University of Southampton

Faculty of Social Sciences

Southampton Education School

The post-study labour migration of non-UK-domiciled postgraduate students: Flows in Reflexive Modernity

by

Meng Zhan

Thesis for the degree of Doctor of Philosophy

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ABSTRACT

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In the global competition for high-skill workers and talents, the massive inflow of international and EEA students into the UK HE system has drawn great attention from researchers. However, little attention has been paid to the post-study migration of UK-education foreign students. By filling this gap, this thesis has made empirical, methodological, and conceptual contribution to the existing literature on international student migration. This thesis is made up of three standalone but interrelated empirical research papers (Chapter 3 to 5), and each paper contributes to a specific area of study. Based on the three-level agenda proposed by Li and Lowe, it aimed to: 1. Mapping the migration flows of international (non-EEA) graduates and EEA graduates; 2. Analysing what factors could shape the migration patterns of EEA and non-EEA graduates respectively; 3. Understanding the on-going interactions between individual students' agency and the dynamic socioeconomic structures, and investing how students respond to the changes and uncertainties in the societies and labour markets.

Paper 1 focused on the labour mobility of all non-EEA international students by analysing the HESA data through using cross-classified multilevel modelling. Two one-year extracts from the Destinations of Leavers from Higher Education (DLHE) dataset were analysed (2013/14, 2014/15) using cross-classified multilevel modelling in order to estimate influences on "stay-rate": the likelihood of highly skilled graduates remaining in the UK for work after graduation. Variance at the domicile-level was estimated to be 1.67 times greater than variance at HEI-level indicating that home country is a better predictor of stay-rates than the HEI attended. In Paper 2, repeated cross-sectional data received from HESA were analysed, it focused on the post-study movement of EEA graduates and its changes in the long-term (2011/12-2016/17). Multilevel modelling results show that, at domicile-level factors, GDP per capita could be a stronger predictor than youth unemployment in analysing student post-graduation movement. At HEI-level factors, the prestige level of HEI could not effectively predict students' stay-rate. At individual-level, students' education background and gender identity were significant in predicting stay-rate. Results imply that the group effects at neither HEI-level nor domicile-level should be ignored. Finally, Paper 3 aimed: firstly, to investigate the structural factors that might influence the post-study migration patterns of Chinese students; secondly, to explore empirically about how Chinese international students respond to and interact with the wider social structures under the context of dynamic and fast-changing societies. Adopting a multiple-method design, Paper 3 used secondary data received from HESA and interview data collected from 13 Chinese postgraduate students who graduated from an UK university. Based on Giddens's structuration theory, this study found that different configurations between student's 'goals', 'actions', and 'reflexivity' would lead to different types of job-searching and migration strategies. Findings confirmed that the transition between study and work is more complex than what is described in the human capital and push-pull approaches.

Overall, this thesis highlights the importance of multilevel modelling strategy and structuration theory in the research of international student migration. Factors that could shape student migration patterns were found to be attributed at domicile-level, HEI-level, and individual-level. The dynamic and on-going interaction between individual agent and the wider social structures was found to be the key in understanding the study-to-work transition of international students.

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DECLARATION OF AUTHORSHIP

Print name: Meng Zhan

Title of thesis: The post-study labour migration of non-UK domiciled postgraduate students: Flows in Reflexive Modernity

I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission

Signature: Date:

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LIST OF ABBREVIATIONS

BAS	Business & Administrative Studies
BEIS	Department for Business, Energy and Industrial Strategy
CBI	Confederation of British Industries
CSSA	Chinese Students & Scholars Association
DES	Doctoral Extension Scheme
DIC	Goodness of Fit
DLHE	Destination of Leavers from Higher Education
DRF	Doctorate Records File
EAIE	European Association for International Education
EEA	European Economic Area
EHEA	European Higher Education Area
ERASMUS	European Community Action Scheme for the Mobility of University Students
EU	European Union
GDP	Gross Domestic Product
GDS	Graduate Destination Survey
HE	Higher Education
HEI	Higher Education Institution
HESA	Higher Education Statistics Agency
ISM	International Student Migration
LSIA 3	Longitudinal Survey on Immigrants to Australia
MCMC	Monte Carlo Markov Chain
OECD	Organization for Economic Cooperation and Development
PPP	Purchasing Power Parity
PR	Permanent Residency
PSW	Post-Study Work
R&D	Research and Development
RCUK	Research Councils UK
SDR	Survey of Doctorate Recipients
SED	Survey of Earned Doctorates
SEGS	Science and Engineering Graduate Scheme
SEM	Structural Equation Modelling
STEM	Science, Technology, Engineering, and Mathematics
TUC	Trade Union Congress
UK	United Kingdom
UKBA	UK Border Agency
UKCES	UK Commission for Employment and Skills
UKVI	UK Visas and Immigration
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
VPC	Variance Partition Coefficients
WTO	World Trade Organization

CHAPTER 1 INTRODUCTION

1.1 Background of the Study

In the era of internationalisation and globalisation, international migration as an enduring social phenomenon has been connecting individuals with societies in every aspect. Some research suggests that the persistent inequalities in wealth between countries, local political or ethnic conflicts, or even the inequality of trade between economic entities provide the possibilities for migrants to flow across borders (Lee, 1966; Sjaastad, 1970; Borjas, 1989; Passaris, 1989). On the other hand, international migrants are also believed to have significant economic and social impacts on both sourcing and receiving countries (Castles, de Haas and Miller, 2014). Migration is the consequence of human agents' actions under the different combinations of social circumstances and other factors.

According to the UN Department of Economic and Social Affairs (2016), the number of international migrants worldwide has reached 244 million by the year 2015, which has grown 41% compared with the number of 2000 (i.e. 173 million). The rapid growth of international migration in the past two decades could be partly explained by the increase of people's aspirations and capabilities to migrate, and this might be the consequence of the increase access to education, information, social capital and financial resources as well as the improvement of transport and commutation (Castles, de Haas and Miller, 2014). In addition, the growing inequalities of economy, trade, resources and power between countries might also have accelerated the process of international migration (Passaris, 1989). However, due to the large global population base and the growth of global population, the proportion of international migrants is remaining stable and only fluctuating slightly around 3% during the last two decades.

At the meantime, the number of international postgraduate students (i.e. students who came from non-EU countries) who studied in the UK surged from 56,900 in 2000 to 160,145 in 2018, and the number of postgraduate students from other EU countries increased from 30,300 in 2000 to 45,775 in 2018 (HESA, 2002;2019). The growth rate of migrate students is much higher than the rate of overall migrant group. International postgraduate students, as a unique sub-group of migrants, have distinctive characteristics compared to other sub-groups, such as their main purpose of migrating to other countries, their temporary migrant status, education levels, and skill types and levels. In addition, unlike other types of migrants, the movement of international students has at least two stages: stage one, from home countries to education market in host country; stage two, from education market in host country to labour markets in destination countries (see Figure 1.1).

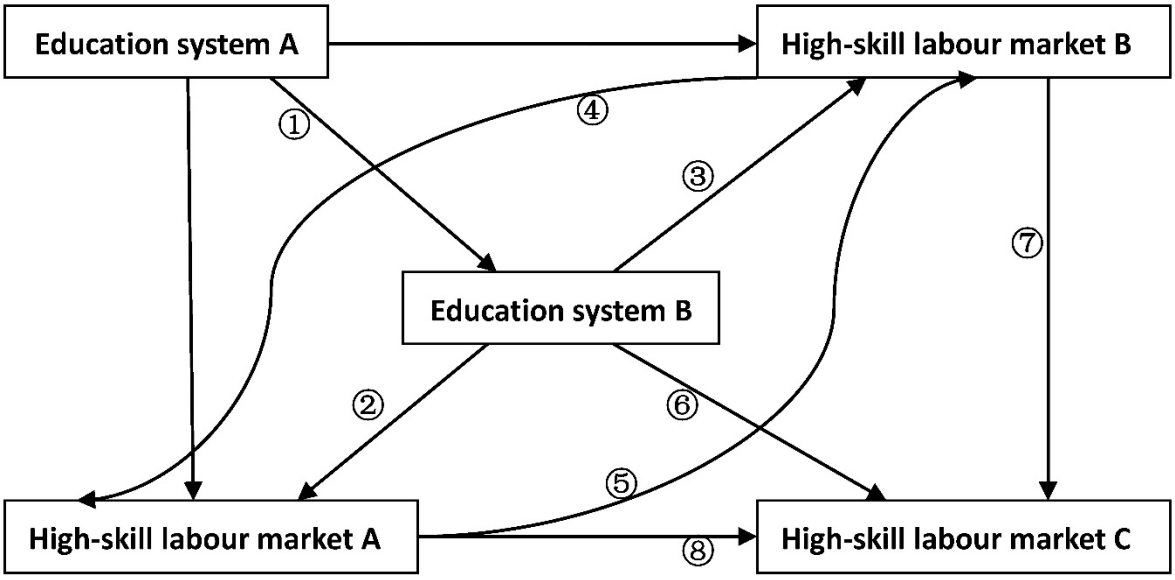


Figure 1.1 The basic map of international student migration flow and high-skill labour flow

The arrows in this map represent the possible flows of international students between education systems and labour markets in different countries. Flow 1 represents students from country A (home country) into the HE system in country B (host country, in this study refers to the UK). When graduated at some level (e.g. Masters, Doctor) in country B, students might return to join the high-skill labour

market in their home country (flow 2), or might choose to stay to work in country B (flow 3). Some students may return to home country after gaining some work experience in labour market B (flow 4). Some other highly skilled workers in country A might migrate back to country B where they received higher education before (flow 5). Not all students would choose to stay or return to home country, some of them might work in a third country (country C) after graduation (flow 6). There are also some students decide to join the labour market in country C after working for some time in country A/B (flow 7 and 8). Two flows in this map are not numbered as they are irrelevant to HE study experience in country B. Many scholars have tried to understand how and why students migrate to the UK for education (flow 1), such as motivations and decision-making processes for studying abroad and overseas experiences in the UK (Wu, 2014; Cebolla-Boado, Hu and Soysal, 2018). Recently, there is also an increasing recognition for the need of having more investigation in their post-study labour movements (flow 2 to 8) (Wu and Wilkes, 2017).

Having better understanding of the post-study movements of international students have major implications for both policy makers and Higher Education Institutions (HEIs) in the UK. International postgraduate students with higher degrees are claimed to be potential highly skilled professionals who could contribute to nations' global competitiveness and economic interests (Salt, 1997; Robertson, 2013; Ziguras and Gribble, 2015). Policy makers in both host and home countries have released many plans to retain international students or attract foreign-educated students to return. For instance, the 'Post-Study Work visa' and the 'Prime Minister's Initiatives' in the UK, the 'Complementing the Singaporean Core with a Foreign Workforce' in Singapore, and the 'Thousand Talents Plan' in China, all represent governments' ambition and interests in attracting highly skilled labours by making the economic or policy environments more favourable to potential migrants/returnees (Hawthorne, 2010; Bhandari and Blumenthal, 2011; Ziguras and Gribble, 2015). The knowledge of students' migration patterns as well as the understanding of students' decision-making processes could help governments to deliver more effective plans in managing international student migration flows.

In the era of internationalisation of higher education, the knowledge about cross-border student migration also have significant implications for HEIs in the UK. According to a European Association for International Education (EAIE) survey, 'To prepare students for a global world' was ranked by HEIs in Europe as the second most important reason to focus on internationalisation, which was only ranked after 'Improve the overall quality of education' (de Wit *et al.*, 2015, p.65). Although UK universities are increasingly expected to prepare their graduates for employment in a global economy, the employability support offered by most universities are criticised focusing mainly on the requirements of the UK labour market, and not providing enough attention to the needs of non-UK students (Teichler, 2009; Huang and Turner, 2018). The understanding about non-UK students' decision-making in the post-study labour movements would help UK HEIs in providing more tailored employability services for those students.

In their theoretical research, Li and Lowe (2016, p.21-23) proposed a three-level agenda in modelling the 'transitions from internationally mobile student to internationally mobile skilled worker', which includes 'mapping the flows', 'controlling the flows', and 'theorising the flows'. More specifically, mapping the flows means to have adequate data on student cross-border movements, and controlling the flows refers to using statistical models to investigate what factors could influence the migration patterns of international students. The ultimate aim of Li and Lowe's (2016) proposal was to explain the flows with using appropriate sociological theory, which in turn to enhance our understanding of the social world.

The social life in contemporary world has been changed dramatically compared to social life in pre-modern society. Based on his analysis of the contemporary society, which includes the analysis of specific features of modern people and features of institutions in modern society, Giddens (1990; 1991) refers modernity as a result of the interplays between certain institutional dimensions, which include capitalism, industrialism, surveillance, and military power. The development of technology and transportation has greatly disembedded the social interactions from local contexts, which were

previously constrained by time and space. The lines between the local and the global and the lines between the past and the future are becoming blurry. With the development of air transportation and communication technology in recent decades, overseas students could travel a long distance to host countries for education and employment while still maintaining close contact with families and friends in home countries via internet at the same time. In addition, according to Giddens (1991, p.52), the modern society has moved away from the traditional cultures to a post-traditional culture in which self-identity is something 'that has to be routinely created and sustained in the reflexive activities of the individual' rather than something that is given. The rapid social changes in modern society increase the uncertainties for individuals, and the tradition has less power in constraining how people think and act in a world in flux. In order to deal with the anxieties caused by ongoing uncertainties and risks, the self needs to become a reflexive project who could constantly engage in the responses and adaption to the changing circumstances. In the context of this study, institutional factors such as the recent development of the world economy, the changes of demand and supply in global labour market, and the adjustments of government policies etc. may cause uncertainties for overseas students in choosing the destinations for employment and life after their graduation. What is more, due to the rapid socioeconomic changes, the influences of institutional factors in the recent decade might different from the influences in the previous decades. The concept of Giddens's (1991) reflexive modernity indicates that in order to have a more comprehensive and up-to-date understanding of the study-to-work migration mechanisms of non-UK domiciled postgraduate students, it is therefore necessary to explore: 1. The influences and constrains of institutional factors on students' migration choices and actions in the recent decade; 2. How students practice their agency and reflexivity in a process of continuously making and remaking of the self-identify, and how their negotiate with the social dynamics in making their migration decisions.

Based on key concepts of Giddens (1990; 1991) which are mentioned above and the proposal of Li and Lowe (2016), this thesis aims to understand and explain non-UK-domiciled student migration in the following three aspects:

1) Post-study migration patterns of non-EEA postgraduate students. In the UK, International postgraduate students from non-EEA countries form a large sub-group of migrants. The inflow of international students does not only bring economic benefits to British HEIs, it also has the potential to enhance Britain's competitiveness in the global knowledge economy. However, access to sufficient data on the destinations of HE international students has been difficult previously in the UK context, despite the fact that international student numbers have grown substantially. Little is known about the labour migration patterns of non-EEA domiciled international students, nor of the factors that might can shape these patterns.
2) Post-study migration patterns of EEA postgraduate students. The increased intra-European mobility of students and graduates is claimed to have crucial positive influence on building Europe's high-skill labour force, which in turn would strengthen its competency in the global knowledge economy (de Wit *et al.*, 2015). Existing research on student mobility in the context of UK has primarily focused on the inflows of students from other EEA countries for short-term education, and the labour movement of former Erasmus students. The absence of accurate quantitative data on degree-mobile students makes it difficult to track and investigate their post-study mobility patterns.
3) The on-going interactions between mainland Chinese international students' agency and the dynamic socioeconomic structures. In the global competition for high-skill workers and talents, the massive inflow of Chinese students into the UK HE system has drawn great attention from researchers, and there is an increasing interest on the post-study migration of this group. One of the special interests is to explore how Chinese international students respond to and interact with the dynamic and fast-changing socioeconomic structures in their study-to-work transition processes. International students from mainland China were selected for the following reasons. Mainland Chinese students formed the largest sub-group of international students in the UK HE system. Their home country, China, has experienced dramatic social and economic changes in the past few decades. Students from different home countries have

significant differences. In order to have a thorough understanding about the decision-making of Chinese international students, it is necessary to differentiate them from other subgroups (Wu, 2014).

Starting from the research on mainland Chinese students, the conceptual framework used in analysing international mobile students' decision-making process as well as the interactions with the wider social structures could be adapted and applied to further studies on other groups of mobile students.

Each chapter of this thesis aims at investing one of the aspects mentioned above for the purpose of enhancing knowledge and understanding about the post-study labour migration of non-UK-domiciled students. In the age of globalisation and internationalisation of Higher Education, the number of internationally mobile students is expected to grow continuously in the near future. Graduates with international experiences are claimed to have accumulated mobility capital, human capital, social capital, cultural capital, and economic capital (King, Findlay and Ahrens, 2010), and they are also identified to be more employable, especially in workplace where requires cultural sensitivity (Campbell, 2010). The research on the study-to-work transition of international students has vital implications, as Li and Lowe (2016, p.23) argues that 'strategic advantage in the war for talent may lie with those who have the best knowledge of factors under their control that influence the flows and knowledge of how these may be affected by policy'.

1.2 Objectives and Contribution of the Thesis

As highlighted previously, the overarching aim of the thesis is to understand and explain the study-to-work transition of non-UK-domiciled students through analysing empirical evidences. By doing so, this thesis's objective is to contribute not only to the knowledge in literature, but also to the construction

of conceptual framework in studies of post-study labour migration of international student. The detailed objectives of this thesis can be summarised into below:

1) To identify what factor could effectively shape student post-graduation movements by using quantitative national level census survey data (Destination of Leavers from Higher Education data, outlined in section 1.4);
2) To test the mechanisms and correlations proposed by existing theories and literature through analysing the DLHE data;
3) To propose and test a new statistical modelling strategy (i.e. cross-classified multilevel modelling) in analysing student migration data;
4) To propose and test an alternative conceptual framework (i.e. Giddens's structuration theory) in explaining student's decision-making in study-to-work transition under the dynamic socioeconomic environment.
5) To constitute advices for policy makers and British HEIs in the context of globalisation and internationalisation of higher education.

The impacts and contribution of this thesis could be found in following aspects. First, this study might be one of the first studies which uses large scale secondary data analysing the migration patterns of non-UK-domiciled students in the UK context. Previous research has done the statistical analyses of international student migration flows in contexts like the US and Australia. In the UK, studies in the area were mainly using qualitative interview data (Harvey, 2009;2011; Mavroudi and Warren, 2013; Szewczyk, 2014), and the quantitative DLHE data from the Higher Education Statistics Agency (HESA) has not been found to be used by other researchers for the purpose of exploring cross-border migration flows. Therefore, the first contribution of this study would be developing a migration 'map' which describes the study-to-work transition of international postgraduates in the UK context.

The second contribution of this thesis is that it has examined and tested the appropriateness and necessity of adopting multilevel modelling approach in analysing student migration data. Previous

studies in international student post-graduation migration have mainly used single-level linear regression models (Kim, Bankart and Isdell, 2011; Hawthorne and To, 2014; Roh, 2015). Those studies ignored the facts that international students are not independent cases. Instead, students are simultaneously nested within different home countries and are separately nested within different British HEIs (see Chapter 3 for detailed discussion), ignoring the cluster effects would result in overestimating the influence of higher-level factors. The cross-classified multilevel modelling approach that has been used in this thesis could avoid the problem mentioned above and provide more accurate estimations for the effects of country-level and university-level factors.

The third contribution of this thesis is that it has examined and tested an alternative conceptual perspective (Giddens's structuration theory) in exploring the mechanisms of international student/highly skilled worker migration. Social world in modern time is a dynamic social system, and social relations in the system are changing over time. Therefore, topics like international migration flows, especially in terms of student migration decision-making and responses to the dynamic social structures, might need to be investigated from a perspective which allows researchers to have the flexibility to take social changes into their consideration. That is not to say other perspectives do not consider about social changes. The rapid social changes imply that social systems are in a process of production and reproduction rather than simply repeating themselves (Giddens, 1984; Archer, 1998). This requires one chapter (Chapter 5) of this thesis to adopt a research perspective which has the ability and flexibility to combine quantitative data, qualitative data, social structures, human agency as well as dynamic social changes. This thesis has found that Giddens's structuration theory (1984) worked quite well in analysing and explaining students' agentive actions in navigating their way through the global labour market. The attempt and efforts made by this thesis (Chapter 5) could provide other researchers some ideas about what structuration theory can do in this research area.

The fourth contribution is to provide suggestions for policy makers in the UK for the purpose of attracting more international postgraduate students and highly skilled workers to stay and work in the

UK. Talents, especially talents from overseas have been proved to be an important engine for a country's development in this modern globalised world. As the competition for talents is becoming much fiercer in the global labour markets, it is necessary for all nation states to consider how to amend their immigration policies and initiatives to adapt rapid social changes in society. For instance, China now has becoming the biggest sourcing county in the UK higher education market. Those international postgraduate students from China could be a massive talent pool for employers in the UK. The challenge for policy makers in the UK would be how to convert those non-UK-domiciled postgraduate students into highly skilled workers who can make contribution to the domestic economic development. Human agents do not just simply respond to structural factors, such as salary difference between countries and immigration policies. Rather, they are active and reflexive beings who are able to engage with those structural factors and make their own unique choices. Therefore, numbers, observable migration patterns and correlations between variables are not enough for policy makers to make the most appropriate policy changes. What is still required is policy makers' understanding about the mechanisms beneath the observable patterns and correlations. Equipped with better knowledge about the migration mechanisms, policy makers would find this thesis to be useful in helping them delivering more effective plans in managing the flows of student-turned migrants.

1.3 Research Questions

Followed the research objectives mentioned previously, this thesis is guided by three main research questions:

- RQ1: What is the post-study labour migration pattern of non-EEA students who graduated from masters and doctoral programmes from UK HEIs?
- RQ2: What is the post-study labour migration pattern of EEA-domiciled students who graduated from masters and doctoral programmes from UK HEIs?

- RQ3: How did mainland Chinese postgraduates respond to and interact with the dynamic social structures in their study-to-work transition processes?

More specifically, each empirical paper in the thesis addressed a set of sub-research questions, which were then examined and tested by quantitative and qualitative analyses. A summary of all research questions is provided in Table 1.1 seeing below:

Table 1.1 Summary of research questions

Chapter	Type of RQ	Research questions
Chapter 3: International postgraduate students' labour mobility in the UK: A multi-level modelling approach	Overarching	What is the post-study labour migration pattern of non-EEA students who graduated from masters and doctoral programmes from UK HEIs?
	Specific	Which groups of international students are more likely to stay and work in the UK after graduation? What factors might be able to shape non-EEA students' post-graduation migration flows? What is the contribution of cross-classified multilevel modelling in analysing student migration data?
Chapter 4: The post-study migration of EEA postgraduates: Who is remaining to work in the UK?	Overarching	What is the post-study labour migration pattern of EEA-domiciled students who graduated from masters and doctoral programmes from UK HEIs?
	Specific	What proportions of the variance in stay-rate are explained by HEI- and domicile-level factors, thereby determining what modelling strategy is more suitable in analysing EEA student labour mobility? Which group of EEA graduates are more likely to remain and work in the UK?
Chapter 5: The study-to-work transition of Chinese international students: Navigating a way out in the global labour market	Overarching	How did mainland Chinese postgraduates respond to and interact with the dynamic social structures in their study-to-work transition processes?
	Specific	What are employment destinations of Chinese international students? And what are the factors influencing students' migration patterns? How did students understand and respond to their career opportunities and challenges? What are students' strategies in choosing employment destinations?

		What is the implication for policy makers and UK HEIs?

1.4 Data Sources

This section provides a brief summary of the data sources and methodologies been used in each empirical paper. It also provides some critiques of the quantitative data and the qualitative data. Paper One (Chapter 3) used secondary large-scale quantitative DLHE data received from the HESA in September 2016. The DLHE survey is conducted approximately six months after graduation, which provides a national level overview of employment activities of students who graduated from UK HEIs. HESA (2018b) started collecting DLHE data from non-EEA domiciled students from 2011. However, due to the poor data quality (comparatively small proportion of responses from non-EEA graduates) in DLHE 2011/12 and DLHE 2012/13, HESA could only provide the data from 2013/14 and onward. By the time of my first data collection, there were only DLHE data for 2013/14 and 2014/15 available. Compared to the DLHE response rates for UK and other EU domiciled students (78.5% in 2013/14, and 78.7% in 2014/15), the response rates for non-EU domiciled graduates were still relatively low (31.1% in 2013/14, and 33.1% in 2014/15). In order to get more strength from the dataset, Paper One decided to combine the DLHE data 2013/14 together with DLHE data 2014/15. The DLHE survey is centrally designed and defined by HESA, while the data collection is locally managed by each HEI.

The continuous domicile-level variable data (PPP based GDP per capita, unemployment rate, and youth unemployment) were used in Chapter 3 to investigate the influence of socioeconomic factors on student migration. Those data were extracted from the World Bank (2018) online databases. Also, in this chapter, 'majority native English-speaking country' variable, 'English as official language country', and 'previous colonial affiliation' were used to investigate the influence of language

background and colonial ties on student migration (see Appendix A for full country lists). In Chapter 3, descriptive statistics include cross-tabulations, Chi-squared tests, and caterpillar plots. Cross-classified logistic multilevel modelling was applied because the dependent variable was binary (stay in UK vs. not-stay in UK)

Paper Two (Chapter 4) used DLHE survey data (2011/12-2016/17) obtained from the HESA. This was the second quantitative data collection in this thesis, and the dataset was received from HESA in August 2018. The DLHE survey has been re-designed since 2011/12, which resulted in that the data from the survey for 2011/12 and onwards could not be directly compared to figures presented in previous years. Apart from HESA data, this chapter also used 'youth unemployment' data and 'PPP based GDP per capita' data (2012-2017) taken from the World Bank (2018) Database to investigate the influence of country-level factors on EEA student migration. Pooled dataset of DLHE 2011/12-2016/17 was used in descriptive statistics, and the statistical analyses been conducted include caterpillar plots, 1-tailed binomial tests, cross-tabulations, and Chi-squared tests. Two different sets of cross-classified logistic multilevel regressions were conducted in Chapter 4. The first set of regressions used pooled data of DLHE 2011/12-2016/17 for the purpose of exploring the overall correlation between explanatory variables and dependent variable in the period of 2011/12-2016/17. The second set of regressions include six separate regressions for each year from 2011/12 to 2016/17 to: 1. Investigate the changes in EEA student migration patterns between 2011/12-2016/17; 2. Test the influence of GDP and unemployment rate on the stay-rate of EEA students.

