. & tech.	.032	(.022)	.032	(.023)
Agronomy	−.120**	(.037)	−.119**	(.041)
Medicine and pharmaceutics	.026	(.071)	.026	(.071)
Type of university (Project 211)	.113***	(.027)	.115**	(.035)
Survey year (2010)				
2013	.307***	(.026)	.307***	(.027)
2015	.417***	(.035)	.418***	(.035)
Fixed effects for province of employment	Yes	Yes	Yes	Yes
Constant	7.967***	(.185)	7.973***	(.188)
N	5,906		5,906	

Note: Reference category in parenthesis. CCP = Chinese Communist Party. CEE = College Entrance Examination. GPA = Grade Point Average. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over universities.

*$p < .05$. **$p < .01$. ***$p < .001$.*

Table A3 Logistic model predicting graduate migration of college graduates in China, sample from CCSS (N=5,159)

Variable	Coef.	S.E.
Female	-.287**	(.102)
Rural hukou origin	.411***	(.087)
Age	-.002	(.047)
Ethnic minority	-.099	(.196)
One-child family	-.106	(.092)
Parental education	-.010	(.019)
Log (annual family income per capita)	-.062	(.057)
Missing	-1.249**	(.462)
Standardized undergraduate GPA	-.038	(.041)
Missing	.054	(.088)
CCP member	-.018	(.077)
Student organization participation	.320***	(.084)
Awards	.293**	(.104)
CET-4 certificate	.450***	(.113)
Field of study (humanities & soc. sci.)		
Natural sciences	.139	(.168)
Engineering science and tech.	.346***	(.105)
Agronomy	-.161	(.176)
Medicine and pharmaceutics	-.565**	(.175)
Type of university (Project 211)	.557***	(.164)
Survey year (2010)		
2013	-.234	(.169)
2015	-.190	(.186)
Hukou city	Yes	Yes
Constant	.206	(1.216)

McFadden's pseudo−r2	.414
N	5,159

Note: Reference category in parentheses. CCP = Chinese Communist Party. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001.

Table A4 Balance test after implementing propensity score weighting

Variable	Coef.	S.E.
Female	-.184	(.113)
Rural hukou origin	-.014	(.104)
Age	-.019	(.060)
Ethnic minority	-.156	(.219)
One-child family	-.168	(.114)
Parental education	.014	(.021)
Log (annual family income per capita)	.097	(.061)
Missing	-.815	(.537)
Standardized undergraduate GPA	-.007	(.050)
Missing	-.043	(.120)
CCP member	-.204*	(.099)
Student organization participation	.146	(.109)
Awards	.024	(.136)
CET-4 certificate	-.194	(.204)
Field of study (humanities & soc. sci.)		
Natural sciences	.249	(.208)
Engineering science and tech.	.025	(.114)
Agronomy	-1.627***	(.501)
Medicine and pharmaceutics	.340	(.243)
Type of university (Project 211)	.377	(.200)
Survey year (2010)		
2013	.049	(.201)
2015	.071	(.212)
Hukou city	Yes	Yes
Constant	.598	(1.476)
McFadden's pseudo−r2	.047	

N	5,159

Table A5 Logistic model predicting graduate return migration of college graduates in China, sample from CCSS (N=3,964)

Variable	Return migrant (Onward migrant)	
	Coef.	S.E.
Guanxi	.226	(.131)
One-child family	.175	(.181)
Parental education	.001	(.030)
Log (annual family income per capita) [a]	-.002	(.072)
Missing	1.089	(.602)
Cadre parent status	-.255	(.219)
Parents CCP member	.234	(.133)
Rural hukou origin	-.304*	(.144)
Age	.031	(.053)
Female	.456**	(.188)
Ethnic minority	.150	(.231)
Standardized undergraduate GPA	.025	(.051)
Missing	-.087	(.102)
CCP member	.046	(.098)
Student organization participation	-.158	(.107)
Awards	-.242	(.161)
CET-4 certificate	-.509*	(.235)
Field of study (humanities & soc. sci.)		
Natural sciences	-.176	(.177)
Engineering science and tech.	-.378**	(.128)
Agronomy	-.174	(.221)

Medicine and pharmaceutics	.390	(.208)
Type of university (Project 211)	-.592*	(.233)
Survey year (2010)		
2013	.483	(.222)
2015	.043	(.161)
Hukou city	Yes	Yes
Constant	-1.636	(1.297)
McFadden's pseudo−r2	.306	
N	3,964	

Note: Reference category in parentheses. CCP = Chinese Communist Party. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001.*

[a] Top-coded and bottom-coded the 3rd and 97th percentiles to minimize the influences of outlier cases.