Paper Three (Chapter 5) used quantitative data (DLHE 2011/12-2016/17) received from HESA in August 2018 (second quantitative data collection in this thesis) and qualitative interview data collected by the author between 09/2018-12/2018 (see Appendix B for an example of interview transcripts). In terms of quantitative data, only descriptive statistical analyses were conducted in this Chapter, which include cross-tabulations and Chi-squared tests. In terms of qualitative data, semi-

structured telephone interviews were conducted for data collection, and a hybrid approach of inductive and deductive thematic coding was used in analysing qualitative data.

There are, however, some limitations in the data been used by this thesis. The first limitation in DLHE data is the reliability of the secondary data. There was a mistake in the attached 'notes and labelling file' which came together with the bespoke dataset (see Appendix C). For bespoke dataset, usually in tab separated ASCII text file format, the attached 'notes and labelling file' works as the manual for researchers to understand and translate the values contained within the data. A mistake in that file might result in errors in interpreting the statistical results. Although one mistake has been found and been corrected, it is possible that there are more mistakes have not yet been identified.

The second limitation in DLHE data is its appropriateness for the research purpose of this thesis. In the context of the UK, the DLHE data collected by HESA is the best available national level census data on student post-graduation migration. Nevertheless, this census survey was not designed for this specific research. That is to say, not all of the variables in DLHE data are useful in answering the research questions in this thesis, and some variables that could give answers to some research questions are not available in DLHE data. One example is parental occupation. This variable is available in DLHE survey for undergraduates but is not available in DLHE survey for postgraduates. For many international students, especially those from mainland China, whose parents are their primary funding source for overseas education, parental occupation could capture the socioeconomic status of students' families. Therefore, this thesis suggests that future studies with sufficient funding and time could consider re-design the survey to fulfil their own research objectives. This thesis has considered about re-design the survey for Paper Three (Chapter 5), so the quantitative data results could better inform the design of the following semi-structured interview. However, it eventually used DLHE data instead of re-designing a new questionnaire for two reasons: 1) considerable time and money need to be invested into developing a survey questionnaire; 2) the author could not guarantee the quality of

the data (survey coverage and response rate etc.) would be improved if this thesis conducted its own survey.

1.5 Structure of the Thesis

This thesis contains six chapters. Each of the three empirical papers (Chapter 3 to Chapter 5) is a related but standalone paper which contributes to a specific area of research. Chapter 1 is the overall introduction of the whole thesis. In Chapter 2, the focus was discussing the research problems, conceptual frameworks been used in studying international student migration, and key background literature. In Chapter 3 to 5, based on empirical quantitative and qualitative evidences, detailed discussion and analysis were undertaken to answer specific research questions.

Chapter 3 focused on the labour mobility of all non-EEA international students by analysing the HESA data through using cross-classified multilevel modelling. It suggests that some country-level factors, which have been tested to be useful in previous student migration research, could not effectively predict the stay-rate of international students. In Chapter 4, repeated cross-sectional data received from HESA were analysed, it focused on the post-study movement of EEA graduates and its changes in the long-term (2011/12-2016/17). Multilevel modelling results show that, at domicile-level factors, GDP per capita could be a stronger predictor than youth unemployment in analysing student post-graduation movement. At HEI-level factors, the prestige level of HEI could not effectively predict students' stay-rate. Results imply that the group effects at neither HEI-level nor domicile-level should be ignored. Chapter 5 focused on the movement of mainland Chinese students and used a multi-method design in analysing quantitative and qualitative data. Findings suggest that the transition between study and work is more complex than what is described in the human capital and push-pull approaches. Three different study-to-work transition strategies were identified from the on-going and dynamic interactions between students' agency and structural contexts: 'proceeding without a fixed

plan'; 'reaching a compromise'; and 'knowing the goals and approaching to goals'. Finally, Chapter 6 provides final conclusions and implications for future studies.

CHAPTER 2 THEORETICAL BACKGROUND AND KEY LITERATURE

Migration has gained increasing attention and salience from politician and public over the past two decades. On one hand, the inequalities in wealth and resources between countries are believed have been impelling a great number of people to migrate for better opportunities, living standards and lifestyles elsewhere (Castles, de Haas and Miller, 2014). The trend of globalisation and the creation of free trade areas, more specifically the increased influence of World Trade Organization (WTO), Organization for Economic Cooperation and Development (OECD) and European Economic Area (EEA) etc., have facilitated the trade between countries cross the world as well as the movement of labour (Massey *et al.*, 1993). On the other hand, however, the worker shortage, especially skilled worker shortage, in developed countries since the late 1990's has encouraged governments to attract highly skilled workers to expand their talent pools and make their nations more competitive in the global market (Jackling, 2007). In 1997, the Labour came to power with a commitment of building '… a high-tech, high knowledge, innovative and scientific economy', and attracting highly skilled migrants were considered as one of primary approaches to implement its economic management plan (Somerville, 2013, p. 260). The goal of building such as a global knowledge economy has not changed during the past twenty years and is still valued and emphasised by the Conservative government, as the Prime Minister Theresa May claims that the UK government will '… back Britain's strengths in areas such as science and innovation… Britain will be the global go-to place for scientists, innovators and tech investors… we will not just back the innovators, but the long-term investors, too' (May, 2016).

In order to achieve this goal, one of the challenges faced by the government is how to manage the migration flows more effectively and efficiently (Layton-Henry, 2004). In the era of globalisation, in order to build and benefit from the new knowledge economics, multinational corporations and state governments are in a 'battle for the brains' (Doomernik, Koslowski and Thraenhardt, 2009, p. 3). The best and the brightest are believed to be able to improve the competitiveness of those corporations

and nation states. Therefore, when the Labour came to power in 1997, it released a series of new policies and initiatives, such as the Innovators Scheme, the Skilled Migrant Entry Programme and two Prime Ministers' Initiatives, to attract skilled immigrants and talents including entrepreneurs, scientists, high technology specialists and international students as well (Rollason, 2002; Yang, 2011).

However, as one of the top three political and policy issues in the UK, immigration issue is concerned not only by the government, but also by the lobbying groups hired by private sectors (Somerville, 2009). What is more, before the Home Office and the UK Border Agency (UKBA, now is replaced by the UK Visas and Immigration, also known as UKVI) had the prominent roles in the immigration policy community, immigration policy in the UK was dominated by actors from private sectors, such as employer associations, legal firms and think tanks etc. (Somerville, 2007). Those private sector actors were more focused on the business interests and pressed the government to deliver more open work permit system to ease the skilled worker shortage (Spencer, 2003).

Unlike private sector players, the British government has a complicated attitude on those skilled migrants and potential talents. Apart from domestic skilled worker shortage and business interests, a nation government also needs to consider other issues when making policy decisions. For instance, demographic pressures, political environment and the sustainability of welfare state etc. could also influence immigration policies. On the one hand, in order to reply the pressure from employer associations, such as the Confederation of British Industries (CBI) and the Trade Union Congress (TUC), the UK government relaxed the rules in work permit system (Cerna, 2014). On the other hand, the government still had concerns that migrating workers (including both high-skilled workers and low-skilled workers) might intend to remain within the UK, which might lead part of indigenous workforce lose their jobs, go on benefits, and then become a burden to the British tax payers (Düvell and Jordan, 2003). Borrowing a concept from C. Wright Mills (1959, p.8), for governments, the management and regulation of student migration flows is a consideration of the 'public issues'. Having more robust

knowledge and better understanding about what structural factors could shape student migration flows would provide policy makers the strategic advantages in the war of talents.

2.1 The Influence of Structural Factors on Post-study Labour Migration

Salt (1997, p. 5) suggests that 'there is no agreed concept or definition of the highly skilled… and … attempts to define the highly skilled confront a series of conceptual, definitional, and data problems', however, 'most commentary on the highly skilled assumes them to have a teritary educational qualification or its equivqlent'. Based on this idea, Salt (1997) proposed a scheme which attempts to identify the most important categories of temporary highly skilled migrants, and international students at first and higher degree levels in higher education institutions were counted as one of those categories. Ewers (2007, p. 125) supplements that the international movement of students is important because 'Students and scholars, in fact, represent the largest numbers of the highly-skilled in the global economy and where people choose to attend universities is a solid determinant of where they will settle'.

The importance of highly skilled individuals for science and innovation has been recognised by many countries, and many of them hold the widespread belief that there is a 'link between studying abroad and international labour market mobility' (OECD, 2002; Parey and Waldinger, 2011, p. 194). For instance, in 2000, the British government relaxed the rules in work permit system to attract more talents and international students. The criteria for obtaining work permits was changed from job offer, qualification and two years' experience to just job offer and qualification (Somerville, 2013). For international postgraduate students without previous working experience, this means that the entry requirement for them to join the labour market was lower. What is more, in order to address the skilled worker shortages in science and engineering fields, a Science and Engineering Graduate Scheme (SEGS) was released in 2003. Non-EEA students who studied in engineering, physical science

and mathematics from recognised UK universities were possible to remain and work in the UK for one year after finishing their studies (Tremblay, 2005).

Based on the assumption that international postgraduate students are temporary highly skilled migrants, many scholars have tried to describe or explain students' migration patterns or mechanisms from a neoclassical economic perspective. The research approaches within this perspective (i.e. human capital approach and push-pull approach) tend to treat student migrants as rational individuals who seek to maximise expected gains through a cost-benefit calculation (Duncan, 2008; Li and Lowe, 2016). According to Castles, de Haas and Miller (2014, p. 29), 'neoclassical theory sees migration as a function of geographical differences in the supply and demand for labour… the resulting wage differentials encourage workers to move from low-wage, labour-surplus regions to high-wage, labour-scarce regions'.

Based on the neoclassical perspective, at the macro-level, the wages and conditions difference between countries is one of the incentives for migrating. According to Finn (2014), the five-year stay rates for Chinese (mainland) and Indian doctoral programme graduates from U.S. universities were fluctuating around 90% and 80% respectively during the period from 2001 to 2011. However, the stay rates for students from those relatively more developed countries/regions in Asia, such as Japan, South Korea and Taiwan, were much lower and just around 40% during the same period. Although these stay-rate estimates were based on tax records and could not accurately reflect the employment status of those graduates in real situation, it might still support the argument that countries' economic situation could shape international students' migration patterns. That is to say, people from developing regions might have higher possibility to stay in a developed host country than their counterparts from other developed areas. Nevertheless, in the same report, Finn (2014) also found that students from some other developing countries, such as Thailand, Jordan, Brazil, South Africa, and Indonesia, had the lowest stay rates among all countries. This might imply that the economic

situation and the wage differences may not be the only factors which could shape the migration patterns.

The influence of disciplines and HEIs on student migration has also been found in the context of Australia. According to Jackling (2007), some accounting students from new overseas markets, such as China and India, might mainly be attracted by extrinsic interests (e.g. good job opportunities, high salary and even permanent residency). In addition, accounting was chosen as their major because it could provide them additional points in applying for permanent residency (PR). Hawthorne (2010, p. 5) describes this phenomenon as 'two-step migration', and receiving higher education in host countries is more like building a bridge to permanent residency. Some Indian students were especially pragmatic in using the study-migration pathway (Hawthorne, 2014). This situation is not typical among all international accounting students in Australia, but it was used intentionally and pragmatically by a group of students whose main purpose was to stay in host country. Except choosing subjects which could offer extra migration points, some of them also chose to attend those cheap and lower ranked universities and private training colleges. Based on 2005-06 Australia's skilled migration review, the majority of those Indian students were enrolled in cheap and lower ranked university courses, while Chinese students were spread between universities at all levels. In addition, what they did after finishing their studies were non-professional jobs which did not require their degrees in work (Hawthorne and To, 2014). It seems that the study-migration pathway proposed by Australian government has been used by some students as a shortcut to migrate, but they might not be highly skilled workers as they might not use their formal qualifications in work. The effects of HEIs on student migration in the UK remains unclear in existing literature. It is important to use available data to examine students from which group of universities are more likely to stay in the UK, as this information could help policy makers understand who are remaining and working in the UK labour market.

Previous research suggests that actions of host countries in attracting students also has vital influence the outcome of students' cost-benefit calculation. For instance, by seeing an increasing number of

international students pursuing higher degrees in universities in Australia and applying for working visas after their study, the Australian government found that international students gave the positive response to their policies of attracting more skilled workers to the country (Hawthorne, 2014). In terms of sourcing countries, in order to prevent potential brain drain, Singapore, one of the traditional sourcing countries in Asia, adopted several strategies in promoting the return of graduates after their studies, which includes removing barriers of recognising foreign qualifications, and by providing some financial supports for key student groups to return (Ziguras and Gribble, 2015). From the interviews in Cheung and Yuen's (2015) study, it could be found that one of the reasons which made mainland Chinese students intended to stay in Hong Kong is that the qualifications they acquired in host region might not be acknowledged by employers in mainland. That implies that for those students, the cost of returning home region is relatively higher than finding their future career path within Hong Kong. In other words, the universal recognition of qualifications is vital for the mobility of skilled migrants (Salt, 1997). This is not only important for receiving countries to attract talents, but also significant for sourcing countries to promote overseas talent to return. From the perspective of neoclassical theory, policies, such as removing barriers of recognising foreign qualifications, reduce the cost of international students start their career in home countries.

Apart from the real cost of migration, potential costs could also influence the migration patterns. According to Shachar (2013), due to the large amount of applications from working-visa holders applying for permanent residency in the US, especially migrants from China and India, the authority extended wait period and backlogged of PR application from migrants from these two countries. This has made those skilled migrants felt uncertain about their future, which might in turn make other countries more attractive. In other words, immigration policy changes, or even the potential policy changes, would bring uncertainty to migrants, and they would need to revalue the costs and potential costs of their movements.

Saxenian (2006, p. 46) illustrates that '… the entrepreneurial ecosystem is still in its formative stage in the technology regions of India and China' which might have prevented some highly skilled workers from returning home. However, with the rapid growth of China's economy and Chinese government's actions in attracting talents' return in recent two decades, the situation has changed dramatically. Kellogg (2012) suggests that Chinese students who completed their higher degrees in the US have a much higher possibility to return to China if they believed in a better career prospect and development in home country. According to Yang (2011), the number of study fellows (i.e. in Chinese, this term means the collective group of students who studied in overseas countries and Chinese visiting scholars who paid visits to overseas universities) who returned to China after completion of their study is rapidly increasing in recent years. This might be because of a series of favourable policies and projects released by the government in promoting students and scholars to return home after their study. For instance, projects such as 'Research Fund of Returned Study Fellows' and 'Cheung Kong Scholars Project' were intended to provide overseas Chinese study fellows with competitive salary, welfare and working conditions. In order to attract the very best students and scholars to come back, the government issued policies such as 'National Research Fund for Outstanding Young Scientists' and 'One Hundred Talents Project', and 'Thousand Talents Plan'. Those projects were designed to provide those returnees sufficient funds for research purposes and even leading positions in research institutions.

Apart from the attractive economic opportunities, permanent residency and citizenship are also used by national states as tools in recruiting skilled immigrants. Citizenship is more than just an expression of identity and belonging. According to Shachar (2013, p. 86), government immigration agencies in many OECD countries seemed hold the belief that highly skilled migrants, especially those from unstable or resource-strapped countries, '… view the acquisition of political membership in a stable, affluent country as a valued good in itself'. Therefore, some countries such as Canada and Australia used citizenship as incentive package or ultimate prize to attract the talents they need (OECD, 2001;2005). Due to the pervasive inequality of economical resource and power in the world, skilled

migrants who moving to wealthy and stable countries could enjoy better well-being and a higher level of opportunity as their benefits.

The studies mentioned above have considerable usefulness in that their neoclassical perspective indeed allows the investigation and exploration of broad patterns of student mobility, but what has been overlooked is migrant's 'private troubles' (Mills, 1959, p.8; Castles, de Haas and Miller, 2014). Governments and employers are selective in choosing immigrants does not necessarily mean international students who met their requirements and expectations would choose to stay in host countries. This is supported by the phenomenon of return migration in Canada, the US and the UK (Williams and Baláž, 2005; Harvey, 2009; Lu, Zong and Schissel, 2009). Their reasons to return could be political and economic as well as personal, such as family ties and home culture (Lee and Kim, 2010). This implies that migrants' decisions are not always economically rational. In other words, individual interests (private troubles) might be different from public interests (public concerns).

2.2 Student Migrants' Private Concerns in the Study-To-Work Transitions

Although the dataset and analysis which mainly focus on macro-level factors could provide a broad view about migration patterns, it still has weaknesses in understanding how individual skilled migrant make migration decision. This might be able to be partly explained by the gap between public issues and individual private troubles (Mills, 1959). For example, in order to retain those international students as skilled workers who could make contribution to the development of domestic economy, Australian government released a series of actions to lower the entry requirement for those potential skilled workers (Hawthorne, 2010). More specifically, the removal of re-entry ban (i.e. means a person may not be permitted to return to Australia for up to three year) in 1999 and the permission for student migrants to apply working visa onshore in 2002 have greatly facilitated migration process of international students. Nevertheless, according to the analysis based on 2006 Census data, 2002-08

international student enrolment data and the Longitudinal Survey on Immigrants to Australia (LSIA 3), compared with offshore applicants, onshore applicants were found having inferior average work outcomes, which include lower average salary and job satisfaction as well as less qualification level works. However, what remains unclear in Hawthorne's study and the datasets in Australian context mentioned above is whether those offshore applicants were skilled workers with years of experience or graduates who just finished studies.

Brooks and Everett (2009) argue that for some students, doing deskilled jobs and receiving lower salary might be normal during their transition period as they see this as a standard career trajectory. Students do not feel regret of getting a degree as they know it is the basic requirement for jobs, although many jobs do not necessary require degree level skills. Some students even believe that those temporary jobs would enhance their experience for a formal and more prestigious jobs. However, based on 2007 to 2011 aggregated Graduate Destination Survey data in Australia, this does not change the fact that international undergraduate students had much lower employment rate (51%) compared with domestic Australian domiciled students (81%) (Hawthorne and To, 2014). The situation was even worse for international Master students. In another research, Hawthorne (2014) explains that this might be because the study-migration pathway was pragmatically used by a group of students as a shortcut to migrate. This was more common among Indian students who were enrolled in cheap, lower ranked universities. In order to secure more migration points, large numbers of them also chose disciplines on purpose. The government's intention of allocating a large number of points to recognised vocation-related degree was to fill the skilled worker shortage in specific areas, but this approach was adopted pragmatically by students with a different intention which eventually led to unexpected consequences. Nevertheless, it would be unrealistic and difficult to identify the migration intention of individual students from large-scale secondary data. In addition, students might can also change their intentions and amend their future plans during the period of studying and working in host countries due to the changes of personal or structural factors. This implies that quantitative data,

especially those been collected at one point in time, has difficulties in reflecting the overall picture of the intentions and movements of international students in their early career trajectory.

Apart from the gap between public issues and individual private concerns, the neoclassical perspective might also have difficulty in understanding skilled migrants' attitudes to non-economic benefits. One example would be the influence of professional opportunities. It would be difficult to view professional opportunities as either pure economic benefits or pure non-economic benefits. According to Harvey (2009, p. 505), scientists from both developed and developing countries in the US would consider returning home if they were offered better career opportunities, and '…this would be the most significant factor in their decision to return to their home countries'. However, the meaning of professional opportunities in the US for British and Indian scientists might be different (Harvey, 2011). The majority of Indian scientists claim that they were moving to the US because the lack of education opportunities at home, and they treat taking professional training in universities and companies in the US as an investment for their human capital and were expecting higher income in the future. On the contrary, most British scientists explained that they moved to the US mainly because of better career opportunities and research environment, and income was not a significant reason for them to migrate.

Nevertheless, Harvey (2011) seems believe that those skilled migrants might have underemphasized the significance of income while overemphasized the importance of professional training and opportunities. He describes professional opportunities as an economic factor which could affect skilled workers' migration decisions. Kim, Bankart and Isdell (2011, p. 144) argues that '… due to one's level of educational attainment or unique area of specialization…pursuing a professionally enriching and engaging career…' might also be non-monetary gains. Based on the discussions mentioned above, it seems that separating economic factors from social, cultural and political reasons might not be an easy or the best practice in terms of analysing migration flows (Castles, de Haas and Miller, 2014). Brettell and Hollifield (2014) suggest that disciplines like sociology, demography, political science,

economics, anthropology, geography and law are all necessary and relevant to the research on migration. Just like the example of those British and Indian scientists in the US, the movement of skilled migrants cannot fully be explained by economic reasons.

2.3 Alternative Perspectives in Understanding Skilled Migration Flows: The Influence of Human Agency

Castles, de Haas and Miller (2014) suggest that putting too much emphasis on economic and political factors might lead to the risks of being deterministic and portraying skilled migrants as rather passive. More specifically, institutional structures such as political and economic factors would seem like playing dominating roles in migration activities. Nevertheless, this does not necessary mean that people could travel fast and light without being bound by their previous relationships, responsibilities and obligations (Bauman, 2000). A study conducted by the British Department of Trade and Industry (2002, p. 12) found that the role of income in migrants' movement decision-making processes was 'significant' rather than 'dominant'. In fact, people migrate for different reasons, and many of them do make active choices and succeed in conquering some structural constrains. For instance, the social ties with other migrants and with family, friends, co-workers and communities back home might also have been playing a significant role in facilitating and shaping the skilled migration flows.

In addition, according to Harvey (2011, p. 70), the neoclassical theories also '… say little about the ways in which migrants from different countries may vary significantly in their motivations to move' (e.g. the majority of Indian scientists moved to the US for better education and professional training opportunities, while most British scientists migrated for career opportunities etc.). Even for migrants from the same country, the structure factors in both home and destination countries faced by migrants might still be different. On the one side, political, economic and demographic factors are

macro-level structural factors faced by migrants. On the other side, the social networks and ties as well as the practices and beliefs of migrants are working as meso- and micro-level structures. Micro-structures mentioned above refer to 'the practices, family ties and beliefs of the migrants themselves', and meso-structures refer to 'migrant networks, immigrant communities, new business sectors catering to migrants and the migration industry' (Castles, de Haas and Miller, 2014, p. 26). Each skilled migrant could face situations which include different combinations of macro-, meso- and micro-level structures, and skilled migrants could also build new micro- and meso-level social structures through creating social ties and networks by using their agency as well. Therefore, it is not only necessary to analyse the influences of social ties and networks, but also important to explore how migrants engage and interact with those structural factors.

2.3.1 The Household Perspective and Migration Network Perspective

Stark (1991) claims that in the context of developing countries, migration decisions are usually made by households or families rather than isolated individuals. This idea was originated from the new economics and household approaches. These approaches suggest that migration action is a risk-sharing strategy of families or households when overcoming uncertainty and economic hardship, and household was usually viewed as the most appropriate unit of analysis (McDowell and De Haan, 1997). Nevertheless, household approaches are often used to explain migration in developing regions or disadvantaged social groups in relatively wealthy countries, such as Mexican farmers in the USA and rural families in Bangladesh, Ethiopia and Mali (Massey *et al.*, 1990; De Haan *et al.*, 2000). Castles, de Haas and Miller (2014) also suggest that they might be less relevant in analysing migration of highly skilled workers. However, there are many non-UK-domiciled students came from less developed countries or disadvantaged social groups. For example, in her study, Marcu (2015) found that for some Romanian and Bulgarian students, especially those from lower-middle classes, studying in the UK was

a family plan, and ultimate goal was to bring their other family members to the UK after graduation. In addition, some graduates might can work as highly skilled workers when finished their study, while some other international students might still on their early career trajectory and working hard trying to turn themselves into highly skilled workers. In other words, international students are not natural highly skilled workers, and the role of household approaches in analysing international student movement patterns still need further research.

Although these approaches might not be able to explain all types of skilled migration flows, the idea they proposed that family may have indispensable influence on individual's migration decision-making process still has values in analysing some groups of skilled migrants. In addition, De Haas (2010, p. 245) also suggests that 'there is no a priori reason why this diversification-through-migration argument cannot also be extended to international migration and urban households'. For those highly skilled migrants, social and economic incentives were not the only reasons for them to move, non-economic networks and socially and culturally derived obligations were also playing important roles in their decision-making process (Robinson and Carey, 2000). For instance, some international students from Taiwan, Sri Lanka and Bangladesh, who studied in Australia and Canada, used permanent residency or citizenship identity in another country as safety net to against the unstable political environment at home (Ley, 2003; Ley and Kobayashi, 2005; Robertson, 2011). The migration decision was supported or even proposed by their family members, and the high personal costs (e.g. separated from other family members and friends at home country etc.) were seen as the investment to against the potential risks in future. For those migrants, seeking permanent settlement in destination country might not be their intention (i.e. either original or final), and once they got the citizenship, they might return to their home countries. In this process, migrants and their families circumvented and manipulated the policies of governments, which were designed to attract highly skilled workers and entrepreneurs, to serve their personal interests. In the short term, the actions of those migrants seem could be partly explained by the household perspective, which suggests that people migrate because of the household plans to reduce the risks and to overcome uncertainty (Massey *et al.*, 1993). However,

by looking at their migration flows in a longer time span, it could be found that those workers were actually temporary migrants rather than permanent settlers. This might can be partly explained by their strong ties with families and friends at home countries and the relatively weak professional and social ties in the destination countries.

While the household perspective uses family and household as unit to analyse the migration flows, the migration network theory more focuses on the 'ties, networks and distinct identities that are forged between sending and receiving countries through constant flows of information, ideas, money, and goods' (Castles, de Haas and Miller, 2014, p. 39). According to this perspective, migrants would create and maintain social ties with other migrants as well as with family and friends back home. Those ties would evolve into social networks, which work as meso-level social structures, and would eventually facilitate further migration. Those interpersonal ties could exist between migrants, former migrants and also non-migrants in both source and host countries, and the forms of those ties could be kinship, friendship and even shared community origin (Massey *et al.*, 1993). More specifically, migrants might not only be influenced by those macro-level structural factors, such as political, economic, social and geographic factors, but also be influenced by people and communities around them. These connections and ties with others could be considered as migrants' private concerns or personal troubles, as Mills (1959, p. 8) describes these as '… occur within the character of the individual and within the range of his immediate relations with others; they have to do with his self and with those limited areas of social life of which he is directly and personally aware'.

Migration network perspective believes that the creation and expansion of networks could reduce the risks and costs of movement and rise the probability of migration (Massey *et al.*, 1990). Unlike the neoclassical perspectives, migration network perspective suggests that migrants would not only simply respond to social forces and make their migration decisions based on the purpose of maximizing their income. Instead, this perspective explains how migrants would use their agency to create social, economic and cultural structures at the micro- and meso-levels (Castles, de Haas and

Miller, 2014). What is more, the risks, costs and benefits in migration network perspective is neither just about income nor purely financial and economic. Those costs could be social and psychic as well. In terms of financial costs, former migrants could provide their successors and potential migrants with information about living arrangements and job opportunities or other types of valuable security, support and assistance. In terms of the social and psychic costs, people are generally reluctant to be separated from their familiar backgrounds, families and friends (Sjaastad, 1970). Migrants could reduce the unfamiliarity with foreign destination countries by spending more time with individuals who share a similar language, culture and background (Perkins and Neumayer, 2014). For example, Guerassimoff (2003) investigated a group of Chinese migrants in France and found that most of migrants had contacts in destination country before their departures. Those Chinese ethnic networks not only helped them acquired job positions, but also provided those new migrants opportunities to start their own business and eventually lead to upward social mobility. According to Massey (1990, p. 8), it seems that '… once the number of network connections in an origin area reach a critical level, migration becomes self-perpetuating because migration itself creates the social structure to sustain it'.

In Guerassimoff's research, the flow of Chinese migration into France could be traced back to early 1900s, and the most of those migrants came from the same areas (e.g. Zhejiang Province and Northeast region etc.). The migration flow mentioned above was defined as 'chain migration', which describes a large number of people from the same country moving to a specific destination country (Kenny, 1962). This 'chain migration' perspective suggests that non-migrants at home would have more incentives to move when migrants were sharing more positive migration experience (Sana and Hu, 2007; Harvey, 2011). For example, Chacko (2007) illustrates that the positive experience of Indian graduates who working in the US would attract more Indian students come from the same university to pursue higher degrees and professional opportunities in the US.

However, some scholars claim that the 'chain migration' approach is a quite old concept and is not suitable to analyse the migration patterns of highly skilled workers. As social networks could lower the risks and costs of migration, Goodman (1981) argues migrants with lower social-economic status might more likely to use social networks than migrants with higher social-economic status. The concept of 'chain migration' has gradually replaced by 'network migration', especially in literature about skilled migration, which more emphasises on the importance of interpersonal ties (Massey *et al.*, 1993; Harvey, 2011; Castles, de Haas and Miller, 2014, p. 40). Johnston *et al.* (2006) also claim that chain migration might no longer play central role in analysing skilled migration a few decades ago. They suggest that skilled migrants in modern society have much more channels to acquire information about job opportunities abroad than few decades ago. Amartya Sen's (1999) capabilities framework also suggests that improved wealth, education, communication, and transportation as well as the increasing access to information, people would have greater capability to migrate to place with larger distance.

For highly skilled migrants with higher social-economic status, social ties with family member and close friends might not be as significant as the ones in few decades ago. Granovetter (1973) illustrates that social ties include both strong ties (i.e. intimate relations to family and close friends) and weak ties (i.e. connection with acquaintances), and he believes that weak ties are more important in terms of providing migrants new job information. Bagchi (2001) claims that weak ties were used by many highly skilled professionals (e.g. especially male physicians, engineers and scientists etc.) to search job opportunities abroad as they have much better access to those weak ties than low-skilled migrants. While weak ties might have more important role for migrants in finding opportunities abroad, Massey (1990) argues that strong ties might be more significant in enabling skilled workers to move. For instance, some Korean doctoral graduates who earned their degrees in the US decided to return to their home country because of their strong ties (e.g. pay back parents' sacrifice, reunite with other members, and get marry with partner etc.) with family members at home (Lee and Kim, 2010). Based on the large-scale secondary data from the Survey of Earned Doctorates, Roh (2015)also found that

the migration decision of married foreign doctorate recipients were significantly different from those single recipients.

The migration network theories illustrate how migrants create and maintain social ties with other migrants and contacts back home, these approaches also assume that social networks would facilitate further migration (Castles, de Haas and Miller, 2014). However, while many skilled workers moving abroad as the migration network perspective predicted, there are also a great number of migrants do not intend to settle in a particular country and plan moving again. Somerville (2009) and Faist (2008) suggest that the contemporary patterns of skilled migration are largely temporary. Those the 'most knowledgeable and skilled workers' (i.e. scientists, engineers, and technology specialists etc.) are believed to be 'not fixed to nation states but are increasing mobile across national borders' (Cantwell, 2011, p. 428). Ackers (2008) argues that globalisation has made highly skilled workforce internationalised, and the movements of skilled workers need to be considered as transnational activities.

2.3.2 The Transnational Perspective

Similar as the migration network perspective, the transnational perspective also believes that the social ties and networks are critical in shaping migration flows. The migration network theories suggest that as time passed, the ties between new migrants and origin state would become loose, while the ties between them and the destination state would be tighter. This is because migrants have settled and integrated in receiving nation and started building new social ties with local communities. For example, it was found that, for some students who came from mainland China, the longer they stay in Hong Kong, the less intention they have to return home (Cheung and Yuen, 2015). What makes the transnational perspective different from the migration network perspective is the 'settlement and integration of migrant communities in receiving countries' (Schiller, Basch and Blanc-Szanton, 1992;

Faist, 2000; de Haas, 2010, p. 247). Vertovec (2002) suggests that 'movement' or 'mobility' might be better terms compared with 'migration' when analysing the flows of the highly skilled. Some other scholars also suggest that the movement of many highly skilled professionals tends to be intermittent and short-term (Koser and Salt, 1997). Portes (1999, p. 464) defines transnational activities as 'those that take place on a recurrent basis across national borders and that require a regular and significant commitment of time by participants'. In addition, the improvement of technology and transportation (e.g. mobile phone, satellite television, the internet and commercial airlines etc.) also facilitate migrants' abilities to foster links with their societies of origin. According to transnational theories, these rapid improvements have 'increased the ability of migrants to foster multiple identities, to travel back and forth, to relate people, to work and to do business and politics simultaneously in distant places' (Castles, de Haas and Miller, 2014, p. 41).

With the development of technology, it is much easier and cheaper to travel to another place on the other side of the planet, and it is also possible for skilled migrants maintaining communication with organisations, research communities and work associates back home at lower cost than before. Social activities are no longer constrained to local areas or physical places with geographical boundaries, and the recombination of time and space are becoming more and more common. Giddens (1990, p. 14) argues that the relation between social structures and time and space is becoming increasingly loose and the degree of 'time-space distanciation' in modern social system is also much greater than before. The consequence of this would be that modern social life distinct from traditions. In the case of skilled migrants, this 'time-space distanciation' and technology improvement provide migrants greater capability in maintaining and creating social ties in both home and destination countries.

Due to the time-space distanciation, social relationships have moved beyond specific locales. The face-to-face communities which were based on kinship, neighbourhoods or workplaces could be extended into far-flung virtual communities (Castles, de Haas and Miller, 2014). In the context of skilled migration flows, this 'time-space distanciation' implies that students and highly skilled workers,

therefore, could have connections with and accesses to Higher Education institutions and labour markets all over the world. On the other side, students and skilled workers in foreign countries could also maintain close links with social networks back home at a distance. The phenomenon that more and more students choose to study and work abroad is now becoming one of the new patterns (Brown, Lauder and Ashton, 2011; Yang, 2011; UNESCO, 2014b;a; Li and Lowe, 2016). Globalisation, on the other side, has been providing migrants greater capability to foster and maintain close links with their communities of origin through telephone and internet (Castles, de Haas and Miller, 2014). Some scholars have concerned that a great amount of skilled emigrants would cost serious 'brain drain' to source countries (Docquier and Rapoport, 2012; Güngör and Tansel, 2014; Song and Song, 2015). Some other scholars, nevertheless, claim that the concepts of 'brain drain' and 'brain gain' might can be replaced by 'brain circulation' in explaining the circulation of human capital across nations in the global market. For instance, the empirical studies of Saxenian (2002;(2005) and Lee and Kim (2010, p. 631) suggest that there are large number of '… skilled individuals who returned home countries were still maintaining social and professional relationships in host country, which in turn enhances their productivity in the home country'. Also, there are many skilled migrants (e.g. scientists, engineers and other professionals etc.) in the US (e.g. Boston and Silicon Valley etc.) were making investments in their origin countries and even considering return to home if they found better professional opportunities (Saxenian, 2006; Chacko, 2007; Harvey, 2009).

The transnational perspective also illustrates that it might not be necessary for migrants to return home in person to make contribution to the development of origin countries. The sustainable remittances of money, ideas and knowledge back to origin countries implies that 'integration in receiving societies and commitment to origin societies are not necessary substitutes, but can be complements' (de Haas, 2010, p. 247). More specifically, migrants could build and maintain new social ties in destination country without losing regular contacts with origin countries. For example, some Indian scientists who have stayed in the US for more than twenty years still had close ties with friends and professional communities in origin country (Harvey, 2011). Nevertheless, it would also be

incorrect to interpret that those migrants failed in integrating into communities in receiving countries. The transnational perspective suggests that migrants could have double loyalties (Portes, 1999). This obscured the boundaries between 'origin' and 'destination' and the ones between 'permanent' and 'temporary'. The remittances, knowledge and even skilled migrants themselves could cross the nation boundaries much easier with less restriction. Therefore, according to the transnational perspective, the forms of skilled migration could be temporary or permanent. However, as long as they maintain the regular and close contacts with social networks in other countries, their activities could be recognised as transnational. That is to say, the transnational perspective focuses on migrants who '… manage to construct and nurture social fields that intimately link their respective homelands and their new diasporic locations' (Patterson, 2006, p. 1891).

The time-space distanciation, the trend of globalisation, the idea of 'brain circulation' and together with the transnational identities and activities imply that for migrants, there might be a new way of perceiving the risks, costs and benefits of migration. As de Haas (2010) suggests that the relationship between integration in receiving societies and commitment to origin societies could be complements rather than substitutes. It is also reasonable to assume the risks, costs and benefits of movement (i.e. staying in host country, returning to origin country or even moving to a third country) should not be constrained by specific geographic locales. More specifically, through maintaining professional contacts with other people in origin countries, migrants in host countries could not only make contribution to the development of sourcing countries, but also receive benefits (e.g. money, reputation, working experience etc.) from working with sourcing countries remotely. In the past, migrants who stay in host countries might need to undertake the social and physic costs of been separated from their families, friends and culture in home country. According to the transnational theories, in the modern world, those costs could be reduced with the rapid improvement of technology and transportation system.

Based on the arguments mentioned above, it might be possible to assume that the importance of physical location of those highly skilled workers is decreased as skilled workers could work remotely and travel to other places very easily. However, the transnational theories might have difficulties in explaining why governments are still trying to attract more skilled workers and international students who studied specific subjects to stay in host nations. Some professions, such as manufacturing, scientific research, medicine, teaching and management etc., still require workers to work in specific locations. Many scholars (Ziguras and Law, 2006; Kellogg, 2012; Cerna, 2014; Golebiowska, 2016) also claim that nation economy would be benefited from skilled migrants, although there might be a lagged effect. However, for some higher-ability individuals, indeed, the effects of demand changes and policy changes are less significant (Qin, 2015). This implies that the transnational theories might be more useful in analysing those highly skilled migrants who have higher ability to move across national boundaries from the perspective of migrants.

Nevertheless, before adopting transnational theories in analysing the movements and transnational activities of international students turned migrants, it is necessary and important to answer few questions. For instance, questions like 'are all international students potential highly skilled migrants?', 'who can be counted as highly skilled migrants?', 'whether do all international students have the ability to move across national boundaries?', 'who has higher-ability to migrate?'. In order to answer those questions, it necessary and important to understand what is 'higher-ability' and who can be counted as 'highly skilled migrants'. However, the answers for those questions usually depends on governments' immigration policies. Amartya Sen (1999) claims that human capability needs to be understood under specific environments. More specifically, migrants who can be counted as highly skilled workers in home country based on corresponding local policies might not qualify enough as highly skilled workers in host countries. This does not mean those migrants do not have the ability or skills. Instead, it might because those skills might not be the most wanted in other countries, or it might because other labour markets already have enough qualified skilled workers. Therefore, it is necessary to understand the immigration policies of related countries as well as other social, economic

and environmental factors. That is to say, although the transnational theories are focusing on migrants' agency in maintaining and creating network ties over long distances, it is still under the influence of structural factors (e.g. government's immigration policies, demand and supply of labour markets etc.).

In terms of international students, Salt (1997) claims that most commentary believes that international students with tertiary degrees could be treated as highly skilled migrants. However, the arguments mentioned above imply that only those international students who meet the corresponding governments' policies could be treated by governments as highly skilled workers. That is to say, although migrants could maintain and create network ties over long distances, their ability of migrating to other countries are still under the influence of certain structural factors. It remains unclear whether this movement restriction would affect migrants' ability in maintaining those long-distance social ties. Therefore, it might be worth exploring whether international students who returned to home countries are still maintaining professional network ties with acquaintances in host countries, and whether those international students who stay in host countries still have professional connections with people in their home countries. In addition, if those professional network ties have been weakened or terminated, it might be necessary to know whether structural factors (e.g. government policy, geography separation etc.) have facilitated this process.

Castles, de Haas and Miller (2014) suggested that there is no single theoretic perspective could explain all types of migration flows. The differences between different groups of migrants could be very significant. Yeoh and Willis (2005, p. 212) argue that in literature, skilled migrants have tended to be 'treated as highly mobile individual male careerists circulating in an intensely fluid world of inter- and intra-firm transfers and career mobility, and discussed as if they are non-gendered beings who do not form part of the household'. Some migrants might be young, single and more footloose workers, while many other skilled migrants have children, partners, elder parents and other family issues (Ackers, 2004). Boyd (1989) believes that migration is neither the sole outcome of individual decisions made by migrants themselves, nor the sole outcome of economic or political factors. Instead, international

migration is a social product which originated from migrants' interactions with those networks and other institutional factors. In order to have better understanding about the role of social ties in shaping migration flows, it is necessary to know the surroundings and background of each migrant and how they interact with social networks and institutional factors. For instance, Harvey (2011) and Meyer (2001) noticed that highly skilled professionals from developing countries have different migration motivations compared with their counterparts from developed countries. Indian and Colombian migrants were more likely to leave the country for better education opportunities, while British and white South African were more likely to move due to better professional positions. Nevertheless, it might be possible to combine and integrate different theoretical perspectives to analyse the diverse flows of skilled migration (Massey *et al.*, 1993; Massey *et al.*, 1998). de Haas (2010) also suggests that the household perspective and the transnational perspective could be the complement of each other. Skilled migrants have not only been found left their origin nations and permanently settle in host country, but also been found returned to place of birth or migrated again to other countries (Ley and Kobayashi, 2005; Harvey, 2009; Song and Song, 2015). What those theoretical perspectives emphasised is the agency of migrants, and how they overcome the structural barriers and build and maintain social ties in both home and host nations.

However, there are also some weaknesses could be found in those perspectives. For instance, as the analyses of household perspective on migration flows were based on family units, it remains unclear about the relationships between individual migrants and their families (de Haas, 2010). This approach is based on the assumption of households as monolithic units which might disguise intra-household age, gender and other inequalities as well as weaken the importance of non-family social ties (Carling, 2005). One of the consequences would be it is difficult to explore the agency and migration motivations of individual actors. In addition, migrants' intentions at the time of departure might not be able to predict their actual behaviour in the future. That is to say, although the household planned to send migrants abroad to reduce potential uncertainties and lower risks, migrants might can change their minds due to the weaken ties with family members back home.

The migration network theories are focused on the agency of individuals, and they are based on the assumption that social ties between migrants and origin state would becoming loose while the ties between them and actors in host state would be stronger (Massey *et al.*, 1998; Castles, de Haas and Miller, 2014). This approach seems very useful in analysing migrants who have already settled and integrated into host countries. However, international students are not migrants who have stayed in host country for many years, and they would face a series of uncertainties (e.g. political or economic changes, or unstable physical condition of family members etc.) and need to make many choices after finishing their degrees. The migration network approach could analyse how migrants create new social ties and how they maintain and engage with existing social networks. This approach might can be used to analyse students whose original and primary motivation was achieving permanent residence or nationality in host countries, as the social ties they have created and maintained might can help them reducing social, economic and psychological costs and risks in terms of settling and integrating into receiving state (Perkins and Neumayer, 2014). Nevertheless, for some other international students, their primary intention and motivation of moving to host countries might be to finish their study and achieve degrees. Students could also change their minds and plans during the period of study. Their plans after the graduation could be return home immediately, stay in host country for few more years, stay in host country permanently or even moving to a third country, and these different forms of plans and movements could all be found from previous empirical studies (Lee and Kim, 2010; Robertson, 2011; Kellogg, 2012; Cheung and Yuen, 2015; Tran, 2015; Zhou, 2015). Therefore, the migration network approach might have limited role in analysing migrants who do not plan to settle and integrate into communities in host countries.

Some might argue that migration network approach was not designed to explain all types of flows, and the criticism mentioned above is exaggerating its function and weaknesses. Indeed, this approach has values in analysing how social ties and social networks shape the migration flows (Massey *et al.*, 1993). Nevertheless, the migration network perspective and the transnational perspective emphasise too much on actors' agency in overcoming social structural constrains and overlook the importance

of economic, political and social factors (De Haan *et al.*, 2000; Castles, de Haas and Miller, 2014). For instance, those perspectives have difficulties in explaining why some migrants are willing to help others to come while some other migrants are acting as gatekeepers who reluctant to provide supports. In addition, those perspectives might ignore the policy changes, economic fluctuation or labour market dynamics. It seems that they are based on static political, economic and social environments. What is more, it is problematic to assume everyone has the capability and aspiration to migrate. Some scholars even argue that host and home countries continue to play as the major actors in initiating and shaping migration flows (Pieke, 2012; Castles, de Haas and Miller, 2014). Gaillard and Gaillard (1997) suggest that the movements of international students were the result of a complex combination of individual condition, professional opportunities, the social and economic environment in sourcing nations and immigration policies in receiving states. Therefore, it seems an approach which could connect migrants' agency with real social structural constrains is needed to analyse the international student migration flows in modern society. What is more, international students who just graduated from universities might not be able to travel across nation boundaries as freely as highly skilled professionals who have extensive working experience. This suggests that international postgraduate student migrants are not equal to global highly skilled professionals. Nevertheless, these two groups have overlap. More specifically, some international students would be highly skilled migrants in the future, but not all highly skilled workers have overseas studying experience. That is to say, international students as a unique group are distinct from highly skilled worker group and deserve to be studied separately.

So far, the literature and discussion of migration in this chapter are largely in line with the account of migration in the book, *The Age of Migration: International Population Movements in the Modern World* (hereafter *AoM*) (Castles, de Haas and Miller, 2014). As one of the most reputable books in the field of migration studies, *AoM* is a comprehensive and up-to-date source book, which not only fills the gap in research but also defines the field. In the newest edition (the fifth edition) of *AoM*, the authors have brought in key additions on the theories of migration and separate analyses on different

regions (Asia-Pacific, Europe, America, and Africa and Middle East). Although *AoM* has received wide support and recognition from the academia, it is not without its critiques, and one of the most notable omissions of the book is related to the conceptualisation of migration. Some scholars (King, 2015; Skeldon, 2015) argue that the term, 'migration', used by Castles et al. seems to imply the movements of people are long-term or even permanent. King (2015) and Skeldon (2015) continue to claim that the distinction between migration and other forms of movement, which include labour migration, touristic migration, and international student mobility etc., are becoming increasingly blurred, and 'mobility' might be a more exact and nuanced term in describing and examining the movements with diverse time-space characteristics in this era.

In responds to the critiques of King (2015) and Skeldon (2015), Castles, de Haas and Miller (2015) stressed their awareness of the emergence of new forms of mobility and explained that they have paid increasing attention to the non-permanent and non-economic forms of movement in the more recent editions. Particularly, among some other newly added central topics in studies of non-pernament movements in the most recent edition of *AoM*, educational migration is characterised by the Authors as a type of mobility in certain cases. Although some students might seek to settle pernamently in host countries for work after graduation, for most of the students, their movements are often non-pernament. In terms of the cross-border movements of international students, apart from their student identity, international student migrants also have family, social, cultural, citizen, and present/prospective worker roles and identities. Due to the complexity of the international student migration in the modern world, it would be inappropriate to directly adopt and apply the concepts and theories of migration or mobility of other types of movements (e.g. labour migration, short-term migration, and touristic mobility etc.) to the studies of international student movements, and it is necessary to work on the specific theorisation of international student migration (King, 2013; Raghuram, 2013). However, as Skeldon (2015) suggests that the word 'migration' is easily understandable in English, this study would continue to use international student migration in

referring the cross-border study-to-work movements of international students who graduated from the UK HEIs.

2.4 International Student Migration and a Structuration Perspective

While neoclassical perspective, migration network perspective and transnational perspective are arguing about what might be the dominant power in the world, some sociologists claim that researchers need pay more attention on the dynamic relationship between structure and agency. Giddens (1984) proposes the theory of structuration as the approach to investigate and understand the processes of production and reproduction between structure and agency. In this theory, social structure and individual agency are not the opposite of each other. Instead of claiming whether agency overplays structure or structure overplays agency, Giddens suggests that structure and agency are interrelated and inseparable. Structural properties are both the sources and results of human social practices which situated in time and space. Archer (2012) describes the dynamic interplay as the result of relational reflexivity. Though they might have used different concepts, what they have in common is the intention that moving the focus of sociology study from the structure-agency debates to human reflexive social actions which work as the mediation between structure and agency. This does not mean that structuration theory is superior to other perspectives. What make them useful in this thesis, especially in Paper Three (Chapter 5), is their ability in analysing and explaining student's study-to-work transition in complex and dynamic contexts.

Although the neoclassical theories, migration network theories and transnational theories all have strengths in some aspects, they still have weaknesses in capturing the dynamic characteristic of agency-structure interaction. At the micro-level, the neoclassical perspective is based on the assumptions that international students and migrants are economically rational and would maximize their income or utility based on cost-benefit calculations. At the macro-level, this perspective suggests

that the world system would eventually move towards to equilibrium, which means migration would lead to the reallocation of labour and capital and eventually ease the wage differences between countries (Todaro, 1969; Borjas, 1989; Castles, de Haas and Miller, 2014). The neoclassical perspective has advantages in analysing the influences of structural factors (e.g. income differences between countries, nationalities etc.) on international students and highly skilled workers. For instance, some scholars (Kim, Bankart and Isdell, 2011; Hawthorne and To, 2014; Roh, 2015) have tried to explain the movements of international students by using large scale datasets. What they have done is trying to identify the connections between the movements and employment status of highly skilled migrants and some specific structural factors (e.g. students' origin countries, governments' immigration rules/requirements etc.). Although this perspective might have difficulties in exploring students' migration intentions and other psychological activities, it indeed helps policymakers understand what institutional factors might have more important influence on the movements of student migrants. With the supports of relevant and accurate large-scale data, policymakers might be able to have better knowledge and therefore develop more effective programmes to attract and retain highly skilled migrants they desired. Nevertheless, the neoclassical perspective might have difficulties in exploring the dynamic interactions between agency and structure. This perspective seems overplay the importance of structural factors and underestimate the role of human agency. It suggests that world system would move towards to equilibrium and human agents are economic rational and would make their decisions based on cost-benefit calculations. All these assumptions imply that the movements of highly skilled workers are the intrinsic part of the whole development process. What matter in this process are structural factors like wage differences and the differences in the supply and demand of labour in each countries' labour markets. That is to say, it would be difficult for researchers to analyse how skilled migrants interact with different structural factors and how they deal with those structural factor changes.

The migration network theories and transnational theories might argue that they could learn structural properties through the exchange of meaning, experiences and understandings with

participants as they are active and conscious agents who are able to investigate social realities by themselves. However, structural properties are more than the simple combination of people's actions, experiences, beliefs and expectations (Pawson and Tilley, 1997). The migration network theories and transnational theories might emphasise too much on human agency and underestimate the influence of structure. Though social properties are the production and reproduction of wilful actions, they still have features that are to some extent independent of individual's expectations and reasoning and therefore lead to unintended consequence without confirming anyone's wishes (Archer, 1995). Human agents might not be aware of the power and relations beyond their horizons. According to Hodkinson and Sparkes (1997, p. 35), 'horizons for action are segmented, in that no-one considers the whole range of possible opportunities in education or the labour market… we see such segments as fluid and overlapping, rather than mutually exclusive discrete boxes'. For individual students and migrants, their horizons are shaped by their experiences and knowledge, therefore it might be highly impossible for everyone to consider all the possibilities in education and labour markets (Hodkinson and Sparkes, 1997). An example would be, with increasing number of people from all over the world apply for working visas in a host country, Chinese overseas students might not realise that their chances of staying in the host country is also related to the movement of immigrants from other countries. What they might be aware of is the fact that the requirement for getting a working visa is higher compare to requirements in few years ago.

For international students, the social, cultural and political structures/contexts (e.g. immigration policies, income differences between countries, demand and supply in labour markets and culture differences etc.) are existing before them and their actions. Those are the contextual conditions for their choices and agency. Under certain structural factors/social contexts, some of underlying mechanisms (e.g. international students' migration decisions and actions etc.) would generate regularities (e.g. migration patterns etc.). Once those migration choices applied, they might produce and lead to new social structure (e.g. amendment of current immigration policies, the release of new immigration initiatives and policies, the narrowing gap of income between countries, and the changed

demand of skilled workers in certain industries in host country etc.), which in turn would be the new contextual conditions for next round of choices for a slightly different group of choice makers (Archer, 1995). Archer (1998) describes this self-transformation process as morphogenesis. The idea of morphogenesis implies that the world system are fluid and changing, and those changes in international student migration are 'unavoidable, unplanned, self-generated and morphogenetic' (Archer, 1995). Nevertheless, this does not necessarily mean it is impossible to explore and analyse those dynamic interplay between structure and agency. Luckily, the world system is not changing all the time, and it is evolving through the alternation of stability and change. Therefore it has some relatively enduring features which might imprint patterns (Pawson, 2013) and make it possible for researchers to explore and analyse the dynamic interplay between international students and social structures.