Table A6 Balance test after implementing propensity score weighting

Variable	Return migrant (Onward migrant)	
	Coef.	S.E.
Guanxi	-.060	(.111)
One-child family	.137	(.149)
Parental education	-.001	(.030)
Log (annual family income per capita)	-.016	(.077)
Missing	-.168	(.193)
Cadre parent status	.184	(.243)
Parents CCP member	.127	(.134)
Rural hukou origin	.009	(.137)
Age	-.027	(.054)
Female	.087	(.126)
Ethnic minority	.002	(.269)
Standardized undergraduate GPA	.036	(.056)
Missing	.103	(.104)
CCP member	.055	(.103)
Student organization participation	-.162	(.099)
Awards	-.005	(.134)
CET-4 certificate	-.006	(.180)
Field of study (humanities & soc. sci.)	-.114	(.183)
Natural sciences	-.032	(.124)
Engineering science and tech.	-.332	(.234)
Agronomy	-.020	(.213)

Medicine and pharmaceutics	-.014	(.169)
Type of university (Project 211)	1.859***	(.357)
Survey year (2010)		
2013	.586**	(.194)
2015	.097	(.198)
Hukou city	Yes	Yes
Constant	.957	(1.282)
McFadden's pseudo−r2	.091	
N	3,964	

Note: Reference category in parentheses. CCP = Chinese Communist Party. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001.

Table A7 Probit model predicting graduate return migration of college graduates in China, sample from CCSS (N=3,964)

Variable	Return migrant (Onward migrant)	
	Coef.	S.E.
Guanxi	.115	(.110)
One-child family	.116	(.222)
Parental education	.001	(.937)
Log (annual family income per capita)a	.033	(.400)
Missing	.646	(.330)
Cadre parent status	-.042	(.131)
Parents CCP member	.213*	(.085)
Rural hukou origin	-.166*	(.036)
Age	.031	(.031)
Female	.254**	(.009)
Ethnic minority	-.338*	(.152)
Standardized undergraduate GPA	.016	(.043)
Missing	.013	(.063)
CCP member	-.268*	(.041)
Student organization participation	-.082	(.059)
Awards	-.135	(.085)
CET-4 certificate	-.093	(.108)
Field of study (humanities & soc. sci.)		
Natural sciences	.024	(.088)
Engineering science and tech.	-.234**	(.086)
Agronomy	-.090	(.288)

Medicine and pharmaceutics	.074	(.125)
Type of university (Project 211)	-.188	(.112)
Survey year (2010)		
2013	.310**	(.103)
2015	.165	(.112)
Hukou city	Yes	Yes
Constant	-2.274*	(1.072)
McFadden's pseudo−r2	.305	
N	3,964	

Note: Reference category in parentheses. CCP = Chinese Communist Party. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001.

[a] Bottom-coded the 1st percentile to minimize the influences of outlier cases.

Table A8 Logistic regression estimates of propensity scores

Matching covariates	BSG-migrant (Other stayer)		BSG-migrant (Other migrant)		BSG-migrant (BSG-local)	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Rural hukou origin	.061	(.137)	-.394***	(.114)	-.336	(.332)
Age	-.005	(.066)	-.072	(.049)	.190	(.613)
Female	-.133	(.131)	.258*	(.107)	-1.074	(.618)
Ethnic minority	-.080	(.288)	-.143	(.236)	.977	(1.194)
One-child family	-.060	(.147)	.215	(.122)	-.051	(.598)
Parental education	.032	(.020)	.023	(.016)	.018	(.022)
Log (annual family income per capita)	.003	(.062)	-.015	(.047)	-.294***	(.063)
Missing	-2.295**	(.815)	-.791	(.512)	1.216**	(.063)
Standardized undergraduate GPA	-.067	(.071)	-.064	(.059)	.101	(.335)
Missing	.131	(.148)	.135	(.117)	1.014	(.771)
CCP member	-.143	(.141)	-.028	(.110)	-.815	(.680)
Student organization participation	.453***	(.138)	.127	(.108)	2.894**	(.985)
Awards	.487***	(.135)	.229*	(.107)	-.570	(.632)
CET-4 certificate	.526*	(.224)	.085	(.195)	.362	(.974)
Field of study (humanities & soc. sci.)						
Natural sciences	-.177	(.247)	-.503**	(.192)	.040	(1.014)
Engineering science and tech.	.198	(.139)	-.277*	(.112)	-.120	(.636)
Agronomy	-.378	(.654)	-.599	(.464)	-	-
Medicine and pharmaceutics	-1.246***	(.360)	-.632*	(.294)	-	-
Type of university (Project 211)	.787***	(.152)	.229*	(.113)	3.154***	(.946)

Survey year (2010)

2013	.920***	(.166)	1.235***	(.123)	-2.557*	(1.026)
2015	.631***	(.195)	1.079***	(.145)	-1.753	(1.230)
Hukou city	Yes	Yes	Yes	Yes	-	-
Constant	-1.389	(1.609)	.542	(1.238)	.588	(7.729)
McFadden's pseudo−r2	.238		.186		.393	
N	2,041		3,400		1,681	

Note: Reference category in parentheses. CCP = Chinese Communist Party. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over colleges.