According to Archer (2012), people in late modernity have less social norms to follow, and their reflexive practical reasoning and actions are guiding their ways through the world's diversity. Students in this era have more advanced tools and better ability in gaining knowledge about this world which contains so many rapid changes and mixed power relations. They are facing much more choices and possibilities than previous generations. Education and employment are no longer constrained in local areas thanks to the loose relations between time, space and social activities in this increasingly globalised world. Making decisions about where to study and work is a vivid expression of human reflexivity. Through making meaningful and knowledgeable decisions from information that they received from multiple sources, human agents are practicing their mental ability and connecting with their social contexts. Giddens (1979) describes those agents who understand and also are capable of transforming social rules around them as reflexive cognitive actors.

Before introducing the structuration perspective and its application in the studies of international student migration, it is necessary to have a discussion of Giddens' position on reflexive modernity, which works as a foundation for many assumptions of his structuration theory (Giddens, 1984; 1991).

Giddens (1990, p.150) describes the current era as a 'radicalised modernity era' instead of a post-modern era, as he stresses that the contemporary society is shaped by the extension of the same social forces that structured social norms in the previous age, which indicates the continuity and change rather than disjuncture of the society. According to Giddens (1990; 1991), following the time-space separation and the disembedding of social system (i.e. a result of symbolic tokens and expert system disembedding mechanisms), another key feature of the expansion of modernity is the reflexive characteristic in the de-traditionalising society, which is also referred as institutional reflexivity. The institutional reflexivity mentioned above is defined as 'regularised use of knowledge about circumstances of social life as a constitutive element in its organisation and transformation' (Giddens, 1991, p.20), and it occurs both at the individual level and at the institutional level. More specifically, at the individual level, human beings are becoming more knowledgeable and reflexive agents who increasingly question what to do and how, which is also known as the reflexive project of the self, instead of being constrained by the tradition. At the institutional level, reflexivity involves the routine appropriation of expert knowledge in dealing with uncertainties in day-to-day life. Within the expert system in the modern world, knowledge is credible only before it is been proven wrong, and different experts might provide different and sometimes conflicting advices. What is more, the progression of science and technology makes individuals have little previous experience that they could learn from the history when facing the new risk environments, which might result in the manufactured risks/uncertainties.

Along with Anthony Giddens, there are some other well-known sociologists such as Ulrich Beck, Scott Lash and Zygmunt Bauman showed their critique to the postmodernism and offered similar yet slightly different conceptions of reflexive modernity. All these four scholars share the standpoint that the role and capabilities of individuals are experiencing substantial changes in the late modernity in which social norms are shaped and transformed by the dynamics of risk, trust, globalisation and individualisation. Individual agents become: 1. empowered to routinely create and sustain their own

identities in modern societies; 2. need to constantly make decisions and justify their decisions based on limited expertise knowledge, resource or precedent.

The term 'reflexive modernity' is coined by Ulrich Beck who works collaboratively with Anthony Giddens and Scott Lash (Beck, Giddens and Lash, 1994), and the term is also referred by Beck (1992) as 'second modernity' or 'new modernity'. According to Beck, in the process of reflexive modernisation, the second/new modernity is developed out of and catalysed from the first/simple modernity (industrial society). While Giddens (1990; 1991) stresses the importance of both the institutional reflexivity and the reflexive project of the self in modern societies which exist great uncertainties, Beck (1992; 1994) claims that reflexivity in new modernity is about self-confrontation and self-dissolution. In addition to this, individuals are the ones who choose social connections and institutions, and they also build up, keep up and reform social ties and connections in the second/new modernity.

In line with Giddens and Beck, Scott Lash argues that, in the modern societies, social actors have increasingly power (i.e. 'agency') in regard to 'structure', which is also referred as 'increasingly significant reflexive subjectivity' (Lash, 1994, p.111; Lash and Urry, 1994, p.3). Based on Beck's notion of first/simple modernity and second/new modernity, Lash (2003, p.49) describes reflexivity as 'non-linearity'. More specifically, unlike the linear systems in first modernity in which only external forces could break the equilibrium and result in system change, complex social systems in second modernity do not have a single point of equilibrium, as system de-equilibrium and change are produced internally by the noise of unintended consequences through feedback loops.

As social change is happening more and more rapid in modern society, Bauman (2000) sees modernity within contemporary society transforms from solid modernity into a form of liquid modernity, which is a process of 'disembedding without re-embedding' (Bauman and Tester, 2001, p.89). More specifically, it is becoming increasingly difficult for individual agents to construct durable identities that sustain over time and space, as there is no prospect for liquefied social foundation to return to

an original solid situation with the problem of institutional instability. Bauman argues that reflexivity is becoming less significant in a largely de-sublimated situation, and through the concept of fluidity, he claims that there is a dissolution of 'bonds which interlock individual choices in collective projects and actions' (Bauman, 2000, p.6).

Taking the discussion of reflexive modernity mentioned above into consideration, Giddens' conception is chosen as the account for this study. That is because when compared with the conceptions of other three sociologists, the four institutional dimensions (i.e. capitalism, industrialism, state surveillance and military power) and the three dynamic aspects (i.e. time-space separation, disembedding mechanism and institutional reflexivity) of Giddens' account of modernity have advantages in: 1. capturing the key features of cross-border study-to-work movements of international students in the backgrounds of knowledge economy and globalisation; 2. enabling this study to provide answers to research questions, more specifically, 'what institutional factors may shape students' movement patterns and how', and 'how students reflexively interact with structural factors and therefore make their movement decisions'.

In the age of globalisation, human social practices are rolling forward and moving away from traditional rules and regularities (Giddens, 1990). While students and workers have more choices and possibilities, they are also facing the challenge about how to construct self-identity through reflexive reasoning and actions. Undoubtedly, the moments in which students make decisions, such as getting a foreign postgraduate degree and finding a job, will have serious consequences for their future lives. Giddens (1991, p. 114) describes those moments as 'fateful moments'. By moving to another country, students are jumping out of their 'protective cocoons' (Giddens, 1991, p. 54) and interacting with new routines and therefore constructing new self-identity. However, as time goes by, human agents' protective cocoons might have adapted with new circumstances. Unlike traditional society, individual's habits and lifestyles are open to change rather than remaining static. This fact is extremely important when evaluating social programmes such as policies from receiving or sending countries,

because wrong assumptions about migrant students and labours might lead to the unintended consequences or even total failure of the programme (Giddens, 1984). For instance, students and labours might change their intentions, strategies and behaviours after living in the host country for few years or after government implements new policies.

In the modern society, human agents are acting as reflexive projects, and the processes of building their self-identity are also the processes of seeking balance between opportunities and risks (Giddens, 1991). Jumping out of personal protective cocoons means interacting and embracing new habits and routines. According to Giddens (1979;1991), this type of change is based on the awareness of thoughts and feelings as well as the knowledge about social rules and resources. Giddens builds his theory based on the condition that agents have the knowledge which makes them capable of understanding and transforming the rules and power relations in their contexts. This knowledge could be inaccurate, incomplete, or out-dated, and any improvement or modification of knowledge or information might lead to different decisions and actions (Giddens, 1991). Though agents might have the wrong or incomplete information or have made wrong interpretations, they would still try to use the knowledge and information they have to carry out intentional activities. That is to say, although agent may implement different decisions and actions based on different versions of understanding and interpretation of high-consequence risks, the mechanism he/she applies would still be based on the same self-identity and risk assessment processes.

Although there are thousands of different combinations of decision-making mechanisms and contexts which could lead to a great number of possible actions, some priorities could still be identified to help us evaluate the effectiveness of policies and other programmes and find possible solutions to the consequences that are expected (Shadish, Cook and Leviton, 1991; Pawson and Tilley, 1997). Also, some migration patterns, regularities, and key decision-making mechanisms could be discerned (Castles, de Haas and Miller, 2014). Therefore, a structuration perspective can frame international

student labour migration more than the outcome of static push-pull factors, and it allows a more socially contextualised analysis on the labour migration decisions of international students.

CHAPTER 3 INTERNATIONAL POSTGRADUATE STUDENTS' LABOUR MOBILITY IN THE UK: A MULTI-LEVEL MODELLING APPROACH

3.1 Introduction

In the era of globalisation, in order to compete in the knowledge economy, state governments around the world are in a battle for the brains. The uneven distribution of high skilled workers around the world has made skills and knowledge desirable assets in international labour mobility (Storper and Scott, 2009). The skilled worker shortage in developed countries, since the late 1990's, has encouraged governments to attract overseas highly skilled workers to expand their talent pools and make their nations more competitive in the global market (Jackling, 2007). When the Labour Party in the UK came to power in 1997, it released a series of policies and initiatives, such as the Innovators Scheme, the Skilled Migrant Entry Programme and Prime Minister's Initiative for International Education, aimed at attracting and retaining skilled and talented migrants including entrepreneurs, scientists, specialists as well as international students. Since the beginning of the twenty-first century, competition for skilled workers is no longer just among those the most developed countries. Apart from countries such as the US, the UK, Canada and Australia, an increasing number of European nations (e.g. the Netherlands, Norway and Switzerland etc.) and some thriving economies such as Brazil, Russia, China and South Korea have also released more attractive plans to recruit talent and to encourage overseas students to return to their home countries (Han *et al.*, 2015). International postgraduate student migrants are increasingly being regarded as an important component of the skilled professional pool by both receiving countries (Ziguras and Law, 2006; Mosneaga and Winther, 2013) and sending countries (Ziguras and Gribble, 2015).

In the UK, International postgraduate students from non-EEA countries form a large sub-group of migrants. In addition to their roles as international students, this group of migrants also have family, social, cultural, citizen, and present/prospective worker roles and identities. With the increasing complex and multiple identities of student migrants, the boundary between them and other migration groups is becoming increasingly blurred. A distinguishing feature from other migration categories is their important role in the labour market and contribution to knowledge acquisition and production (Raghuram, 2013). The spatiality of knowledge and the globalisation of education have been working together as a key drive for students to migrate for knowledge acquisition. The flows and mobility of international students might lead to a shortage of skilled workers in sourcing countries (i.e. brain drain) and the increased talent pool in host countries (i.e. brain gain). In addition, rapid growth in the numbers of international students in the UK has also brought opportunities for the British government and universities in the globalising development in the higher education sector (Robertson, 2010). The inflow of international students does not only bring economic benefits to UK HE providers, it also has the potential to enhance Britain's innovation capacity that shapes its competitiveness in the global knowledge economy. It is important and necessary for Higher Education institutions (HEIs) and policymakers in the UK to investigate and understand the labour migration patterns of those students as well as the factors that can influence their choice of location for employment. However, despite the significance of international postgraduate students in high-skill labour markets, their movement trajectories and locations of employment after graduation are under-researched in the UK context. Most of the existing literature has focused on the inflow of students to UK universities (Beech, 2014), and the intra-European labour migration flow of ERASMUS students (Baláž and Williams, 2004; Marcu, 2015). Little is known about the labour migration patterns of non-EEA domiciled international students, nor of the factors that might can shape these patterns.

The migration patterns and numbers of international students are believed to be able to affect the higher education system, labour market and immigration policy in host countries (Freeman, 2010; Hawthorne and To, 2014). However, no previous study has examined the labour movement flows of

international students in the UK, nor the factors that predict their decision to remain to work in the UK. The lack of relevant data and information makes it difficult for governments in host and sending countries to implement immigration reform that could attract and retain more overseas students with skills in desired fields. This study firstly examines the labour migration patterns of international postgraduate students in the UK context. Secondly, it explores what factors might be able to shape their decision-making and influence migration flows.

3.2 Factors that can shapes international student migration patterns in previous studies

In order to better understand the labour migration patterns of this sub-group of migrants, King and Raghuram (2013) argue that it is necessary to conduct more sophisticated analysis of available quantitative data on student mobility. In the context of the U.S., Kim, Bankart and Isdell (2011) and Roh (2015) have investigated the factors influencing foreign doctoral graduates' decisions to stay in the US by using data from the National Science Foundation's Survey of Earned Doctorates (SED). The results indicated that individual-level variables (e.g. age, gender, field of study, marital status, presence of children etc.), institutional variables (i.e. location of HEI), and country variables (i.e. R&D expenditure and unemployment rate) all have significant association with international doctoral graduates' study-to-work migration decisions. More recently, using data from the 2013 Survey of Doctorate Recipients (SDR) and the 2013 Doctorate Records File (DRF), Finn and Pennington (2018) have examined the estimates for stay rates (i.e. remained to work) of foreign doctorate recipients in the U.S. five and ten years after graduation. Substantial differences were found in stay rates of international doctorate recipients by subject area and country of origin. More specifically, the 10-year stay rate of foreign doctoral graduates who received degrees in social and related sciences fields was approximately 30 per cent lower than those who received degrees in STEM fields. In addition, Chinese and Indian domiciled graduates were found much more likely to stay than graduates from other

countries in the long term. In the context of Australia, Hawthorne (2014) and Hawthorne and To (2014) used data from Graduate Destination Survey (GDS) in analysing the employment outcomes for international students in Australia at four months after graduation. Study results indicated that full-time employment for international students could be significantly affected by their language background, subject area, and level of qualification.

Existing literature shows that various factors could influence international students' decision to remain to work in host countries, which include individual-level factors, HEI-level factors, and country-level factors. In terms of individual-level factors, many studies reveal that gender identity has an important but underestimated role in analysing migration decision of international students (Alberts and Hazen, 2005; Geddie, 2013), which suggests that it might be mistaken to regard highly skilled migration as male dominated. In fact, empirical data in the United States indicates that female doctoral students are generally more likely to remain to work in the host country than their male counterparts (Roh, 2015).

Subject area and level of qualification have also been shown by previous research to influence and shape labour movement of international students. For instance, in the context of Australia, international graduates who received masters or doctoral degrees in high demand fields (e.g. engineering, law, and medicine & dentistry) were found to have higher full-time employment rates than those with qualifications in oversubscribed fields, such as IT and business related subjects (Hawthorne and To, 2014). In the context of the US, many scholars (Hoffer *et al.*, 2007; Finn and Pennington, 2018) found that international doctoral students within the science, technology, engineering, and mathematics (STEM) areas had much higher stay rates than those who received doctoral degrees in social sciences and related areas. Kim, Bankart and Isdell (2011) claims that international doctoral graduates in STEM subjects are more likely to remain to work in the US because of the high demand of skilled workers in these disciplines. Although scientific and technological knowledge could spread across nations and regions much easier than before, Peri, Shih and Sparber

(2015) argue that skilled STEM workers are less mobile. More specifically, innovation- and knowledge-intensive industries still require tacit knowledge and face-to-face interactions of skilled workers to accelerate the transformation of new ideas into local productivity. In the UK, the 2017 Green Paper published by the Department for Business, Energy and Industrial Strategy (BEIS, 2017, p.16) illustrates that this country has experienced 'particular skills shortages in sectors that depend on STEM subjects'. Nearly half of employers in the UK reported having a shortage of skilled workers with relevant STEM skills, and some employers in specific sectors had to recruit skilled STEM workers from overseas to fill vacancies (CBI, 2016). Therefore, it is necessary to investigate the influence of subject area on international students' study-to-work migration in the UK.

In terms of level of qualification, previous literature on the highly skilled migrations indicates that migrants with higher level of education generally have easier and smoother integration into labour market in host countries. For example, the US Citizenship and Immigration Services allocates foreign-born workers who received a US masters/PhD degree with additional 20,000 H1-B visas on top of the regular cap in each fiscal year since 2004, which is also known as the US advanced degree exemption. Based on large scale survey data, Hawthorne and To (2014) illustrate that international graduates with a masters/doctoral degree were three times more likely than graduates of bachelor degrees to be in full-time employment in Australia. In April 2012, the British coalition government closed the Tier 1 Post-Study-Work visa, which allowed international graduates from UK universities to remain and work in the UK for two years. In the following year, it introduced 'the Doctorate Extension Scheme' to facilitate talented international doctoral graduates to remain to work, though only for an additional 12 months in order to seek skilled work, or set up as entrepreneur (Home Office, 2018, p.41). International graduates with master's degrees were confronting more immigration restrictions compared to their doctoral counterparts, it is therefore necessary to explore the influence of immigration policy changes on international student migration patterns in the UK, including a focus on the level of postgraduate study.

Existing literature has also emphasised the importance of HEI-level factors in shaping international graduates' post-study migration patterns. Based on the annual U.S. News rankings of the Best Graduate Schools in America, Roh (2015) defined prestigious doctoral programmes as the top 25 listed institutions in each academic field. The results suggest that international students who received a degree from prestigious doctoral programmes were less likely to stay in the US compared to those graduated from non-prestigious programmes. Previous research has also found the geographic location of university could shape the study-to-work migration patterns of international graduates. In their study, Kim, Bankart and Isdell (2011) found that international doctorate recipients who graduated from HEIs located in the North, South, and Rocky Mountain regions had significantly higher rates of staying in the US compared to those who received degrees from universities located in the Far West areas during the period 1991 to 2005.

Careers and employability service provided by universities/colleges was found to have positive effects in assisting international graduates' employment in host country. In their empirical research, Tidwell and Hanassab (2007) found that along with the need of acquiring academic skills, majority of international students also reported that they had great needs in obtaining knowledge and information about immigration regulations/visa restrictions and career development. As international graduates' visa status might restrict or reduce their employment opportunities in the host country, this migration subgroup might experience difficulties in matching their career goals and aspirations with the suitable job vacancies in host labour markets. The employment information and careers supports provided by Higher Education institutions, however, can help those international postgraduate students to evaluate the feasibility of their career plans against immigration policies and visa regulations (Crockett and Hays, 2011).

A wide variety of country-level factors has been found to influence the labour mobility of international postgraduate students. International students who are native English speakers were found to have higher full-time employment rates in Australia than students from other language backgrounds

Hawthorne and To (2014). Beine, Noël and Ragot (2014) argue that colonial ties might facilitate the migration of students from former colonies to their ex-colonisers for higher education. Nevertheless, it remains unclear whether colonial ties could also shape the labour movements of postgraduate degree holders. The inequality in wealth and resources between countries are believed have been impelling a great number of people to migrate for better career opportunities, quality of life, and different lifestyles elsewhere. Through analysing the data from the OECD international migration database, Dumont, Martin and Spielvogel (2007) argue that the workers with tertiary education in low-income countries have a higher general emigration rate when compared to their counterparts in more affluent countries. However, Roh (2015) claims that GDP per capita does not predict the labour mobility of international doctorate recipients after controlling for other country-level fixed-effects. This might be because the inequality in wealth and resources does not only exist between countries, but also could be found within countries, especially in developing economies such as China and India. That is to say, in sourcing countries with high level of heterogeneity, the gap of socioeconomic development between rich and deprived regions would be neglected if national level GDP per capital data were used as the proxy of economic and career opportunities for international students. Therefore, this study will test whether it is still useful to keep GDP per capita as a predictor of international students' migration flows.

3.3 Data and method

3.3.1 Destination of Leavers from Higher Education (DLHE) data

The Higher Education Statistics Agency (2018a) in the UK started collecting the DLHE data from international (non-EU domiciled) students since 2011, and previously data collection was limited to UK and EU domiciled graduates only. This is the very first dataset that provides a national level

overview of post-study employment activities of non-EU graduates in the UK HE system. The DLHE survey data has also been linked with 'Students in Higher Education' data (HESA, 2018c), which provides information about student characteristics such as age, gender, level of qualification obtained, subject of study etc. The DLHE survey is centrally designed and defined by HESA, while the data collection is locally managed by each HEI. The data used by this study came from the DLHE 2013/14 and 2014/15 surveys. DLHE 2011/12 and 2012/13 were not included in modelling, because HESA suggested that the quality of data from those two surveys was not good enough for analysis (i.e. comparatively lower response rates). For those who completed their study between 1st August 2013 and 31st December 2013, the survey was carried out in April 2014. For those who completed between 1st January 2014 and 31st July 2014, the survey was scheduled in January 2015. Similar data collection arrangements were made for DLHE 2014/15 survey. The target sample of this study was international postgraduate students of working age (younger than 60) who obtained masters or doctoral degree from a UK HEI. In total, there were 38812 students responded their location of employment, which indicates a response rate of 29.1%.

DLHE data used in this study has a non-hierarchical two-way cross-classified structure. In this type of dataset, lower level units simultaneously belong to two non-nested higher-lever clusters (Rasbash *et al.*, 2014). In this study, 38812 international postgraduate students were nested within 159 domiciles and were separately nested within 150 HE institutions at the same time. Figure 3.1 shows a simplified example of this data structure. In this two-way cross-classification of domiciles by HEIs, each student belongs to a combination of one domicile and one HEI. For example, student S1 simultaneously belongs to HEI H1 and domicile D1. An average of 244.10 graduates per domicile replied their location of employment (minimum = 1; maximum = 9490), and an average of 258.75 graduates per HEI reported their location of employment (minimum = 1; maximum = 3079). A total of 12 (3.88%) of these higher-level units were singletons (i.e. a higher-level unit which only contains one graduate). More specifically, 10 (6.28%) of the 159 domiciles contained only one graduate, and 2 (1.33%) of the 150

HEIs have only one valid respondent. In this two-way cross-classification of domiciles by HEIs, each student belongs to a combination of one domicile and one HEI.

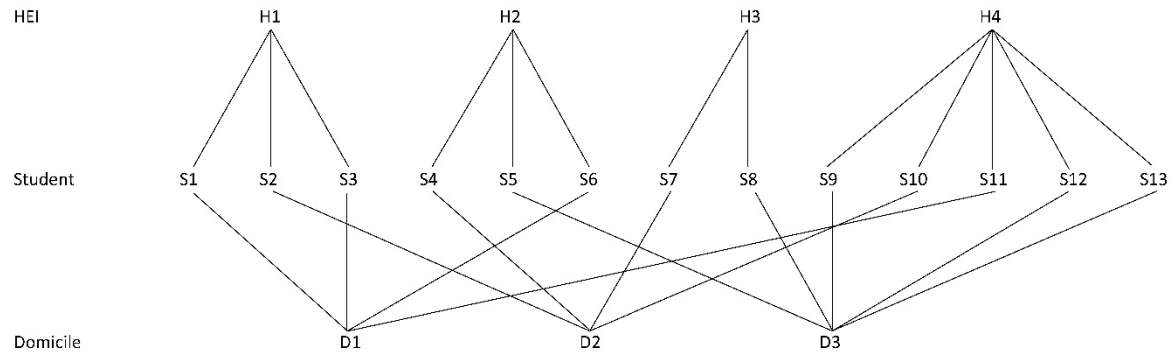


Figure 3.1 Simplified unit diagram for two-way cross-classified structure of DLHE data

3.3.2 Variables

The dependent variable (Location of Employment) in this study was a dichotomous variable which indicated whether an international (non-EEA) postgraduate degree recipient still remained in the UK to work after finishing his/her studies (Work in UK=1, Work in other countries=0). As the DLHE survey data was collected from participants approximately six months after the completion of their studies, the definition of stayers in the study is defined as international postgraduate students whose destination of employment was located within the UK at the time point when the DLHE survey was conducted. Please see Table 3.1 for detailed description of all the variables included in the model building.

Individual-level variables

The independent variables consisted of individual-level, HEI-level, and domicile-level variables. The individual-level variables included demographic features (i.e. gender and age, age was measured at 31st July of the year in which graduates gained their qualifications and centred to its grand mean), and educational background (subject area, level of qualification, and mode of study). Level of qualification in this study only includes doctoral research qualification, taught doctorate, masters research qualification, and taught masters. Other postgraduate diplomas, certificates and professional qualifications were not included in this study.

HEI-level variables

The HEI-level variables in this study were prestige level of HEIs and their locations. In the UK, the Russell Group members are 24 highly research-intensive universities. The research excellence of those universities has been widely recognised both domestically and internationally, and the Russell Group has been used by many previous studies as the criteria in defining the most prestigious universities in the UK HE system (Hemsley-Brown, 2015). Therefore, the prestige level of HEI was measured by whether an institution is one of the 24 Russell Group universities. The variable, location of HEI, was used to measure whether an institution's main-site is based within the Greater London boundary.

Domicile-level variables

Domicile-level variables that had been tested in this study included three binary independent variables (i.e. two variables related to language, and one related to previous colonial affiliation) and three continuous independent variables (i.e. Purchasing Power Parity based GDP per capita, unemployment rate, and youth unemployment rate). Purchasing Power Parity (PPP) is an economic theory that measures prices at different locations, and PPP based GDP is widely used as an indicator in comparing differences in living standards between countries. Variables related to language were majority native English speaking country marker, and English as official language country marker. Previous colonial affiliation was measured by whether a country is one of the commonwealth members. In terms of continuous domicile-level variables, this study extracted corresponding data from the World Bank

online databases. As the DLHE data used in this study covered international postgraduate students who graduated between academic years 2013/14 to 2014/15, this study therefore extracted data of 2014 and 2015 from the World Bank databases. The values in each continuous domicile-level variable were the average numbers of the corresponding values from 2014's and 2015's data, and they were all centred to their grand means in regression models.

Table 3.1 Variables used in the multilevel cross-classified logistic regression modelling

Variable	Type of variable	Further details
Individual level		
Age (centred to grand mean)	Ordinal	The age of graduate was measured at 31st July of the year in which s/he gained qualification. Only graduates who aged less than 60 were included in analysis.
Gender	Dichotomous	The reference group is male (coded 0) so the effect in regression is for female (coded 1).
Level of qualification	Dichotomous	This indicates whether a graduate obtained a master's degree (both taught and research, coded 0, reference group) or a doctoral degree (both taught and research, coded 1).
Subject area	Nominal	Graduate gained degree in STEM subjects is coded 1, gained degree in Business and Administrative Studies (BAS) is coded 2, and those who gained degree in other non-STEM subjects is coded 3 (reference group).
Mode of study	Dichotomous	This indicates whether a graduate was participated in full-time study (coded 1) or part-time study (coded 0, reference group).
HEI-level		
Prestige of HEI	Dichotomous	This indicates whether a graduate gained degree from a Russell Group university (coded 1) or not (coded 0, reference group).
Location of HEI	Dichotomous	This indicates whether a student graduated from a HEI located within the Greater London (coded 1) or not (coded 0, reference group).
Domicile-level		
Unemployment (centred to grand mean)	Continuous	This is the percentage of labour force without employment but available for and seeking work. The unemployment rate used in regression was the mean of the 2014 unemployment and 2015 unemployment data retrieved from the Worldbank online database.
Youth unemployment (centred to grand mean)	Continuous	This is the percentage of labour force aged 15-24 without employment but available for and seeking work. The youth unemployment rate used in regression was the mean of the 2014 youth unemployment and 2015 youth unemployment data retrieved from the Worldbank online database.
GDP per capita (centred to grand mean)	Continuous	This is the PPP based GDP per capita in graduate's home country. The GDP per capita data used in regression was the mean of the 2014 GDP and 2015 GDP data retrieved from the Worldbank online database.
Majority native English-speaking country marker	Nominal	See Appendix A Table A.1 for the list of majority native English-speaking country/region
English as official language country marker	Nominal	See Appendix A Table A.2 for the list of English as official language country/region
Commonwealth affiliation marker	Nominal	See Appendix A Table A.3 for the list of Commonwealth country

3.3.3 Modelling strategy

The cross-classified data structure, dichotomous feature of dependent variable, large higher-level unit sizes, and small proportion of singleton groups suggest that this dataset is suitable for analysis by fitting a cross-classified multilevel logistic model (Clarke and Wheaton, 2007; Stegmueller, 2013). There are also some application of the cross-classified multilevel modelling on population movement research which are based on datasets with cross-classified structures (Shuttleworth and Gould, 2010; Thomas, Stillwell and Gould, 2015; Vitali and Arpino, 2015). In terms of model building process, this study starts with a cross-classified multilevel null model with no explanatory variables, and this initial model will examine residuals at HEI-level and domicile-level which will provide information about how important structural aspects of HEI and country of origin relate to the lobour migration of international graduates.

Through analysing the DLHE data, this study intended to explore how individual-level factors, HEI-level factors, and domicile-level factors could affect international students' migration flows in the UK context. The research aim of this study also suggests that a model with cross-classified specification is preferred to single-level fixed-effects model or two-level hierarchical model. Firstly, that is because international students in this sample are not completely independent cases. Students from the same country might share similar cultural symbols and may be affected by the same domicile-level contextual factors. In addition, international students graduated from the same university were possibly advised and served by the same careers service. That is to say, the assumption of independence of observation is violated, and ignoring HEI-level or domicile-level might result in overestimating the importance of the other level in shaping international postgraduate students' migration pattern.

Secondly, multilevel modelling enables researcher to estimate group effects and effects of group-level predictors at the same time (Goldstein, 2011). In single-level fixed effects model that includes dummy variables for groups (e.g. domiciles and HEIs), the effects of group-level variables are confounded with

the effects of group dummies, as any group-level predictor could be expressed as a function of group dummies. The simultaneous inclusion of group-level predictors and group dummies might lead to multicollinearity problem, so it is not possible to estimate both in fixed effects model. In addition, in the context of this study, it would be also technically unrealistic to include 158 domicile dummies or 149 HEI dummies into the fixed effects model.

Variance partition coefficient (VPC) measures the proportion of total variance explained by higher levels. Browne *et al.* (2005, p.603) suggest that there are three methods that can be used to estimate VPCs in multilevel binomial logistic models, which are 'Model Linearization', 'Simulation', and 'Latent Variable Approach'. This study adopted the 'Latent Variable Approach', and in this method level-1 residual is assumed to follow a logistic distribution, with the residual variation between individuals (σ_e^2) fixed to $\frac{\pi^2}{3}$ (equals to 3.29). Hence, the domicile VPC was calculated as $VPC_{domicile} = \frac{\sigma^2_{domicile}}{\sigma^2_{domicile}+\sigma^2_{HEI}+3.29}$, the HEI VPC as $VPC_{HEI} = \frac{\sigma^2_{HEI}}{\sigma^2_{domicile}+\sigma^2_{HEI}+3.29}$, and individual VPC as $VPC_{individual} = \frac{3.29}{\sigma^2_{domicile}+\sigma^2_{HEI}+3.29}$. $\sigma^2_{domicile}$ refers to the between country of origin variance, and σ^2_{HEI} refers to the between HEI variance. The multilevel logistic models were fitted by Markov chain Monte Carlo (MCMC) methods using MLwiN (Browne, 2009; Rasbash *et al.*, 2014). The Bayesian Deviance Information Criterion (DIC) was used to measure models' goodness of fit with model complexity, with a lower DIC value represents a better model fit.

In terms of model building process, this study started with a two-way cross-classfied multilevel null model as the baseline model, and it was firstly compared with single-level null model and two-level null models through using DICs as the measurements of models' goodness of fit. The predictor variables that would be added to develop more saturated models were selected based on existing theoritical literature (Massey *et al.*, 1993; King and Raghuram, 2013; Raghuram, 2013; Castles, de Haas and Miller, 2014) and empirical research (Kim, Bankart and Isdell, 2011; Hawthorne and To, 2014; Roh, 2015; Finn and Pennington, 2018). Significance tests (Wald tests) were also used to assist the selection

of predictors. Predictors that did not have coefficients significant at 5% level were excluded from further model building processes.

In order to aviod model over-complexity and focus more on the cluster effects of HEIs and countries of origin, this study adopted random intercept models with only level 1 (individual-level) interactions. Wald tests were used to examine whether the coefficients of newly added interactions were significant at least at 5% level, and interactions that have non-significant coefficients would be removed from the multilevel models.

In terms of missing data, the cases that have missing values in the dependent variable (Location of Employment) were removed from regression models. For remaining cases (N=38812), Table 3.2 shows the number of cases that have missing values in each independent variable. Compared to the sample size, the number of missing data in independent variables is ignorable, and this study used listwise deletion to remove data that has missing values. There is only a very small risk that the deletion of these data would produce biased estimates.

Table 3.2 Number of cases with missing value in independent variable (N=38812)

Independent variable	Number of cases with missing value
Age	0
Gender	8
Level of qualification	0
Subject area	0
Mode of study	0
Prestige of HEI	0
Location of HEI	0
Unemployment	141
Youth unemployment	90
GDP per capita	260
Majority native English speaking country marker	0
English as official language country marker	0
Commonwealth affiliation marker	0

3.4 Research findings

3.4.1 Descriptive results

Figure 3.2 shows the distribution of international postgraduate students who remained to work in the UK by age (22-47). The number of graduates aged from 19 to 21 (i.e. less than 0.2%) and aged from 48 to 60 (i.e. less than 1.3%) was relatively small. The age of graduates was measured at 31st July of the year in which they gained their qualifications.

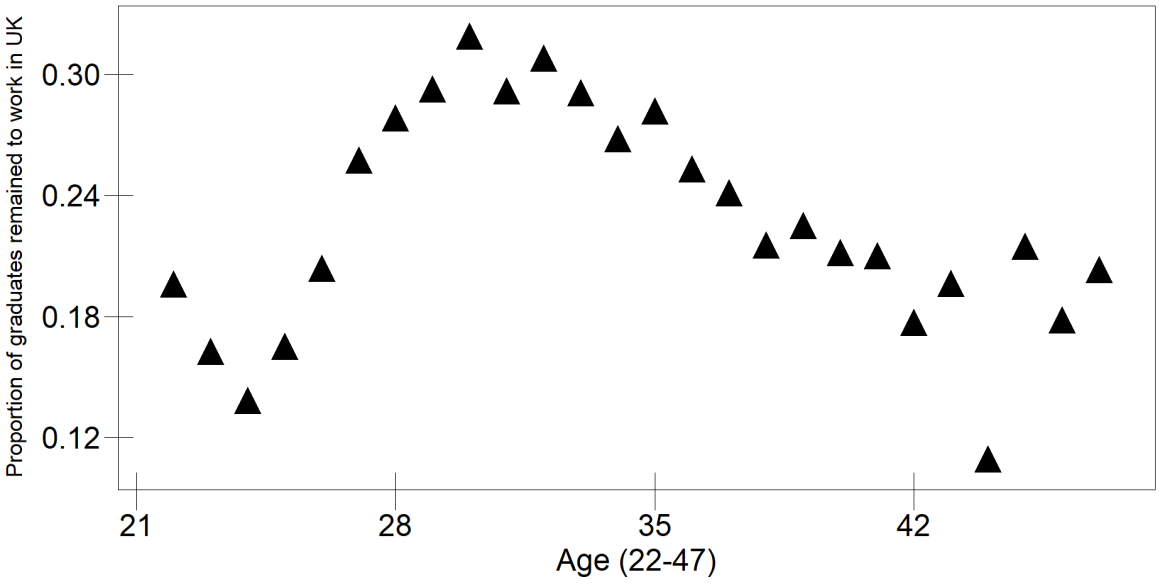


Figure 3.2 Distribution of international postgraduate students who remained to work in the UK by age, 2013/14 - 2014/15 (figure only shows proportion aged from 22 to 47)

Approximately 21.6% of international postgraduate students who responded their location of employment remained to work in the UK. Compared to their female counterparts (20.4%), male graduates (22.9%) were more likely to work in the UK. A chi-square test indicated that there was a

significant association between Gender and Location of Employment, χ^2 (1, *n* = 38804) = 33.672, *p* < .001.

The rates of remaining to work in the UK varied greatly across different countries/regions. Figure 3.3 shows ranked domicile residuals, with 95% confidence interval, for the DLHE dataset. Among 159 domicile units in this study, there were 50 countries/regions whose 95% confidence intervals did not overlap the horizontal line at zero, which indicated, for graduates with those domiciles, the probability of remaining to work in the UK after graduation was significantly above average (28 countries/regions) or below average (22 countries/regions) at the 5% level. More detailed stay rate information can be found from Figure 3.4. Among UK's top 30 sourcing countries/regions, Iran (68.1%), Bangladesh (42.6%) and Australia (41.6%) had the highest proportions of graduates remained to work in the UK, while Oman (5%), Thailand (6.1%) and Iraq (7.8%) had the lowest proportions.

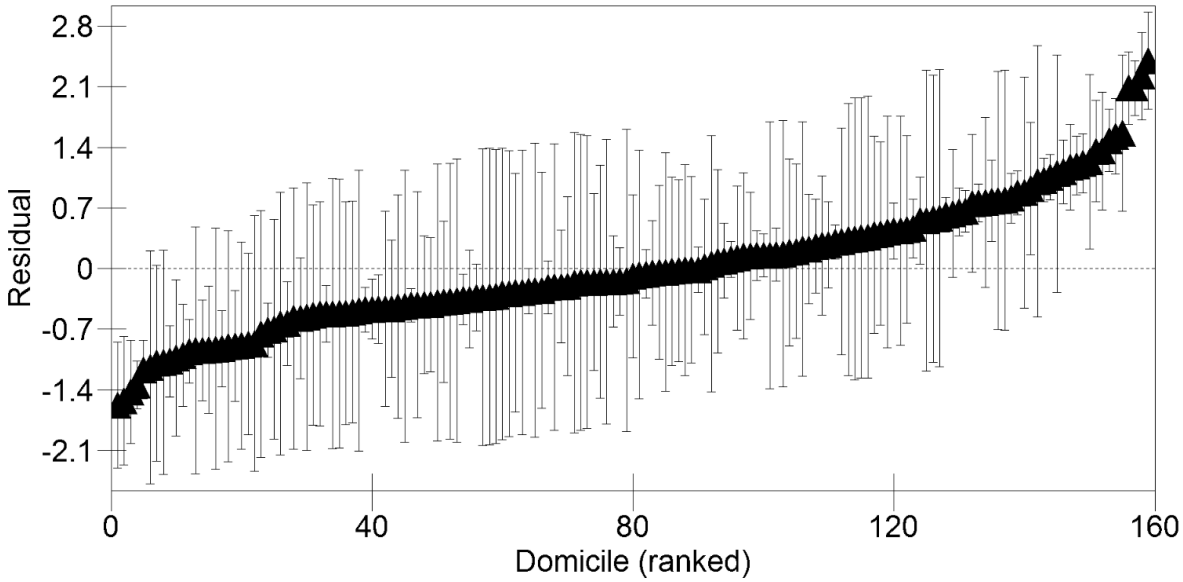


Figure 3.3 Caterpillar plot showing domicile residuals and 95% confidence intervals for students remained to work in the UK in 2013/14 - 2014/15

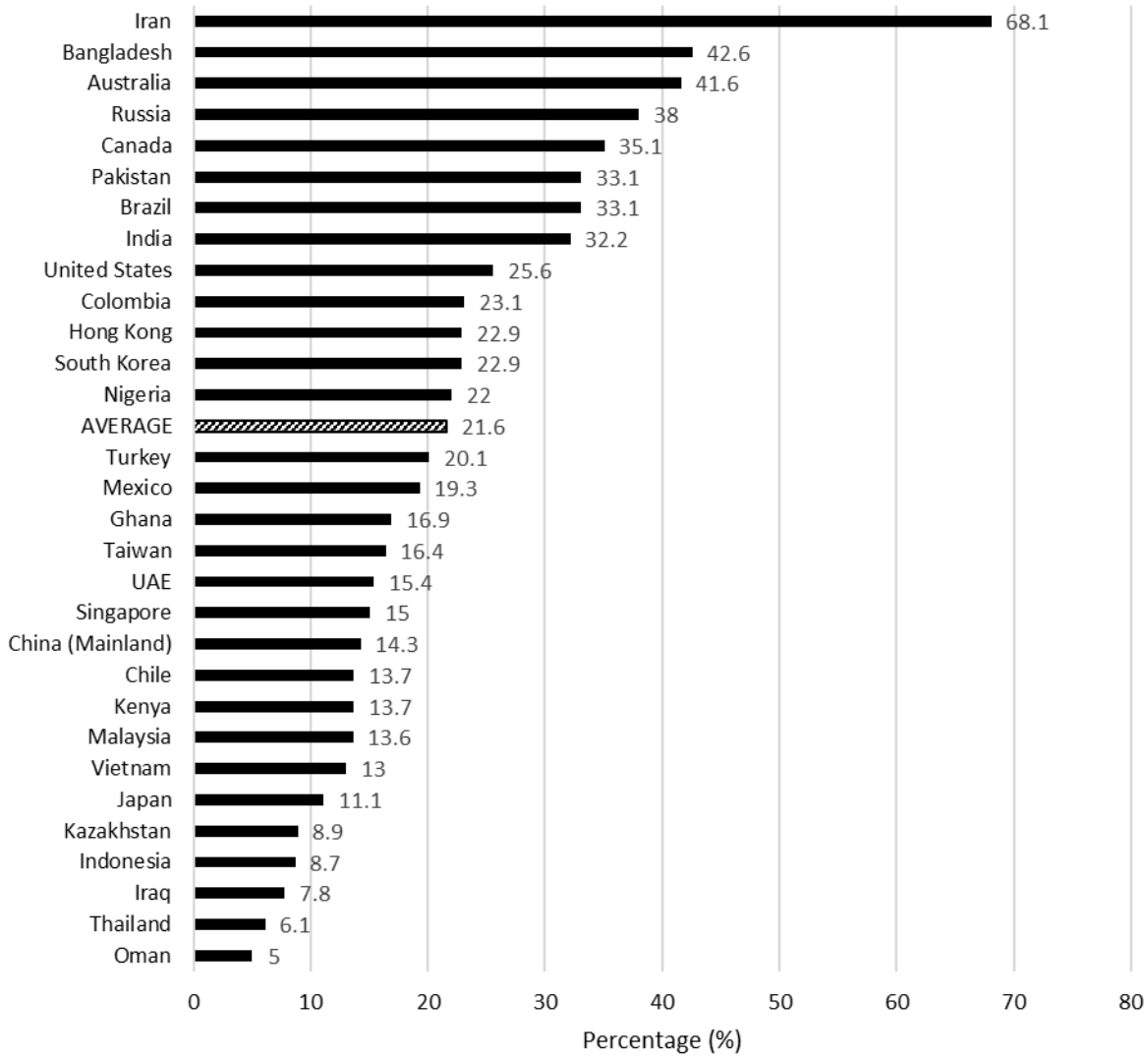


Figure 3.4 Stay rates of international postgraduate students from top 30 sourcing countries/regions in 2013/14 - 2014/15

Among the 150 HEIs in this study, there were 79 institutions with 95% confidence intervals did not cross the horizontal line at zero (Figure 3.5). More specifically, the probability of remaining to work in the UK in 34 of these HEIs was significantly above the average at the 5% level, while the probability in the other 45 HEIs was significantly below average. Figure 3.6 shows the stay rates of international postgraduate students who graduated from the top 30 HEIs that received the highest number of international postgraduate students in the UK. With the exception of Bournemouth University, the universities that have stay rates above the average were either Oxbridge universities or those located

within London. Students who graduated from Russell Group universities (19.4%) were found less likely to remain to work in the UK compared to their counterparts who graduated from other universities (24.4%) at 1% significance level. Students who graduated from universities located within London (27.0%) were found to have higher possibility of remaining to work in the UK than those who graduated from universities outside London (19.0%) at 1% significance level.

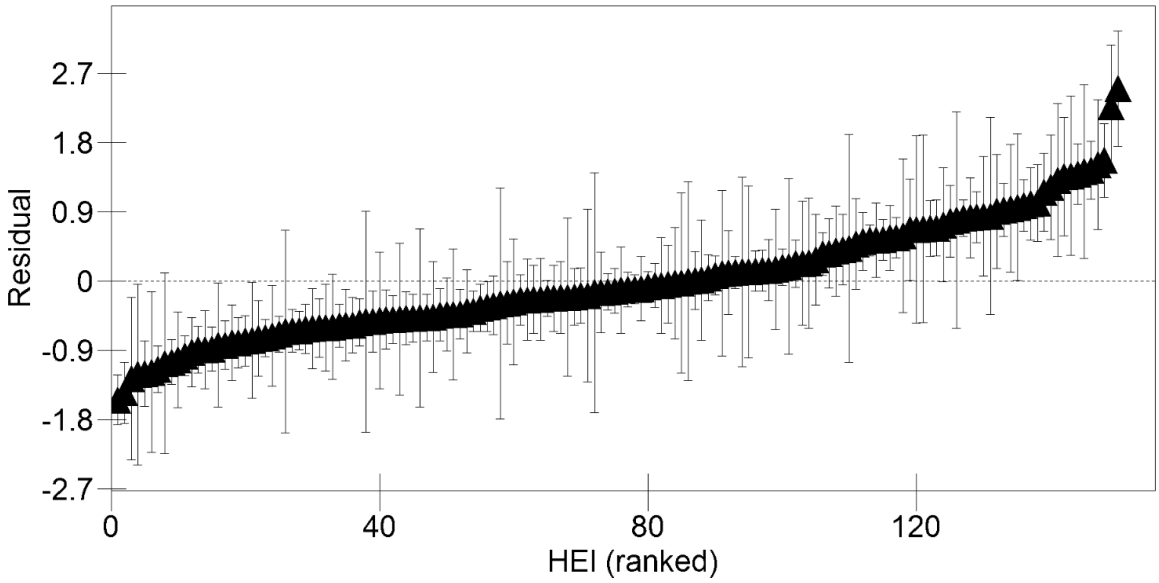


Figure 3.5 Caterpillar plot showing HEI residuals and 95% confidence intervals for students remained to work in the UK in 2013/14 - 2014/15

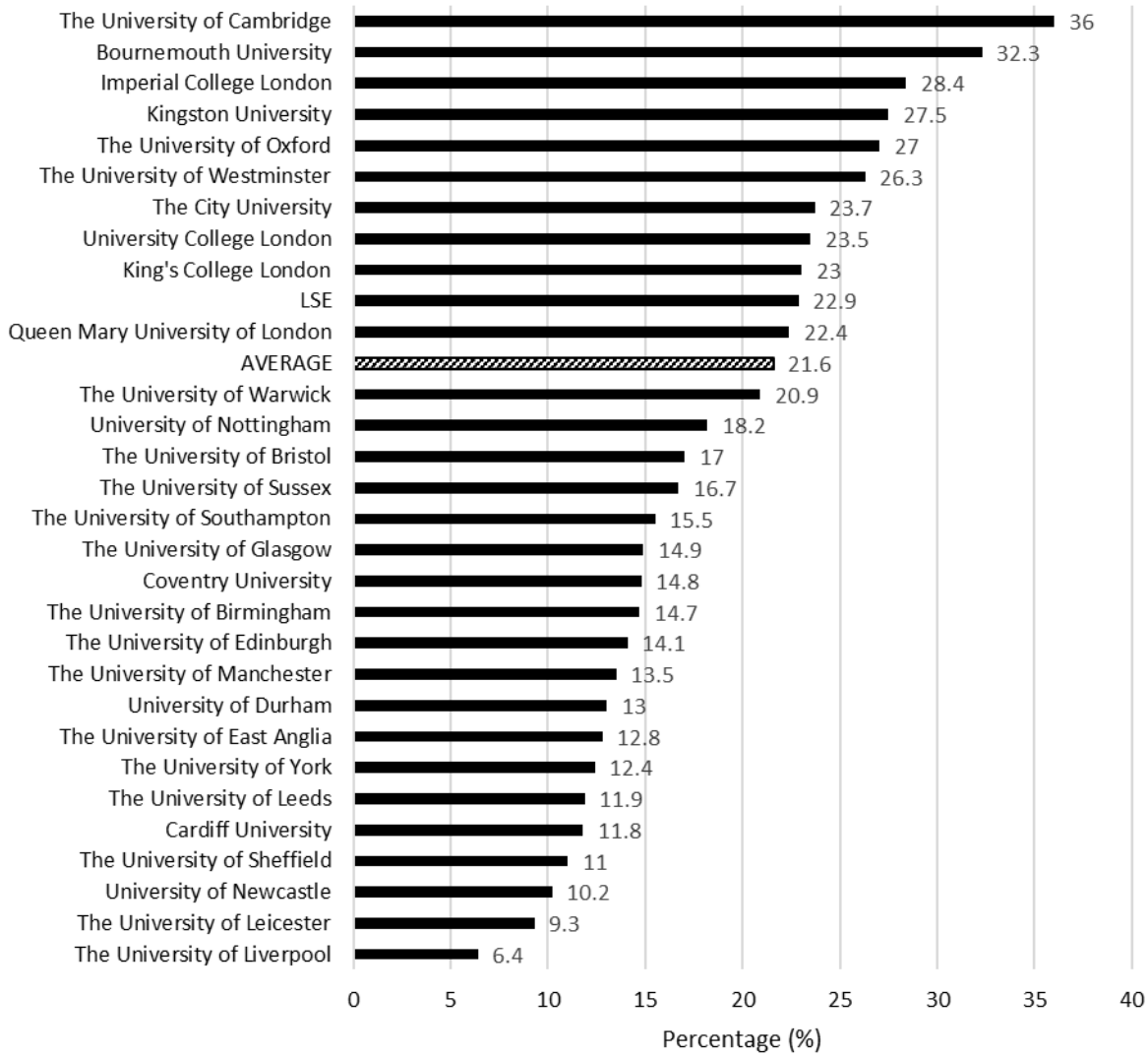


Figure 3.6 Stay rates of international postgraduate students who graduated from the top 30 HEIs that received the highest numbers of international postgraduate students in 2013/14 - 2014/15

Table 3.1 presents the descriptive statistics of graduates' education background. While only 18% of graduates who received master's, degrees remained to work in the UK, nearly half of doctoral degree recipients reported working in the UK. It is particularly noteworthy that the small number of graduates who were part-time students had higher stay rates (29.9%) compared to full-time degree recipients (21.1%). However, the Home Office only issued Tier 4 student visa to international students in full-time studies before 2018. This suggested that those part-time degree recipients were holding visas other than Tier 4 student visa (e.g. dependant visa and Tier 2 visa etc.).

Table 3.3 Distribution of employment location of international postgraduate students, by education background variables, in 2013/14-2014/15 (N = 38812)

Categorical variable	Work in other countries (%)	Work in UK (%)	Total	Chi-Square	Cramer's V
Level of Qualification					
Masters (both taught and research)	81.2	18.8	89.2	1449.926**	0.193
Doctoral (both taught and research)	55.6	44.4	10.8		
Mode of Qualification					
Part-time	70.1	29.9	6.1	102.060**	0.051
Full-time	78.9	21.1	93.9		
Subject Area					
STEM	74.1	25.9	33.0	N/A	N/A
Medicine & Dentistry	73.8	26.2	2.4		
Subjects allied to Medicine	71.4	28.6	3.0		
Biological Sciences	73.5	26.5	3.5		
Veterinary Science (n = 18)	66.7	33.3	0.0		
Agriculture & Related Subjects	82.0	18.0	0.6		
Physical Sciences	77.4	22.6	3.2		
Mathematical Sciences	73.9	26.1	1.6		
Computer Science	66.0	34.0	4.6		
Engineering & Technology	75.2	24.8	10.6		
Architecture, Building & Planning	80.2	19.8	3.3		
Business & Administrative Studies (BAS)	80.1	19.9	32.1		
Other non-STEM	81.0	19.0	34.9		
Social Studies	81.6	18.4	13.7		
Law	86.1	13.9	5.0		
Mass Communications & Documentation	81.2	18.8	3.2		
Languages	83.3	16.7	3.4		
Historical & Philosophical Studies	75.2	24.8	2.7		
Creative Arts & Design	71.8	28.2	4.4		
Education	86.3	13.7	2.4		
Combined (n = 4)	75.0	25.0	0.0		

* $p < 0.05$, ** $p < 0.01$, N/A refers to Not Applicable

Table 3.2 shows the distribution of different job-finding methods used by international postgraduate students. The term job-finding method refers to the method to secure the employment as oppose to merely job-searching methods. The most obvious difference between those who remained to work in the UK and those employed in other countries is the usage of personal contacts. Almost one third (30.8%) of graduates who worked in other countries reported personal contacts as their job-finding method, which was in contrast to a smaller proportion of students (18.2%) who used personal contacts

to find employment in the UK. Among those employed in the UK, the proportion of doctorate recipients (13.8%) who found employment via personal contacts is smaller than the proportion of master's degree recipients (19.4%). Students worked in the UK seem to be more successful in obtaining a job through university/college sources (e.g. Careers Service, lecturer, website etc.). Around one fifth (19.8%) of students who remained to work in the UK secured a job through their universities/colleges, and doctoral graduates (25.3%) seem to be more successful in obtaining a job via these sources than masters graduates (18.1%).