*p < .05. **p < .01. ***p < .001.

Table A9 Balancing properties of the matched samples

Treatment group (n matched)	Control group (n)	Bias before	Bias after	Percentage reduction
BSG-migrant (797)	Other stayer (1,239)	6.0	2.0	66.67
BSG-migrant (941)	Other migrant (2,452)	4.7	1.1	76.60
BSG-migrant (971)	BSG-local (700)	38.6	1.8	72.02

Note: The reduction of bias is computed as BR = 100*(1 – Bafter/Bbefore).

Table A10 Ordinary least squares regression adjustment for different work organization settings

	BSG-migrant (Other stayer)		BSG-migrant (Other migrant)		BSG-migrant (BSG-local)	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
BSG-migrant	.254***	(.036)	.240***	(.038)	.134***	(.037)
Work organization (ref.=Non-state sector)						
Government organization	.072	(.047)	.046	(.046)	.410	(.277)
Public enterprise	-.035	(.020)	-.016	(.022)	.035	(.075)
Female	-.101***	(.023)	-.081***	(.023)	-.085	(.123)
Rural hukou origin	-.078**	(.028)	-.044	(.031)	-.114	(.071)
Age	.001	(.014)	-.019	(.010)	-.100*	(.040)
Ethnic minority	-.074	(.044)	-.009	(.036)	.179	(.249)
One-child family	.040	(.026)	.037	(.023)	.202*	(.080)
Parental education	.003	(.004)	.004	(.004)	.001	(.005)
Log (annual family income per capita)	.043***	(.013)	.046***	(.010)	.077***	(.015)
Missing	.142	(.151)	-.057	(.087)	-.157	(.123)
Standardized undergraduate GPA	.012	(.016)	-.001	(.013)	-.100*	(.041)
Missing	-.014	(.031)	.001	(.030)	.253**	(.082)
CCP member	.014	(.028)	.007	(.023)	.143	(.085)
Student organization participation	.067**	(.024)	.045	(.026)	-.027	(.074)
Awards	.062*	(.024)	.069**	(.022)	.103	(.109)
CET−4 certificate	.009	(.049)	.010	(.035)	.0556	(.095)

Field of study (Humanities & social science)						
Natural sciences	.090	(.056)	.066	(.037)	-.212	(.172)
Engineering sci. & tech.	.039	(.031)	.100**	(.030)	-.180	(.095)
Agronomy	-.029	(.087)	-.231*	(.091)	-.201***	(.058)
Medicine and pharmaceutics	-.027	(.084)	.018	(.108)	-.055*	(.086)
Type of college (Project 211)	.194***	(.042)	.174***	(.038)	.337*	(.141)
Survey year (2010)						
2013	.365***	(.043)	.352***	(.038)	.440*	(.171)
2015	.454***	(.060)	.446***	(.051)	.429*	(.204)
Constant	7.320***	(.305)	7.837***	(.227)	9.624***	(.962)
N	2,036		3,393		1,659	

Note: Reference category in parenthesis. S.E. = Standard Error. Standard errors are shown in parentheses and calculated by clustering over universities. Sample sizes limited to the region of common support.

*p < .05. **p < .01. ***p < .001.

<u>Vorlage: Eidesstattliche Erklärung</u>

(nach der Rahmenpromotionsordnung der Universität Bielefeld vom 15. Juni 2010)

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a) dass ich die eingereichte Arbeit selbstständig verfasst habe und nur die namentlich genannten Personen mitgewirkt haben,

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i) ob es sich um eine Monographie oder um eine kumulative Dissertation handelt.

Bielefeld, 19.10.2020.   *Mengyao Zhao*

Ort, Datum   Unterschrift

<u>Template: Declaration of honesty</u>

(in accordance with the Bielefeld University General Regulations of Doctoral Studies of 15 June 2010)

I hereby declare

a) that I have independently drafted the paper(s) submitted. Only the persons referred to by name worked on the paper,

b) that I prepared the dissertation myself, I did not take over any text passages from third parties or my own examination papers or publications without marking them accordingly, I indicated all tools and sources used in the paper,

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d) that no third parties have received either direct or indirect contributions in kind for procurement of information or research or for work connected with the content of this dissertation presented,

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f) whether I have submitted the same paper, or a substantially similar paper at another university as dissertation or habilitation project and, if this is the case, what the result was,

g) that I agree to an electronic check of the dissertation (plagiarism assessment),

h) about the publication status of the dissertation or of individual parts, which is to be added to the abstract or the synthesizing paper,

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