Table 3.4 Distribution of employment location of international postgraduate students, by job-finding methods, in 2013/14-2014/15 (N = 34317)

Categorical variable	Work in other countries (%)	Work in UK (%)	Total (%)
Job-finding methods			
Media (e.g. newspaper/magazine advertisement)	4.4	4.0	4.3
Employer's website	12.8	15.5	13.4
Recruitment agency/website	11.8	14.0	12.3
Personal contacts (including family and friends)	30.8	18.2	28.1
Speculative application	1.9	1.6	1.8
Already worked there (including internship/placement)	16.8	12.8	15.9
Other	9.3	8.9	9.2
Your university/college Careers Service	3.2	11.9	5.0
Other university/college source (e.g. lecturer, website)	2.9	7.9	4.0
Social media/professional networking sites	6.2	5.1	6.0
Total	100	100	100

Table 3.3 presents associations between domicile-level variables and Location of Employment. It indicates that graduates from a majority English-speaking country (29.5%) were approximately 1.5 times more likely to work in the UK than their counterparts from other countries (20.2%). The similar influence of English language was also found among graduates from countries that have English as an official language. Apart from English language, Previous Colonial Affiliation was also found to have significant association with stay rate. Graduates from Commonwealth countries (27.5%) were more likely to be employed within the UK than graduates from other countries (18.8%).

Table 3.5 Distribution of employment location of international postgraduate students, by domicile-level variables, in 2013/14-2014/15 (N = 38812)

Categorical variable	Work in other countries (%)	Work in UK (%)	Total	Chi-Square	Cramer's V
English Language 1					
Other countries	79.8	20.2	84.9	258.317**	0.082
Majority English speaking country	70.5	29.5	15.1		
English Language 2					
Other countries	82.7	17.3	53.3	477.124**	0.111
English as official language country	73.5	26.5	46.7		
Previous Colonial Affiliation					
Other countries	81.2	18.8	67.7	376.843**	0.099
Commonwealth country	72.5	27.5	32.3		

* $p < 0.05$, ** $p < 0.01$

3.4.2 Multilevel cross-classified logistic regression results

The regression analyses in this study were based on a sample of 38812 graduates nested in 159 domiciles and 150 Higher Education institutions. An average of 244.10 graduates per domicile replied their location of employment (minimum = 1; maximum = 9490). In each HEI unit, an average of 258.75 graduates reported their location of employment (minimum = 1; maximum = 3079). A total of 12 (3.88%) of these higher-level units were singletons (i.e. a higher-level unit which only contains one person). More specifically, 10 (6.28%) of the 159 domiciles contained only one graduate, and 2 (1.33%) of the 150 HEIs have one valid respondent. The cross-classified data structure, large higher-level unit sizes, and small proportion of singleton groups suggest that this dataset was suitable for analysis through multilevel cross-classified regression (Clarke and Wheaton, 2007; Stegmueller, 2013).

Table 3.4 presents the results of selected cross-classified multilevel regression models (Model 0 – Model 3). These models were built by adding individual-level and higher-level factors in groups. For each model, a Wald test was performed to examine whether the coefficients of newly added variables were significant at least at the 5% level. Variables that had non-significant coefficients and those which did not improve the model fit were excluded from latter models.

In the null model (Table 3.4, model 0), the between-level variance in stay rate was driven more by the domicile ($\sigma^2_{u(3)}$ = 0.831) than HE institution ($\sigma^2_{u(2)}$ = 0.497). In order to calculate domicile-level and

HEI-level variance partition coefficients (VPCs), Goldstein, Rasbash and Browne (2002)suggest using $\frac{\pi^2}{3}$ as the value of level 1 variation (σ_{e0}^2). For model with dichotomous dependent variable, the domicile-level VPC was calculated as 0.180, and HEI-level VPC was calculated as 0.108, which suggested there were 18% and 10.8% of residual variation in graduates' location of employment were attributable to domicile characteristics and HE institution characteristics respectively.

Table 3.6 Multilevel Cross-classified Models describing association between predictors and binary location of employment outcome

	M0: Cross-classified Model Null Estimate (SE)	**M1: M0+Individual-level variables** Estimate (SE)	**M2: M1+Individual-level interactions** Estimate (SE)	**M3: M2+HEI-level variables** Estimate (SE)
Fixed effects				
Constant	-1.294 (0.105)**	-1.175 (0.130)**	-1.258 (0.093)**	-1.322 (0.139)**
Individual level				
age-gm		0.038 (0.004)**	0.038 (0.004)**	0.038 (0.005)**
(age-gm)^2		-0.009 (0.001)**	-0.009 (0.001)**	-0.009 (0.001)**
(age-gm)^3		2.38×10^{-4} (2.86×10^{-5})**	2.26×10^{-4} (2.57×10^{-5})**	2.27×10^{-4} (2.68×10^{-5})**
female (Ref: male)		0.088 (0.027)**	0.217 (0.048)**	0.217 (0.052)**
doctoral (Ref: masters)		1.336 (0.044)**	1.433 (0.054)**	1.438 (0.056)**
STEM subject (Ref: other non-STEM)				
STEM		0.468 (0.040)**	0.568 (0.048)**	0.573 (0.054)**
BAS		0.298 (0.041)**	0.357 (0.050)**	0.364 (0.058)**
full-time (Ref: part-time)		-0.372 (0.064)**	-0.370 (0.057)**	-0.357 (0.059)**
Interactions				
doctoral×female			-0.244 (0.082)**	-0.242 (0.079)**
STEM×female			-0.176 (0.066)**	-0.179 (0.069)**
BAS×female			-0.076 (0.065)	-0.079 (0.071)
HEI-level				
Russell Group University (Ref: other universities)				-0.557 (0.150)**
Greater London Area HEI (Ref: HEIs in other areas)				0.571 (0.140)**
Random effects				
$\boldsymbol{\sigma^2_{u(3)}}$ (domicile-level)	0.831 (0.139)	0.787 (0.132)	0.783 (0.131)	0.789 (0.132)
$\boldsymbol{\sigma^2_{u(2)}}$ (HEI-level)	0.497 (0.077)	0.582 (0.090)	0.581 (0.089)	0.430 (0.072)
Goodness of Fit (DIC)	36355.228	34686.572	34666.989	34673.734

* $p < 0.05$, ** $p < 0.01$

Figure 3.2 presented in descriptive results indicates that the relationship between age and proportion of graduates who remained to work in the UK was non-linear. A series of polynomial functions of age were tested, and the cubic function was found to have the best model fit compared to other functions of age. Therefore, the following models adopted cubic function of age (centred to its grand mean) as the indicator of age. Besides function of age, Model 1 also incorporates individual-level factors that had significant associations with the dependent variable based on chi-square test results. Individual demographic variables (i.e. age and gender), and educational background variables (i.e. level of qualification, subject area, and mode of study) were introduced into the regression stepwise. Each group of individual-level variables all improved model fit.

Coefficients of age, level of qualification, and mode of degree confirmed the results of descriptive statistics. As expected, the probability of remaining to work in the UK would fluctuate as the age increase. After controlling for other variables in the model, graduates with doctoral degrees were 3.8 times more likely to stay ($\beta = 1.336$) compared to masters degree recipients. Graduates who attended full-time programmes had a lower probability ($\beta = -0.372$) of working in the UK than their counterparts who took part-time programmes, after taking into account relevent other factors. As mentioned in descriptive results above, a higher proportion of male graduates than female remained to work in the UK. However, after controlling for domicile-level and HEI-level clustering as well as other relevant individual-level factors, female graduates ($\beta = 0.088$) were found to have a higher probability of working in the UK than males. In terms of field of study, after controlling for other variables, both STEM graduates ($\beta = 0.468$) and BAS graduates ($\beta = 0.298$) had a significantly higher probability of working in the UK compared to graduates who studied in other non-STEM subjects.

Interactions were examined for pairs of variables and only those which made statistically significant contributions to the regression model were retained for the next model. Model 2 included two groups of interactions: the interaction between level of qualification and gender, and interactions between subject area and gender. The doctoral×female interaction was statistically significant ($p<0.01$) and

confirmed that the gender effect differs between doctoral graduates and master's graduates. The coefficient of gender (β = 0.217) indicated that, for master's degree recipients, females were 24.2% more likely to remain to work in the UK than males after controlling for other factors. However, for doctoral degree recipients, the odds of remaining to work in the UK for females (β = 0.217 - 0.244) was 2.7% lower than for male graduates. The interactions between subject area and gender were jointly significant at the 1% level. However, only the coefficient of STEM*female was statistically significant (p<0.01), while the coefficient of BAS×female was not significantly different from zero. This result suggested that female students (β = 0.217) who received degrees in other non-STEM subject areas generally have a higher probability of remaining to work in the UK compared to their male counterparts. This gender advantage would be less obvious among STEM graduates (β = 0.217 – 0.176) and among BAS graduates (β = 0.217 – 0.076, and not significant at the 5% level).

Model 3 introduced two HEI-level factors: Russell Group university marker; and the Greater London area marker. When these two HEI-level variables were added, the HEI-level variance declined significantly compared to model 2 ($\sigma^2_{u(2)}$ = 0.430, dropped from 0.581), indicating that these two variables explained part of the between-HEI variance. The coefficients for the variables Russell Group (β = -0.557) and Greater London Area (β = 0.571) were both significant (p<0.01), indicating the importance of university's prestige and location in explaining international postgraduate students' location of employment, even after controlling for their demographic characteristics and educational background. International postgraduate students graduated from Russell Group universities were 42.7% less likely to remain to work in the UK compared to those graduated from other institutions, and graduates attended university/college located within the Greater London area were 77.0% more likely to remain to work in the UK.

A series of domicile-level variables were added into the multilevel cross-classified regression models in the final set of model building steps. The Wald tests showed that none of these variables (i.e. GDP per capita, English language background, colonial affiliation, and unemployment rates) had

significantly non-zero coefficients (Table 3.5), indicating that none of the domicile-level variables tested in this study has significant influence on international postgraduate students' stay rate in the UK.

Table 3.7 Multilevel Cross-classified Models describing association between domicile-level predictors and binary location of employment outcome

	M4:M3+GDP per capita Estimate (SE)	**M5:M3+Unemp-loyment** Estimate (SE)	**M6:M3+Youth unemployment** Estimate (SE)	**M7:M3+English Marker (native)** Estimate (SE)	**M8:M3+English Marker (official)** Estimate (SE)	**M9:M3+Colonial affiliation** Estimate (SE)
Domicile-level						
GDP per capita, PPP	-0.006 (0.004)					
Unemployment rate		0.018 (0.014)				
Unemployment rate, Youth (% of total labour force ages 15-24)			0.013 (0.007)			
Majority native English-speaking country marker				0.080 (0.296)		
English as official language country marker					-0.202 (0.181)	
Commonwealth affiliation marker						-0.167 (0.195)
Random effects						
$\boldsymbol{\sigma^2_{u(3)}}$ (domicile-level)	0.722 (0.126)	0.832 (0.145)	0.815 (0.142)	0.793 (0.134)	0.797 (0.133)	0.801 (0.134)
$\boldsymbol{\sigma^2_{u(2)}}$ (HEI-level)	0.440 (0.073)	0.434 (0.073)	0.434 (0.072)	0.431 (0.072)	0.432 (0.072)	0.430 (0.072)
Goodness of Fit (DIC)	34374.802	34517.732	34574.713	34674.321	34672.234	34672.641

* $p < 0.05$, ** $p < 0.01$

3.5 Discussion and conclusions

The descriptive statistical analysis and the multilevel cross-classified logistic regression analysis confirmed some assumptions from previous research in other countries. More specifically, age, gender, subject area, and prestige and location of institution were found to have a significant influence on international postgraduate students' migration decision-making upon degree completion. In the literature, age was found to have a negative association with the probability of remaining to work in the US among doctorate recipients (Roh, 2015). A similar negative association was also found among doctorate recipients in the DLHE data (Figure 3.7). However, for masters graduates, the association between age and the probability of staying was non-linear (Figure 3.8), which indicated a differential influence of age on stay rates between doctoral graduates and masters graduates.

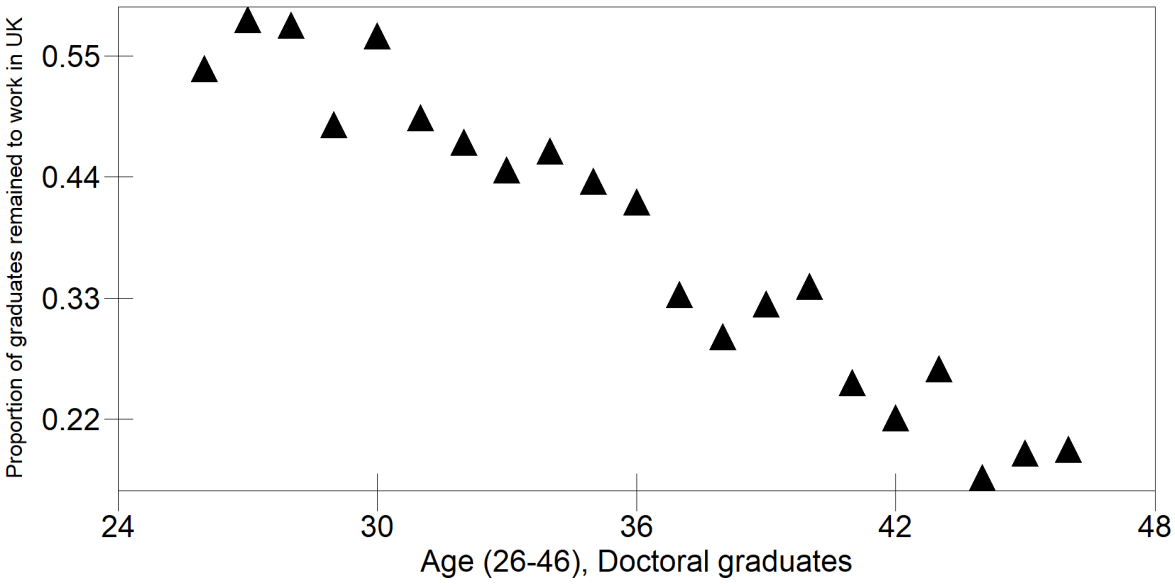


Figure 3.7 Distribution of international doctoral graduates who remained to work in the UK by age, 2013/14 - 2014/15 (figure only shows proportion aged from 26 to 46)

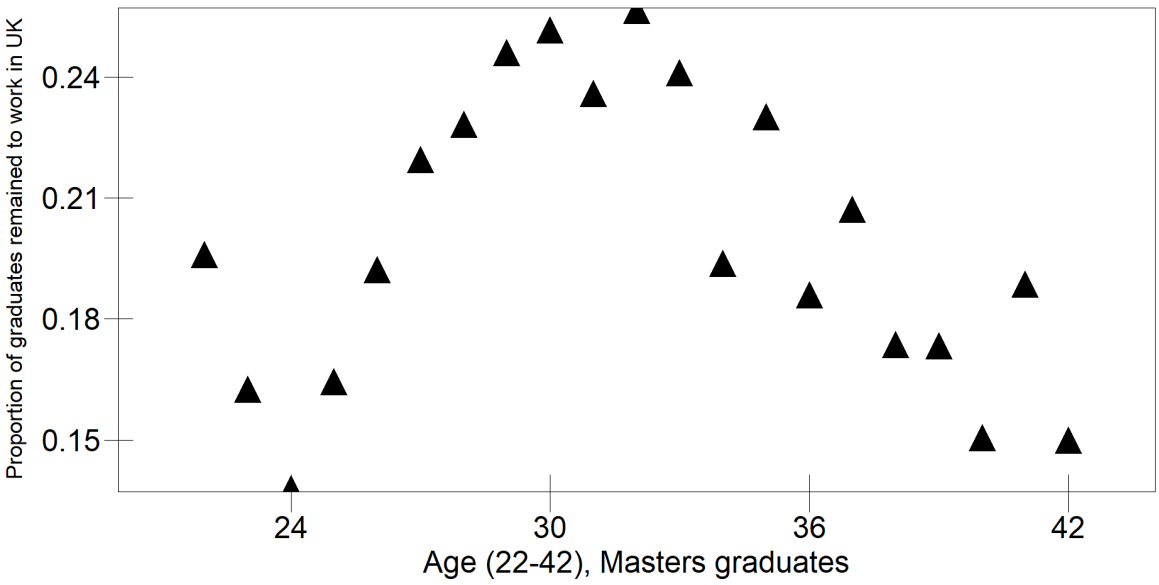


Figure 3.8 Distribution of international masters graduates who remained to work in the UK by age, 2013/14 - 2014/15 (figure only shows proportion aged from 22 to 42)

The importance of gender in international postgraduate student migration has been emphasised by many previous studies (Geddie, 2013). The descriptive statistics shown that males had a higher proportion of remaining to work in the UK than females. However, after controlling for clustering and other relevant factors, multilevel regression results suggest that the influence of gender on international students' migration decision-making depends on their level of qualification and subject area. In the case of master's degree recipients, females had a higher probability (24.2%) of staying than males. In the case of recipients of doctoral degrees, females were slightly less likely (2.7%) to remain to work in the UK compared to male graduates. Previous studies suggest that the lack of degree-relevant highly skilled employment opportunities for women in some less developed countries might make females with an advanced degree more likely to stay in the host country compared to male recipients or doctoral degrees (Musumba, Jin and Mjelde, 2011). The experience of different social, cultural, political, and economic norms in the host country of study might empower female migrants to revisit or even to question and challenge constructed cultural and gender norms that they experienced in their home countries, which might also result in higher stay rates of female international graduates with advanced degrees (Ryan, 2004).

The multilevel regression results confirmed the assumption that subject area has significant influence on international postgraduate students' migration patterns in the UK context. STEM graduates were found to have a higher probability of staying than graduates from other subject backgrounds, and this might be partly explained by the high-skill labour shortage in STEM fields in the UK (Bosworth *et al.*, 2013; Störmer *et al.*, 2014; UKCES, 2015; BEIS, 2017). The UK's increasing demand for highly skilled labour in those fields might provide STEM international postgraduates more opportunities to remain to work in the UK. What is more, the regression results indicated that there was no significant interaction effect between subject area and student's level of qualification, which implies that the effect of subject area on graduates' migration decision-making does not differ between doctorate recipients and master's degree recipients.

Kim, Bankart and Isdell (2011) and Roh (2015) adopted the Carnegie Classification in measuring HEI research intensity level, and regression results of both studies indicated that it did not effectively predict international doctorate recipients' migration decision-making upon degree completion. However, the regression result of this study suggests that international postgraduate students that graduated from Russell Group universities were less likely to work in the UK compared to those who graduated from non-Russell Group HEIs. The Russell Group universities have a very high reputation in providing high-quality teaching and research experience, and postgraduate students trained by them are in high demand in the global high-skill labour market. Apart from the UK government, governments in sourcing countries have also implemented a series of policies to attract the best and the most talented students to return (Suk Kim and Kotchegura, 2017). Although both the UK and those sourcing countries might be interested in attracting and retaining this subgroup, it seems that students who graduated from universities that are more prestigious were more likely to return home, or to seek employment elsewhere. This might be because they represent a more scarce and desirable human capital resource in their home countries, leading to more job opportunities relative to those available in the UK (Musumba, Jin and Mjelde, 2011). That is to say, the elite universities in the UK

have recruited and trained the best and brightest students in the world only to see them leave, and potentially compete against, the UK.

Previous research into the employment-seeking activities of international postgraduate students in the UK has been very limited, and most of the existing studies have focused on the employment-seeking activities of general immigrants (Giulietti, Schluter and Wahba, 2013). Although the importance of personal contacts in obtaining jobs has been emphasised by many previous studies (Goel and Lang, 2019), the result of this study indicates that seeking employment through such methods would be a less successful method for international postgraduate students seeking a job in the UK, especially for recipients of doctoral degrees. This might be because family and friends of highly skilled migrants have little knowledge of specialised fields in host countries and therefore have limited influence in helping them obtain new employment information (Harvey, 2008). What is more, Seibel and van Tubergen (2013) claim that migrant worker with more advanced degrees are less likely to search for employment through informal channels (e.g. family, friends and acquaintances etc.), as high-skilled jobs are more often offered through formal channels (e.g. advertisements and recruitment agency etc.). In addition, the results of this study also identify the importance of Higher Education institutions in assisting international students to find employment in the UK. Nevertheless, the university/college careers and employability services are commonly underutilised by international postgraduate students because of linguistic and cultural barriers (Raunic and Xenos, 2008). The descriptive statistics show that only 9% of the employment of international postgraduate students was found on the basis of job information provided by HEIs.

The findings of this study indicate that government immigration policy might have a vital role in shaping international students' labour movement. For instance, the more favourable immigration environment for doctorate recipients (e.g. the Doctorate Extension Scheme) might lead to their higher probability of remaining to work in the UK. Nevertheless, the stay rate of students with a doctorate in a STEM subject in the UK (47.5%) is still much lower than the number (79.03% in 2010) in the US (Roh,

2015). The tightening of the UK visa regime in recent years has received concern and criticism from many organisations, such as the British Council, the Science Council, Research Councils UK (RCUK), and the Russell Group (Science and Technology Committee, 2014). Those organisations argue that immigration policies in the UK have provided prospective students with the impression that they are not welcome in the UK, and the withdrawal of the Tier 1 Post Study route had even led to a decrease in the number of international students from countries such as India.

Finally, variance at the domicile-level was estimated to be 1.67 times greater than variance at HEI-level, indicating that home country is a better predictor of stay-rates than the HEI attended. However, this study did not find any domicile-level variable (i.e. GDP per capita, English language background, colonial ties, and unemployment rate) that could predict international postgraduate students' staying and employment in the UK. The regression models used by previous studies were single-level model or country fixed-effects model. Ignoring the fact that international students are clustered within Higher Education institutions might result in overstating the importance of certain domicile-level factors. Therefore, it is important and necessary for future studies to identify what domicile-level factors might effectively predict migration decision-making of international postgraduate students.

CHAPTER 4 THE POST-STUDY MIGRATION OF EEA POSTGRADUATES: WHO IS REMAINING TO WORK IN THE UK?

4.1 Introduction

In the age of globalisation, the internationalisation of higher education (HE) has attracted great attention from the European Commission, national governments and Higher Education Institutions (HEIs) in Europe. As one of the indispensable elements in the internationalisation of HE, the increased intra-European mobility of students and graduates is claimed to have crucial positive influence on building Europe's highly-skilled labour force, which in turn would strengthen its competency in the global knowledge economy (de Wit *et al.*, 2015). In the past decades, political developments such as the Bologna Process was introduced to promote the structural convergence of HE system in Europe, which intends to ease and increase student mobility within the European Higher Education Area (EHEA) (Wiers-Jenssen, 2013). As one of the founding members of the Bologna Declaration, the United Kingdom (UK) has long been engaging with the Bologna Process and has made major contribution to the EHEA. The UK is emerging as the major winner in attracting intra-European student migration, which has received the highest number of inward European Economic Area (EEA) mobile students followed by Germany and France (Baláž, Williams and Chrančoková, 2018). In 2017/18 there were 139,150 students from the rest of EU studying at UK HEIs, which accounts for 30.3% of total non-UK domiciled students (HESA, 2019).

While the establishment of the EHEA has been successfully promoting knowledge exchange within Europe and strengthening the competitiveness of European HE system as a whole, it also has certain constraints. The EU enlargements in 2004, 2007 and 2013 has brought the number of EEA countries raised from 18 to 31, which also has triggered a noticeable increase in the volume of migrants from the East to the West and North in Europe. In terms of student migration within Europe, there are

substantial imbalances in credit and degree student mobility between different countries, especially in Central and Eastern Europe, which could lead to potential decreased stock of highly skilled workers in those regions (Teichler, 2012).

Existing research on student mobility in the context of UK has primarily focused on the inflows of students from other EEA countries for short-term studies (Lesjak *et al.*, 2015; Beerkens *et al.*, 2016), and the labour movement of former Erasmus students (Bryła, 2018). Relatively little is known about the post-study mobility of EEA graduates who received postgraduate degrees from UK HEIs. This paper addresses the gaps in knowledge mentioned above and aims to identify what factors might explain study-to-work migration patterns of EEA graduates who obtained postgraduate degrees from UK HEIs, together with an examination of skill levels of those who remained. The main research questions include:

1. What proportions of the variance in stay-rate are explained by HEI- and domicile-level factors, thereby determining what modelling strategy is more suitable in analysing EEA student labour mobility?
2. Which group of EEA graduates were more likely to remain and work in the UK, and how is the pattern changing in the long-term (2011/12-2016/17)?

The 'Destinations of Leavers from Higher Education' (DLHE) survey data (2011/12-2016/17) obtained from the Higher Education Statistics Agency (HESA) as well as country-level indicator data from the World Bank are employed in this research.

4.2 Existing Research on Graduate Post-Study Mobility

As a key elements of the internationalisation of HE, student mobility was emphasised as the most important target within the Bologna Process in the 1980s and 1990s in Europe, and it is still frequently

addressed as a core theme in this domain (Teichler, 2017). However, compared to the intra-European short-term credit-mobility, relatively less is known about the degree-mobility and the corresponding employment outcome of graduates. The absence of accurate quantitative data on degree-mobile students makes it difficult to track and investigate their post-study mobility patterns, which in turn might cause problems for policy makers in evaluating the implementation of Bologna mobility objectives at a national level and in designing effective migration policies (Teichler, 2012; Wiers-Jenssen, 2013; Szewczyk, 2014). The importance and necessity of conducting sophisticated statistical analysis on HE graduate mobility are also emphasised by King and Raghuram (2013), especially when its results and statistical significance could be triangulated and contrasted with qualitative studies.

4.2.1 Factors Identified by Existing Quantitative Research: What Could Shape Student Migration Patterns

In the context of the US, Kim, Bankart and Isdell (2011) and Roh (2015) have examined and tested the factors that could shape foreign doctorate recipients' decision to stay in the US by using data drawn from the Survey of Earned Doctorates. The results indicate that graduate migration patterns could be shaped by predictors at individual-level (e.g. age, gender, subject studied), HEI-level (e.g. HEI location, prestige level), and country-level (e.g. unemployment rate). More specifically, older graduates and male graduates were less likely to remain and work in the US, while receiving degrees in high-demand areas (e.g. biology in the 2000s) increased the odds of remaining relative to graduates who studied in other subject areas. International students who graduated from the most prestigious doctoral programmes were less likely to stay in the US, while the prestige-level of the HEI did not significantly predict the possibility of remaining. The unemployment rate in graduate's home country was found to have positive association with the odds of staying, while the negative effect of GDP per capita disappeared after controlling for country fixed effects (i.e. country dummy variables). In a more recent

report based on data drawn from the 2013 Survey of Doctorate Recipients and the 2013 Doctorate Records File, Finn and Pennington (2018) illustrate that the 10-year stay rate of foreign doctorate recipients who obtained degrees in 'social and related sciences' fields was approximately 30 per cent lower than those who obtained degrees in STEM fields. The quantitative studies mentioned above were conducted in the US context, and their results might not be directly applicable to the UK context. This study would test the effects of previously identified predictors on the post-study mobility of EU/EEA domiciled postgraduate students, and it would also contrast and compare the statistical results with existing qualitative research on intra-European student mobility.

4.2.2 Student Post-graduation Mobility in the European Context

In terms of country-level factors, the influence of socioeconomic factors on student mobility in Europe has been widely discussed by many existing studies (King, 2018). Through analysing the panel data of 33 European countries, Caruso and De Wit (2015) found that GDP per capita in a host country has a significantly positive association with the inflow of foreign students, and the flow of students from economically less developed countries to an economically more advanced nation is described by Teichler (2017, p191) as the 'vertical mobility'. In addition to their role as foreign students, student migrants also have family and present/prospective worker roles and identities. In her study, Marcu (2015) argues that getting access to jobs with higher incomes (compared to salaries in their home countries) in the UK was an important motivation for many Romanian and Bulgarian undergraduate students to choose the UK as their study destination. Some students were deliberately using study abroad as a life-strategy for later permanent migration, and some even planned to bring their family members to the UK after graduation. Many students and their parents, especially those from lower-middle classes, believed that studying a HE degree in the UK was a good investment for student's future, and the greatest professional return of this investment would be remaining to work in the UK.

The youth unemployment rate was another socioeconomic factor that could shape graduate labour migration patterns in Europe. A country that has experienced a prolonged economic recession would also normally see a rapid increase in its youth unemployment during that period, which includes massive unemployment of young graduates with tertiary education (Cairns, 2017). The 2008 financial crisis has imposed severe impact on the economics of Europe, and the Southern and Eastern peripheries were the regions that have been affected the most. King *et al.* (2014) argue that the geographically uneven impact of the financial crisis across the Europe has been working as a leading factor of recent labour movements in the UK. After the crisis, many students graduated from HEIs in Italy and Latvia were attracted by the employment opportunities, career prospects and incomes in London which were not available in their home countries, and there was an increased number of new arrivals tend to start with low-skilled jobs in the UK before they could find vacancies match their skill-levels.

In terms of HEI-level factors, the university's teaching and research quality is claimed to be one of the major factors in predicting the study destination of European mobile students (González, Mesanza and Mariel, 2011; Baláž, Williams and Chrančoková, 2018), but little is known about its influence on graduate's labour mobility. One study that did examine the influence of HEI quality focused on interregional mobility of graduates in Italy. The regression results indicate that student who graduated from a HEI with higher research and teaching quality was more likely to remain in the province where he/she studied to work. Graduating from a high-quality university acts as a signal to employers, which might reduce the need for mobile student to migrate again to find a suitable job (Ciriaci, 2014). In the UK, the Russell Group consists of 24 leading universities which represent the top quality of research and teaching, and it has been used by many previous studies as the criteria in defining the most prestigious universities in the UK (Hemsley-Brown, 2015). This study intends to test whether attending a Russell Group university would increase the possibility of EU/EEA graduate to remain in the UK for employment.

Apart from the prestige level, the location of HEI could also influence graduate migration patterns. According to Faggian and McCann (2009), the graduate employment opportunities is not evenly distributed in the UK, and the generation of job-matching opportunities is more aggregated on London and its surrounding regions. London is not only an international financial centre, but also a multicultural and cosmopolitan city. Several studies have found that some students from other EU/EEA countries deliberately chose London as their study destination and planned to remain in there to work after their graduation (Csedő, 2008; Beaverstock and Hall, 2012; King *et al.*, 2014).

In terms of individual-level factors, Geddie (2013) argues that gender identity is an important but underestimated factor in analysing cross-border graduate movements. In some more masculinity-based countries, such as Portugal and Poland, female graduates were found to have experienced greater difficulties in finding employment matches their skill-levels than their male counterparts, and the financial crisis of 2008 was believed to have reinforced this gender disparities (Sojkin, Bartkowiak and Skuza, 2012; Cairns, 2017). What is more, due to the very low participation of private sector in R&D activity in some southern European countries (e.g. Portugal and Italy), employment opportunities at postgraduate level in science and research areas are relatively scarce, which is especially evident for female graduates (Morano-Foadi, 2005). Faggian, McCann and Sheppard (2007) argue that in order to compensate for their gender disadvantage in accessing the labour market, female graduates were more likely than males to migrate for better employment opportunities. This study would investigate whether gender identity could shape intra-European graduate migration, and how.

4.3 Methodology

To answer the research questions described previously, this study follows a quantitative approach based on analysis of existing secondary data sources. The main data sources were listed below:

1. The DLHE survey data (2011/12-2016/17) obtained from the HESA.
2. The 'youth unemployment' data and 'PPP based GDP per capita' data (2012-2017) taken from the World Bank Database.

4.3.1 Description of the Dataset

The DLHE survey is conducted approximately six months after graduation, which provides a national level overview of employment activities of students who graduated from UK HEIs. Although DLHE data has been used in studies investigating employment outcomes of UK-domiciled undergraduates (Woodfield, 2011; Macmillan, Tyler and Vignoles, 2015), it has not been utilised in exploring labour migration patterns of EEA postgraduates. The DLHE survey has been re-designed since 2011/12, which resulted in that the data from the survey for 2011/12 onwards could not be directly compared to figures presented in previous years. Therefore, this study utilised the data from DLHE 2011/12-2016/17. A total 61,978 valid respondents who came from 30 EEA countries (UK excluded) and 156 HEIs were recorded for surveys in these six years, which indicates that 46.7% of eligible HEI leavers replied their location of employment.

The dependent variable (location of employment) in this study was a dichotomous variable, which indicated whether an EEA postgraduate degree recipient remained to work in the UK after graduation (Work in UK=1, Work outside UK=0). The independent variables can be divided into individual-level, HEI-level, and domicile-level factors. The full list of explanatory predictors can be found in Table 4.1, which also provides further details of their nature.

Table 4.1 Variables used in the multilevel cross-classified logistic regression modelling

Variable	Type of variable	Further details
Individual level		
Age (centred to grand mean)	Ordinal	The age of graduate was measured at 31st July of the year in which s/he gained qualification. Only graduates who aged less than 60 were included in analysis.
Gender	Dichotomous	The reference group is male (coded 0) so the effect in regression is for female (coded 1).
Level of qualification	Dichotomous	This indicates whether a graduate obtained a master's degree (both taught and research, coded 0, reference group) or a doctoral degree (both taught and research, coded 1).
Subject area	Nominal	Graduate gained degree in STEM subjects is coded 1, gained degree in Business and Administrative Studies (BAS) is coded 2, and those who gained degree in other non-STEM subjects is coded 3 (reference group).
Mode of study	Dichotomous	This indicates whether a graduate was participated in full-time study (coded 1) or part-time study (coded 0, reference group).
HEI-level		
Prestige of HEI	Dichotomous	This indicates whether a graduate gained degree from a Russell Group university (coded 1) or not (coded 0, reference group).
Location of HEI	Dichotomous	This indicates whether a student graduated from a HEI located within the Greater London (coded 1) or not (coded 0, reference group).
Domicile-level		
Youth unemployment (centred to grand mean)	Continuous	This is the percentage of labour force aged 15-24 without employment but available for and seeking work. The 2012 youth unemployment rate was used for graduates in 2011/12 DLHE survey, and so forth.
GDP per capita (centred to grand mean)	Continuous	This is the PPP based GDP per capita in graduate's home country. The 2012 GDP per capita data was used for graduates in 2011/12 DLHE survey, and so forth.
Location of home country	Nominal	13 countries (Austria, Belgium, Germany, Denmark, Finland, France, Ireland, Iceland, Liechtenstein, Luxembourg, Netherlands, Norway and Sweden) were classified as Western and Northern European countries (coded 1). 6 countries (Cyprus, Greece, Italy, Malta, Portugal and Spain) were classified as Southern European countries (coded 2). 11 countries (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia) were classified as Central and Eastern European countries (coded 3).

4.3.2Multilevel Models

Data from DLHE survey is non-hierarchical two-way cross-classified in structure. Each of the postgraduate degree recipients surveyed came from a certain EEA country and separately graduated

from a specific UK HEI. Countries and HEIs are not nested within one another as not all students from the same country graduated from the same HEI, nor do all students graduated from the same HEI came from the same country. The nesting data structure suggests that students shared the same nationality might tend to be more alike than students from different countries, and students graduated from the same institution are likely to be more similar than students graduated from different institutions. Of course, this is a hypothesis that needs to be tested. Fitting simpler models, such as single-level models or two-level hierarchical models, to cross-classified data will lead to misattribution of variance in dependent variable to the relevant levels. This in turn might result in underestimation of standard errors of coefficients, especially for those of cluster-level predictor variables (Hox, 2010). Multilevel modelling also allows researchers to investigate cluster effects and effects of higher-level predictors at the same time. In single-level model with dummy variables for clusters (e.g. domiciles and HEIs), the effects of cluster-level variables are confounded with the effects of cluster dummies, which in turn may make it difficult for researchers to identify where and how effects are occurring in the model. Compared to fixed-effects models, multilevel modelling provides more accurate and insightful answers to questions related to higher-level factors such as the research questions above. The regression analyses were conducted with the MLwiN version 3.01, through using Monte Carlo Markov Chain (MCMC) estimation and classification notation (Browne, Goldstein and Rasbash, 2001). The multilevel cross-classified logistic model is formulated as below:

$$y_i \sim Binomial(\pi_i)$$

$$Logit(\pi_i) = log\frac{\pi_i}{1-\pi_i} = \beta_0 + \sum_{a=1}^{A}\beta_a x_{ai} + \sum_{b=1}^{B}\beta_b x_{bi} + \sum_{c=1}^{C}\beta_c x_{ci} + u^{(2)}_{0,HEI(i)} + u^{(3)}_{0,domicile(i)}$$

$$u^{(2)}_{0,HEI(i)} \sim N(0, \sigma^2_{u(2)})$$

$$u^{(3)}_{0,domicile(i)} \sim N(0, \sigma^2_{u(3)})$$

Where:

y_i refers to the binary response on the dependent variable (location of employment) for an individual student. y_i takes the value 1 if student i remains to work in the UK, or 0 if not (subscription i refers to the individual case);

x_{ai} refers to the a^{th} individual-level explanatory variable, x_{bi} refers to the b^{th} HEI-level variable, and x_{ci} refers to the c^{th} domicile-level variable;

π_i refers to the probability when $y_i = 1$ is denoted by;

β_0 refers to the overall intercept, while β_a, β_b and β_c refer to the regression coefficients of corresponding independent variable x_a, x_b and x_c;

$u^{(2)}_{0,HEI(i)}$ refers to the HEI-level random effect, which assumed follows a normal distribution with mean zero and variance $\sigma^2_{u(2)}$;

$u^{(3)}_{0,domicile(i)}$ refers to the domicile-level random effect, which assumed follows a normal distribution with mean zero and variance $\sigma^2_{u(3)}$.

This study has two stages of regression analyses. In stage one, all data from DLHE survey 2011/12-2016/17 were pooled and analysed together for the purpose of exploring the overall correlation between explanatory variables and dependent variable in the period of 2011/12-2016/17. In stage two, separate analyses for the six years were conducted for two purposes: 1. investigating the changes of coefficients corresponding to explanatory variables between 2011/12 and 2016/17; 2. testing the influence of youth unemployment rate and GDP per capita on the stay rate of EEA graduates.

The model building process, the selection of predictor variables, and the justification of interactions were following the principles stated in Chapter 3, and please see Section 3.3.3 for detailed explanations. In addition, detailed explanations on variance partition coefficients (VPCs), Deviance Information Criterion (DIC), and goodness of fit could also be found in Section 3.3.3.

In terms of missing data, the response rate for pooled data (DLHE 2011/12-2016/17) was 46.7%, with 61,978 out of graduates replied their locations of employment. The response rates of the location of employment for each extract of the six-year data (in chronology order) were: 44.3%, 45.4%, 47.1%, 47.0%, 48.9%, and 47.8%. The cases that have missing values in the dependent variable (Location of Employment) were removed from regression models. For remaining cases (N=61978), Table 4.2 shows the number of cases that have missing values in each independent variable. Compared to the sample size, the number of missing data in independent variables is ignorable, and this study used listwise deletion to remove data that has missing values. There is only a very small risk that the deletion of these data would produce biased estimates.

Table 4.2 Number of cases with missing value in independent variable (N=61978)

Independent variable		Number of cases with missing value
Age		0
Gender		18
Level of qualification		0
Subject area		0
Mode of study		0
Prestige of HEI		0
Location of HEI		0
Majority native English speaking country marker		0
English as official language country marker		0
Commonwealth affiliation marker		0
Youth unemployment	2011/12 (n=9476)	0
	2012/13 (n=9924)	1
	2013/14 (n=10832)	3
	2014/15 (n=11040)	0
	2015/16 (n=10539)	2
	2016/17 (n=10167)	2
GDP per capita	2011/12 (n=9476)	0
	2012/13 (n=9924)	1
	2013/14 (n=10832)	3
	2014/15 (n=11040)	0
	2015/16 (n=10539)	2
	2016/17 (n=10167)	2

4.4 Results

4.4.1 Descriptives

Among the 61,978 valid cases in DLHE 2011/12-2016/17, more than one-third (39%) chose London as their study destination, and nearly half (48.9%) of them studies in one of the Russell Group universities

in the UK. More specifically, students from Spain (39.4%), Norway (42.6%), Portugal (43.1%), Romania (44.1%), Poland (44.7%) and Bulgaria (45.3%) were less likely to study in a Russell Group university at 5% significance level, while students from Slovenia (58.2%), Luxembourg (55.1%), Belgium (54.6%), Netherlands (53.5%), Austria (53.5%), Cyprus (52.5%), and Greece (51.4%) were significantly more likely to study in one of those universities.

Overall, 44% of EEA graduates (n=27,287) remained to work in the UK after completion of their studies. Figure 4.1 shows the detailed stay rates of students from each EEA country. Graduates from ten Eastern and Southern European countries were found to have significantly higher stay rates than the average, with their 95% confidence intervals above the zero horizontal line. Among these ten countries, the stay rates of four countries (Romania, Bulgaria, Italy and Greece) were found to have stable growth between 2011/12-2016/17, while the stay rates of other countries remained steady or did not present clear patterns. Due to the number of respondents (n=8) from Liechtenstein is very small, the estimation of corresponding domicile-level residual was shrunken in towards the overall average (Goldstein, 2011).

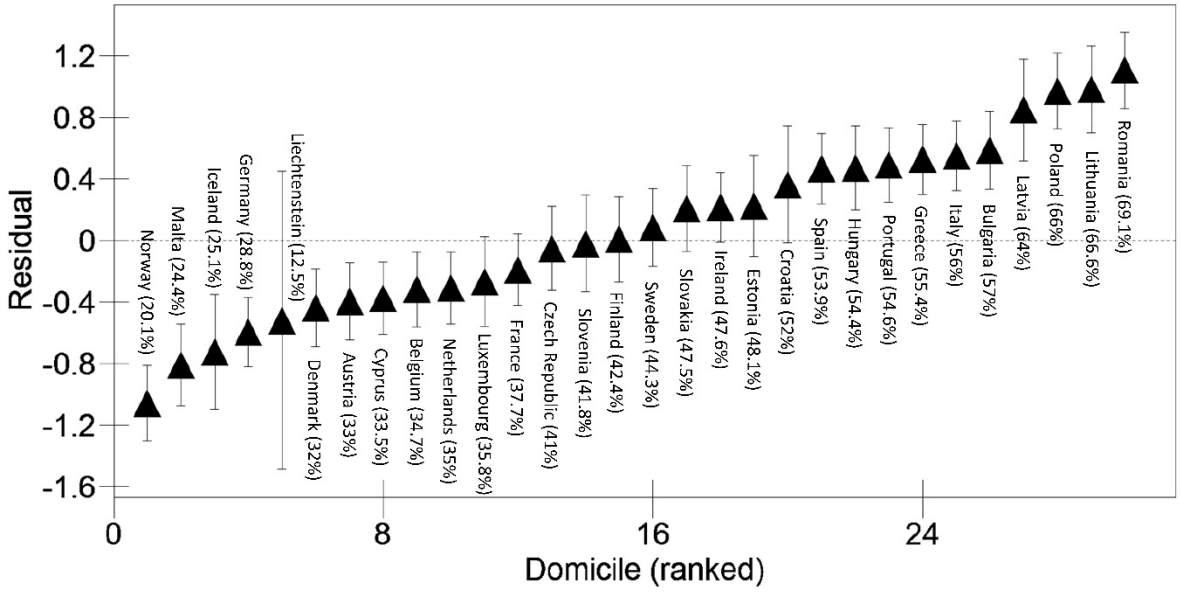


Figure 4.1 Caterpillar plot showing domicile residuals with 95% confidence intervals for students remained to work in the UK between 2011/12-2016/17, with stay rates presented as percentage

The majority (87.6%) of graduates who remained to work in the UK was in professional-level employment (those coded 1-3 in the Standard Occupational Classification 2010). Table 4.3 shows that proportions of graduates from graduates from Estonia, Bulgaria, Lithuania, Poland, Romania, Slovakia, and Italy were lower than the population average at 5% significance level, while the proportions of Austria, Denmark, Germany, Belgium, and France were significantly higher than the average.

Table 4.3 Proportion of graduates worked in professional jobs, among all graduates who remained to work in the UK, by domicile, 2011/12 – 2016/17

Domicile	Proportion	Domicile	Proportion
Estonia	0.767**	Netherlands	0.873
Bulgaria	0.825**	Slovenia	0.873
Lithuania	0.825**	Hungary	0.875
Poland	0.829**	Iceland	0.875
Romania	0.831**	Portugal	0.878
Slovakia	0.831*	Ireland	0.882
Croatia	0.833	Cyprus	0.892
Latvia	0.848	Malta	0.893
Finland	0.852	Sweden	0.893
Czech Republic	0.861	France	0.903**
Spain	0.864	Belgium	0.913**
Italy	0.866*	Germany	0.918**
Norway	0.868	Denmark	0.920*
Luxembourg	0.869	Austria	0.925**
Greece	0.872	Liechtenstein	N/A

*p<0.05, **p<0.01; 1-tailed Binomial test indicates whether a proportion is significantly higher/lower than the population average (0.876)

Table 4.4 shows the stay rates of EEA postgraduate degree recipients in each subject area between 2011/12-2016/17. In general, graduates with STEM background had higher stay rates compared to their counterparts held degrees in other areas. It is particularly noteworthy that graduates who received degrees in Medicine & Dentistry and Computer Sciences were found to have the highest and the most stable stay rates among all STEM graduates.

Table 4.4 Percentage distribution of EEA graduates who remained to work in the UK, by subject area, 2011/12-2016/17

Subject Area	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	Chi-square
STEM	42.9	47.8	52.0	53.8	53.0	52.6	131.168**
Medicine & Dentistry	52.5	57.0	55.0	58.6	63.9	55.8	7.176
Subjects allied to Medicine	39.1	49.7	50.0	51.6	54.3	51.9	17.718**
Biological Sciences	45.0	49.3	52.9	56.3	54.2	54.2	20.779**
Veterinary Science (n = 63) (a)	--	--	--	--	--	--	--
Agriculture & Related Subjects	25.0	59.6	32.6	41.9	54.4	60.0	27.433**
Physical Sciences	46.4	48.5	55.8	48.6	50.2	53.8	11.308*
Mathematical Sciences	45.3	47.0	58.6	49.8	43.6	48.8	11.050
Computer Science	51.0	54.2	53.0	52.9	56.3	57.9	5.712
Engineering & Technology	38.7	42.6	48.7	56.3	48.6	48.2	81.978**
Architecture, Building & Planning	37.0	41.3	53.8	54.4	61.7	56.1	43.507**
Business & Admin Studies (BAS)	38.9	37.8	39.1	41.9	40.2	37.4	15.315**
Other non-STEM subjects	37.2	38.7	40.8	42.5	42.5	43.3	45.743**
Social Studies	35.9	35.4	38.1	38.0	38.7	37.8	4.928
Law	18.5	18.8	20.4	26.4	24.5	25.2	21.576**
Mass Comm & Documentation	44.8	47.1	54.3	53.2	52.7	53.4	10.830
Languages	43.7	42.5	48.0	47.7	45.8	46.8	4.530
Historical & Philosophical Studies	42.2	41.2	42.0	42.1	46.9	42.4	2.433
Creative Arts & Design	52.2	56.7	57.2	61.6	60.7	64.1	23.347**
Education	26.7	33.6	33.7	40.2	38.7	33.5	12.440*
Combined (n = 2) (a)	--	--	--	--	--	--	--

*p<0.05, **p<0.01

a. Due to the small numbers of graduates in Veterinary Science and Combined subject, percentages were not shown.

4.4.2 Multilevel Cross-classified Logistic Models

Table 4.5 presents the results for three regression models, predicting possibility of remaining to work in the UK using the set of variables described in Table 4.1. Model 1 (null model) includes a constant as the only predictor, which allows this study to examine the variance to be explained at each of the cross-classified levels. The variance partition coefficients (VPCs) show that 85.1% of the variance in stay rate is attribute to individual level, while 5.4% lies between HEIs and 9.5% lies between domiciles, which indicates there are stronger disparities across 30 EEA countries than there are across the 156 HE providers.

In model 2, HEI prestige variable, HEI location variable, and home country geographic variable were added. Of the HEI-level variables, location of the HEI was significant, with students who graduated from HEIs located within the Greater London area were more likely to remain in the UK to work. The prestige level of HEI did not have significant influence on the stay rate of EEA graduates. Of the

domicile-level variable, graduates who came from Southern, Central or Eastern European countries were more likely to remain in the UK to work compared to their counterparts from Western or Northern European countries. These three variables together explained 12% of the HEI-level variance and 40.9% of the domicile-level variance.

In the final model, individual-level variables were added. After controlling for individual-level characteristics, the difference in stay rate between graduates from Southern European countries and those from Western and Northern European countries became non-significant. Female graduates, graduates with doctoral degrees, STEM and BAS graduates, graduates in full-time studies, and graduates surveyed in 2014/15 and 2015/16 were more likely to remain in the UK to work. Graduates in age group 26-30 and 31-35 did not have significantly different stay rate compared to their younger peers. However, for graduates aged over 36, the older they were the less likely they would remain to work in the UK.

Table 4.5 Multilevel cross-classified logistic models for overall stay rate of EEA graduates between 2011/12-2016/17

	Model 1 (Null)	**Model 2**	**Model 3**
	Estimate (SE)	Estimate (SE)	Estimate (SE)
Fixed effects			
Constant	-0.267 (0.110)*	-0.807 (0.145)**	-1.409 (0.149)**
HEI-level			
Russell Group HEI (Ref: other HEIs)		0.154 (0.088)	-0.024 (0.088)
Greater London HEI (Ref: other HEIs)		0.408 (0.090)**	0.489 (0.090)**
Domicile-level			
Western and Northern European countries (Ref)			
Southern European countries		0.495 (0.235)*	0.425 (0.229)
Central and Eastern European countries		0.882 (0.199)**	0.836 (0.195)**
Individual-level			
Age (Ref: 25 years old and under)			
26-30			0.016 (0.021)
31-35			0.023 (0.033)
36-40			-0.385 (0.052)**
41-45			-0.778 (0.076)**
46-50			-1.270 (0.107)**
51-55			-1.349 (0.145)**
56-60			-1.640 (0.227)**
Female (Ref: male)			0.279 (0.018)**
Doctorate (Ref: Masters)			0.718 (0.030)**
Subject area (Ref: other non-STEM)			
STEM			0.392 (0.023)**
Business & Administrative Studies (BAS)			0.170 (0.025)**
Full-time (Ref: part-time)			0.104 (0.033)**
academic year (Ref: 2011/12)			
2012/13			0.108 (0.031)**
2013/14			0.228 (0.031)**
2014/15			0.318 (0.030)**
2015/16			0.301 (0.031)**
2016/17			0.246 (0.031)**
Random effects			
$\sigma^2_{u(2)}$ (HEI-level)	0.208 (0.208)	0.183 (0.029)	0.181 (0.029)
$\sigma^2_{u(3)}$ (domicile-level)	0.367 (0.111)	0.217 (0.067)	0.212 (0.066)
Variance partition			
HEI	5.4%	5.0%	4.9%
Domicile	9.5%	5.9%	5.8%
Individual	85.1%	89.1%	89.3%
Variance explained			
HEI		12.0%	1.1%
Domicile		40.9%	2.3%
Goodness of Fit (DIC)	79279.607	79270.615	77239.122

*p<0.05, **p<0.01

Table 4.6 shows the multilevel cross-classified logistic modelling results for each year from 2011/12-2016/17. In these models, explanatory predictors at individual-level and HEI-level remained the same as the ones used in Table 4.5, while domicile-level predictor was replaced by youth unemployment rate and GDP per capita. After controlling for individual-level and HEI-level predictors, the youth unemployment was found to have positive association with graduate's odds of staying. However, this significant relationship was found only in 2012/13 and 2014/15 after introducing the GDP per capital

variable. GDP per capita in graduate's home country was found to have negative effect on the stay rate in five out of six years (except in 2012/13) at 5% significance level, which implies that GDP per capita could be a stronger predictor than youth unemployment in analysing student post-graduation movement. A series of bivariate correlation tests were conducted to test correlation between GDP and youth unemployment, and results show that multicollinearity is not necessary a problem in regression models. The effects of age, level of qualification, studied in STEM subjects, and prestige of HEI on stay rate remained almost unchanged in regression models for each individual year compared to the effects that have been identified in Model 3 (Table 4.5), with only small fluctuation was found in the six-year period. The positive effects of attending full-time studies on stay rate were found to be non-significant in most years. It is noteworthy that the possibility of remaining to work in the UK for BAS graduates was significantly higher (i.e. 38.8% more likely) than the possibility for graduates studied in other non-STEM subjects in 2011/12. However, this difference became less obvious in 2013/14 and 2014/15 (i.e. less than 17%), and there was no significant difference in the possibility of remaining to work in the UK between BAS graduates and graduates studied in other non-STEM subjects.

Table 4.6 Multilevel cross-classified logistic models for stay rate of EEA graduates by year, 2011/12-2-16/17

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Fixed effects						
Constant	-0.823 (0.161)**	-0.982 (0.172)**	-0.635 (0.144)**	-0.639 (0.152)**	-0.589 (0.157)**	-0.756 (0.161)**
Individual-level						
Age (Ref: 25 years old and under)						
26-30	0.031 (0.055)	0.050 (0.053)	-0.083 (0.050)	-0.035 (0.049)	0.079 (0.050)	0.079 (0.052)
31-35	0.082 (0.084)	-0.003 (0.084)	-0.088 (0.082)	-0.100 (0.081)	0.114 (0.082)	0.097 (0.083)
36-40	-0.128 (0.130)	-0.563 (0.137)**	-0.491 (0.123)**	-0.462 (0.124)**	-0.559 (0.131)**	-0.226 (0.130)
41-45	-0.645 (0.209)**	-0.732 (0.197)**	-0.860 (0.175)**	-0.866 (0.181)**	-0.822 (0.184)**	-0.748 (0.190)**
46-50	-1.408 (0.302)**	-1.773 (0.332)**	-1.439 (0.281)**	-1.104 (0.233)**	-1.245 (0.245)**	-1.129 (0.256)**
51-55	-0.963 (0.368)**	-1.560 (0.398)**	-1.371 (0.341)**	-2.270 (0.464)**	-1.219 (0.318)**	-1.158 (0.360)**
56-60	-1.552 (0.704)*	-2.677 (0.846)**	-1.218 (0.495)*	-1.245 (0.470)**	-3.998 (1.308)**	-1.513 (0.533)**
Female (Ref: male)	0.225 (0.047)**	0.312 (0.046)**	0.281 (0.044)**	0.217 (0.043)**	0.326 (0.044)**	0.337 (0.045)**
Doctorate (Ref: Masters)	0.756 (0.078)**	0.747 (0.077)**	0.948 (0.073)**	0.846 (0.071)**	0.508 (0.072)**	0.601 (0.070)**
Subject area (Ref: other non-STEM)						
STEM	0.289 (0.060)**	0.434 (0.059)**	0.377 (0.065)**	0.354 (0.054)**	0.429 (0.055)**	0.344 (0.057)**
BAS	0.328 (0.066)**	0.238 (0.064)**	0.147 (0.060)*	0.156 (0.059)**	0.115 (0.061)	-0.041 (0.063)
Full-time (Ref: part-time)	0.040 (0.089)	0.133 (0.083)	0.071 (0.081)	0.181 (0.083)*	0.020 (0.084)	0.170 (0.086)*
HEI-level						
Russell Group (Ref: other HEIs)	-0.147 (0.131)	-0.130 (0.119)	-0.175 (0.121)	-0.104 (0.109)	-0.064 (0.113)	-0.153 (0.116)
Greater London (Ref: other HEIs)	0.474 (0.124)**	0.525 (0.116)**	0.327 (0.119)**	0.428 (0.108)**	0.429 (0.113)**	0.580 (0.118)**
Domicile-level						
Youth Unemployment	0.016 (0.009)	0.021 (0.010)*	0.013 (0.007)	0.019 (0.009)*	0.019 (0.010)	0.015 (0.011)
GDP per capita	-0.015 (0.007)*	-0.016 (0.008)	-0.021 (0.006)**	-0.014 (0.006)*	-0.014 (0.006)*	-0.013 (0.006)*
Random effects						
$\sigma^2_{u(2)}$ (HEI-level)	0.259 (0.059)	0.209 (0.045)	0.222 (0.049)	0.170 (0.039)	0.190 (0.042)	0.200 (0.046)
$\sigma^2_{u(3)}$ (domicile-level)	0.227 (0.080)	0.327 (0.115)	0.163 (0.059)	0.244 (0.084)	0.257 (0.091)	0.244 (0.085)
Units: Domicile	28	28	29	29	29	29
Units: HEI	144	149	147	147	147	152
Unites: Leavers	9476	9922	10824	11040	10533	10157

*p<0.05; **p<0.01

4.5 Discussion and conclusions

The purpose of this paper was to conduct multilevel analyses of six years of DLHE data, from 2011/12-2016/17, to obtain knowledge into the predictors of EU/EEA postgraduate student labour mobility within the Europe. Based on the statistical results and findings from existing literature in graduate mobility, this paper sets out to answer the following questions:

1. What proportion of the variance in stay-rate is explained by HEI- and domicile-level factors, thereby determining what modelling strategy might be more suitable in analysing EEA student labour mobility?
2. Which group of EEA graduates were more likely to remain and work in the UK?

Regression results (Table 4.5) show that in the European context, the vast majority of variance (i.e. 85.1%) in stay-rate is explained at the individual-level, while 9.5% of variance is at domicile-level and only 5.4% is at HEI-level. Although the differences between HEIs and domiciles are far less than the differences between individual students, they are all above the 5% threshold (Hoskins, Janmaat and Villalba, 2012), which implies that neither HEI-level nor domicile-level should be ignored. The cross-classified nature of the EEA graduate destination data suggests that a cross-classified multilevel analysis is warranted in investigating EEA student labour mobility.

Next, this paper turned to possible predictors of the stay-rate of EEA domiciled postgraduate students. Table 4.5 shows the model-building process for pooled DLHE data (2011/12-201617), and Table 4.6 shows the separate multilevel regressions for each of the six years. In terms of individual-level factors, the results of this study indicate that students graduated in STEM areas were generally more likely to remain in the UK for employment than students who held degrees in other areas. This uneven distribution of stay-rate across fields of study could be explained by the differences in demand for skilled workers, as several government documents have pointed out that the UK is experiencing a particular shortage of skilled workers who have required skills in STEM areas (CBI, 2016; BEIS, 2017).

This study confirms the importance of gender identity in understanding the post-study movements of EEA graduate. Regression analyses (Table 4.6) show that female graduates were consistently more likely to remain in the UK over the six-year period. Previous studies in the context of Southern Europe and the U.S. suggest that the higher stay-rate of female graduates might be because there was more skilled employment opportunities or better gender equality in workplace in the host countries compared to their home countries (Musumba, Jin and Mjelde, 2011; Cattaneo *et al.*, 2017). After conducting a series of chi-square tests, we found that 20 out of 30 EEA countries had female graduates more likely to remain in the UK to work than males at 5% significance level. For instance, female graduates from more masculinity-based countries, such as Poland (71.7%) and Portugal (58.7%) (Cattaneo *et al.*, 2017), were found to have significantly higher stay-rates than males (57.8% and 50.2% respectively). This finding is in line with the assumption of prior research. Nevertheless, female graduates from countries with higher level of gender equality and better economic conditions, such as Finland (50.2%), Norway (24.7%) and Germany (32.5%), were also found to have significantly higher stay-rates than males (28.6%, 14.7% and 25.1% respectively). This suggests that there might have been other factors could affect female graduates' decision to stay in the UK, especially for those from economically more advanced countries with higher level of gender equality.

In terms of HEI-level factors, only the location of institution was found to have significant influence on EEA postgraduate labour migration. Students who graduated from HEIs located within the Greater London area were more likely to remain in the UK for employment than those who graduated from HEIs outside London. Compared to other regions in the UK, London could provide more graduate employment opportunities relative to the number of people searching jobs (Faggian and McCann, 2009), which implies that EEA graduates in London might have higher possibility to be employed. Those who studied in London were able to build up social relations with potential employers during their period of study, which in turn might facilitate their job-searching process. In addition, some students were attracted by the economic and cultural dynamics of London which were not available in their home countries. They purposefully chose London as their study destination and have already

planned to remain in there for work even before their departure (King *et al.*, 2014). This might also partially explain the higher stay-rate of London graduates.

The multilevel analyses did not find the prestige level of HEI to be a significant predictor in EEA postgraduate stay-rate. This result confirms the conclusion of Roh (2015) from her analysis of stay-rate of foreign doctoral graduates in the United States. Her study suggests that the prestige level of PhD programme might be a better predictor than the prestige level of HEI in analysing migration pattern of foreign doctorate recipients. Future studies in the context of UK might need to find alternative indicators in assessing the research and teaching quality of each degree programme and test their effects on the stay-rate of foreign graduates. What is more, as the prestige of HEI and location of HEI only explained 12% of HEI-level variance (model 2, Table 4.5), it indicates that there are unidentified HEI-level factors which might have greater explanatory power in graduate stay-rate.

In terms of domicile-level factors, the findings confirm the previous research that GDP per capital in graduate's home country significantly affect his/her decision of staying in the UK, even after controlling for the nesting effect of country. Students from economically less advanced countries were more likely to remain in the UK than those from more affluent countries. The descriptive statistics support the result that the five countries (Romania, Lithuania, Poland, Latvia, and Bulgaria) which have the highest proportion of graduates remained in the UK are all located in Eastern Europe (Figure 4.1). It is noteworthy that students from these five countries not only have the lowest probabilities of working in professional jobs in the UK (Table 4.3), but also relatively less likely to study in a Russell Group university. It seems that some students from a selective group of countries were strategically using study abroad as a step stone for later migration.

CHAPTER 5 THE STUDY-TO-WORK TRANSITION OF CHINESE INTERNATIONAL STUDENTS: NAVIGATING A FUTURE IN THE GLOBAL LABOUR MARKET

5.1 Introduction

Along with China's dramatic economic development in the past twenty years, there was also a significant growth in the number of students studying abroad. China is now the largest sourcing country of international students in the world, and the number of Chinese students study abroad has increased remarkably from 137,620 in 1998 to 869,387 in 2017 (UIS, 2019). As one of the most popular destination countries for Chinese students, the United Kingdom has received 106,530 Chinese domiciled students in 2017/18, which accounted for 33.36% of all non-EU international students (HESA, 2019). In the global competition for high-skill workers and talents, the massive inflow of Chinese students into the UK HE system has drawn much attention from researchers. Many scholars have tried to understand how and why students migrate from China to the UK for education, such as motivations and decision-making processes for studying abroad and overseas experiences in the UK (Wu, 2014; Cebolla-Boado, Hu and Soysal, 2018). There is also an increasing recognition for the need of having more investigation in their post-study labour movements (Wu and Wilkes, 2017).

While existing literature on post-graduate migration has mainly focused on analysing the influence of biographical, social, and economic factors on students' post-study labour movement from the perspectives of human capital approach and push-pull approach (Hawthorne and To, 2014; Roh, 2015), fewer studies examined students' interactions with socioeconomic structures in their study-to-work transition process. In his theoretical research on graduate employability, Tomlinson (2010) suggests

that the structure-agency approach, particularly the work of Giddens (1984), offers a richer and more socially nuanced account into the studies of the on-going and dynamic interactions that university graduates have with the global labour markets. Based on the proposal of Li and Lowe (2016), in order to enhance the knowledge and understanding about international student labour migration as well as students' decision-making in this process, this study aimed to explore empirically about the structure-agency interactions between Chinese international students and the wider social structures, and how students navigate their way through the global labour market. Rather than focusing on graduates' employment outcome and locations, the objective of this research is to understand how student's reflexivity on their career goals and actions for career-readiness could influence their job-searching strategies. This article will first evaluate the contribution and limitations of human capital approach and push-pull approach in studies of student migration. It will then review how structuration theory (Giddens, 1984) is conceptually related within this specific research area. After this, this study will demonstrate how students in this study respond to and act within their personal, socioeconomic, and political contexts. Finally, the paper will evaluate the contribution of structuration theory to the research of international student migration as an alternative theoretical framework and its implications to HEIs and policy makers in the UK.

5.2 International Student Migration Upon Graduation: What Do We Know?

With the process of globalisation and internationalisation of higher education, the cross-border movement of international students has attracted great attention from academia and policy makers in recent decades. A considerable number of existing studies on international student migration have been conducted from different disciplinary backgrounds, which have provided useful insights on what factors may shape student migration patterns and how. The two mainstream conceptual and theoretical accounts are most evident in human capital approach and push-pull models. This paper

now turns to examine the assumptions, contributions, and limitations of these approaches in the discussion of international student migration.

5.2.1 Human Capital Theory and Push-Pull Models in International Student Migration

Human capital theory has been widely used as an explanatory tool in research of international student migration (Becker, 1993; Massey *et al.*, 1993; Roh, 2015). A central assumption of this theory is that 'investment' in migration has a positive relationship with individuals' productivity within the labour market. Individuals are assumed to be rational beings who can make free and knowledgeable choices, and their migration decision would be the outcome of a cost-benefit calculation which could bring them the maximised expected gains (Sjaastad, 1962; Duncan, 2008; de Haas, 2010). The costs of migration include such as the time and efforts spent on learning a new language and culture, the difficulties and stress of adapting into an unfamiliar labour market and society, and the financial costs of migrating to new places. Taking the corresponding migration costs into consideration, international students are expected to move where they can have the highest productivity as well as the highest positive and tangible returns, such as greater earning potential and a more satisfying lifestyle (Sumell, Stephan and Adams, 2009). Under this theoretical framework, economic factors are believed to be the primary motivators which drive international students' migration upon graduation, and a neoclassical economic model has been adopted in explaining the rational cost-benefit decision-making process of international migration (Baláž and Williams, 2004; Kim, Bankart and Isdell, 2011). For students who travel across borders for knowledge acquisition, their investment in overseas tertiary education improve their stock of human capital (Becker, 1993; Wu, 2014), and the human capital that widens their access to employment in host countries is also claimed to be able to increase the possibility of migration (Tremblay, 2005).

Another dominant approach to international student mobility has been the push-pull approach. Much of the existing literature on overseas students' post-study movement intentions/decisions suggests that there are macro-level push-pull factors such as immigration policy and political economy of the world market, meso-level factors such as migrant networks, and micro-level factors such as family ties, biographical and professional factors (Musumba, Jin and Mjelde, 2011; Hawthorne and To, 2014; Kim, 2015). As with the human capital framework, there is a strong emphasis of quantitative methodologies in push-pull models: migration outcomes are assumed to have statistical correlations with a variety of factors. In order to explain the phenomenon that not all students who share similar socio-economic positions make the same migration decision, the push-pull approaches have being attempted to accumulate more vectors into equations, such as career aspiration (Hoppe and Fujishiro, 2015), marital status (Bijwaard and Wang, 2016), gender factor and student's integration in host country (Lu, Zong and Schissel, 2009). This approach, therefore, is claimed to have the capability of synthesising individual backgrounds and institutional structures to provide explanations of student migration decisions from multiple dimensions (Kim, 2011). The broad migration patterns of international students and their associations with the international heterogeneities in economy, polity and other social spheres that have being identified by push-pull models may also have usefulness in policy-making (Li and Lowe, 2016).

However, the human capital approach and push-pull models have not been without their criticisms. First, these two accounts tend to treat international students as individuals who make economically rational choices based on complete information (Li and Lowe, 2016). Many previous studies suggest that individuals are neither technically rational nor irrational in making career decisions (Geddie, 2013). Rather, individual's choice in education and employment is 'sub-rational', which suggests that students might be satisfied with making a 'good enough' choice rather than an optimum alternative (Foskett and Hemsley-Brown, 2001, p.212). Similarly, Hodkinson and Sparkes (1997, p.33-34) argue that students' career decision-making process is 'pragmatically rational' which is bounded by individual's 'horizons for action'. In other words, decision-making is context-related which could not

be divorced from a person's family and culture backgrounds and past experience. Apart from the university career services, employer's website and recruitment agency, international students might also make career choice based on information and advices received from their social networks, such as friends and family members (Geddie, 2013; Marcu, 2015). Nevertheless, the information received by decision-makers is often incomplete or even inaccurate. What is more, the way that people receive and censor information might be biased for the reason of supporting and protecting their prior hold beliefs, opinions, and attitudes (Simon, 1957), which challenges the assumption of rational choice with complete information.

Another key criticism of the push-pull framework is its underlying views of human agents and their interactions with social, economic and political structures. By placing significant emphasis on the simplistic and mechanistic links between a given set of push-pull factors and various observed migration activities of international students, the push-pull approaches tend to underestimate international students' active engagement with the dynamic structural forces (Wu and Wilkes, 2017). The linkages assumed by push-pull models might not be able to reflect the internal reality of students. For instance, with the completion of their studies in host countries, international students might have different career aspirations, migration plan and life goals due to their personal growth and development during that period (Basford and van Riemsdijk, 2017). Their studying and living experience as well as the adaption and adjustment to the language, culture, society, and labour markets in host countries might provide them a different opinion about which migration decision could be more suitable for them. Rather than simply respond to institutional factors in ways that are determined by their socio-economic and biographic backgrounds, international students are complex social beings with the power of reflexive agency who are capable of more than making rational analysis (Archer, 2007; Li and Lowe, 2016).

5.2.2 Student Migration: Agency, Structure and Self-Identity

Having examined dominant approaches to international student cross-border migration for employment and their limitations, we now turn to an alternative approach based on Antony Giddens's (1984) theory of structuration. This study believes that the structuration approach may work better in capturing the complex and dynamic nature of international student's labour migration in a broader context of globalisation and internationalisation of higher education. In this theory, social structure and individual agency are not the opposite of each other. Instead of claiming whether agency overplays structure or structure overplays agency, Giddens suggests that structure and agency are interrelated and inseparable. Structural properties are both the sources and results of human social practices which situated in time and space.

Students in this era have more advanced tools and better ability in gaining knowledge about this world, which contains rapid changes and mixed power relations. They are facing much more choices and possibilities than previous generations. Due to the development of technology and transportation, education and employment are no longer constrained in local areas in this increasingly globalised world. Through making meaningful and knowledgeable decisions about where to study and work with information received from multiple sources, students become reflexive cognitive actors who are practicing their mental ability and connecting with their social contexts (Giddens, 1979). Undoubtedly, getting a postgraduate degree and getting a job are fateful moments for overseas students. By moving to another country, students are jumping out of their 'protective cocoons' and interacting with new routines and therefore constructing new self-identity in a way of seeking balance between opportunities and risks (Giddens, 1991, p.54). This type of change is based on the awareness of thoughts and feelings as well as the knowledge about social rules and resources. Their labour market and migrant identities are therefore mediated by the dynamic global labour market context and individual's social and cultural experiences. Students' assessments on the potential risks of their

fateful moments, here refers to choosing career destinations, would be influenced by their new understanding of themselves, the labour markets, career development, economic situations, government policies and expectations from families etc.

In the age of globalisation, human social practices are rolling forward and moving away from traditional rules and regularities. At the meanwhile, society and systems are not just repeating themselves. Instead, they are in a process of production and reproduction through human actions. According to Giddens (1984), structure and agency are interrelated and inseparable, and structural properties are both the sources and results of social practices which situated in time and space. By adopting structure-agency approach, this study can frame international student labour migration more than the outcome of static push-pull factors. Compared to the human capital approach and push-pull models, the structuration approach pays more emphasis on relationship between individuals and the social, economic and political environment, which in turn allows a more socially contextualised analysis on the labour migration decisions of international students.

5.2.3 Research Context: The Cross-Border Movements of Chinese International Students

International students not only are migrants who travel across borders for knowledge acquisition, but also have social, cultural, and present/prospective worker roles and identities. Their migration decision after finishing their studies in host countries is not a one-off static individual choice. Rather, it is the outcome of a long-term dynamic process which involves students' active interactions with the fluid economic, social, cultural, and political contexts (Van Mol and Timmerman, 2014; Basford and van Riemsdijk, 2017; Wu and Wilkes, 2017).

The structural contexts faced by Chinese overseas students in the recent decade is much more dynamic and complex than before. On the one hand, China's thriving economy and its increasing

participation in international trade and commerce has increased its demand for workers with competitive skills and advanced foreign language proficiency (Cheung and Xu, 2015). China's central government and regional authorities have therefore launched a series of talent recruitment plans (especially in Science and Engineering areas) in attracting foreign-trained students and professionals to return (Yang, 2011). In addition, the declined absorptive capacity of labour markets and the tightened immigration regulation in developed economies have made it more difficult for international students to obtain employment and visas in host countries (Pan, 2010). The 2008 global financial crisis has led to more fierce competition among highly educated international students in getting desirable jobs in western countries. Recent major events, such as the cancellation of Post-Study-Work (PSW) visa in the UK in 2012, the referendum in the UK to leave the EU, and the election of Trump as the President of the US, suggest that there is a considerable anti-immigration sentiment in these two popular study destinations (Choudaha, 2017). Returning to work in China after graduation is becoming increasingly attractive for Chinese students, and many highly skilled Chinese returnees who have studied or worked in the US and UK believed that career opportunities and quality of living in China are better than in the host countries (Wadhwa, 2009; Gu and Schweisfurth, 2015). Between 1978 and 2006, there were only around 26% of foreign-trained Chinese students returned to work in China (Pan, 2010). By 2017, the overall return rate has increased substantially to 83.73% (Ministry of Education, 2018). It seems that returning to China after graduation is becoming a mainstream migration pattern for Chinese students.

On the other hand, the opportunities and challenges in China's labour market are becoming more complex for this generation of foreign-educated Chinese students. Due to the massive expansion of higher education in China and the increasing number of returnees, there are more and more graduates with advanced degrees are searching for employment in China. Prestigious overseas qualification can still provide Chinese returnees with certain advantages, but it is becoming less sufficient to be the guarantee of well-paid jobs and desirable working environment in China's crowded labour market in recent years (Shen, 2005; Hao, Wen and Welch, 2016). What is more, reverse culture shock and re-

integration into China's fast-changing society could be potential problems and challenges for Chinese international students who intend to return (Hao and Welch, 2012).

The phrase 'Chinese international students' carries the implication that this group of student migrants is homogeneous, and that their responses to structural contexts are culturally determined. Indeed, Chinese international students may share certain identifiable culture-related features, but it is also important to be aware of their differences in: social and familial backgrounds, career aspirations, motivations for studying abroad, lifestyle preferences, individual personality, and the social contexts in which interactions take place. What is more, individual's career and migration intentions are also changing over time due to their active and on-going interactions with wider social and economic environment. Previous studies have identified that students' study and work experience in host countries, social and emotional adaptations, and the reflexive evaluation of their past in China have considerable influences on their perceptions of self, i.e. identity as international student migrant (Gu, 2009; Gu and Schweisfurth, 2015). Rather than passively respond to the pre-existing social relations and structures, international students would actively practice agency to negotiate their sense self-identity. The change of identity would make students re-evaluate their career opportunities and challenges in the international labour market based on their socially constructed knowledge and understanding about structural contexts, which in turn may shape their future career orientations and corresponding labour market actions in achieving their goals.

5.3 The Present Study

This study aimed to explore the labour migration patterns of Chinese postgraduate students who graduated from UK universities, and how did they navigate their way through the dynamic social structures. The main research questions were:

1. What are the factors influencing students' migration patterns?
2. How did students understand and respond to their career opportunities and challenges?
3. What were students' strategies in choosing employment destinations?

In order to answer the research questions mentioned above, this study adopted a multiple-method design. The first question would be mainly explored and answered by quantitative data analyses, while question two and three would be investigated by qualitative data analyses which were informed by the quantitative work.

5.3.1 Quantitative Data and Design

The quantitative data was extracted from the 'Destinations of Leavers from Higher Education' (DLHE) dataset (2011/12-2016/17) (HESA, 2018a). This is the very first census survey dataset that provides a country-level overview of post-study employment activities of non-EU graduates in the UK HE system. The target sample of this study was mainland Chinese students of working age (younger than 60) who finished a full-time masters or doctoral degree course from an UK HEI. In total, there were 27466 students from 135 HEIs replied their location of employment, which indicated a response rate of 35.6%, and more than half of respondents (68.3%) were graduated from Russell Group universities. In terms of subject area, respondents were classified into two categories: STEM (28.1%), and non-STEM (71.9%). The vast majority of them (93.3%) were studying masters courses, and 95.5% of them were aged younger than 30.

Descriptive statistical tests were applied to analyse the quantitative DLHE data, which include cross-tabulations and Chi-squared tests. These analyses would help researcher to identify what contextual factors may have impacts on Chinese students' migration patterns in the UK context. According to previous studies in the contexts of the USA and Australia, factors such as immigration policy, the

supply-demand of skilled workers, gender equity in society and work place, and the standard of living etc. were found to have significant influences on graduates' employment destinations (Kim, Bankart and Isdell, 2011; Hawthorne and To, 2014; Roh, 2015). Previously, the access to sufficient data from DLHE datasets on the destinations of Higher Education students, especially those from outside EU, has been difficult. With the recently available DLHE data, the statistically significant changes and differences confirmed by the quantitative results could help researcher to identify the potential socioeconomic contextual factors that might have influences on students' decision-making in choosing their employment destinations in the UK context.

The quantitative data collection and analyses were then followed by the qualitative work, and this design is the reflection and the consequence of adopting structuration theory as the framework of this study. As discussed in previous section, it may be inappropriate to assume that all students could have access to complete information and would make economically rational career choices. What is more, the simplistic and mechanistic associations suggested by the statistical models tend to underestimate the active engagements of students and therefore having difficulties in assessing the internal reality in which they made their career decisions. According to Giddens (1984), individual agency is interrelated with and inseparable from structural properties. In order to have a more comprehensive understanding about the study-to-work transition process of international postgraduates, it is necessary to investigate how reflexive cognitive individuals perceive and understand the socioeconomic contexts as well as how they construct their self-identify through interacting with dynamic structural contexts.

As an essential element of this study, the qualitative work was informed by the quantitative analyses in the following two aspects. First, qualitative data is an important and necessary supplement to the quantitative data in providing a more comprehensive description of the structural factors that faced by each individual student in this study. As the DLHE survey was not originally designed for the purpose of this study, the information that was provided by the dataset is very limited, which only included

students' biographic and educational backgrounds. Apart from biographic and educational backgrounds, country-level contextual factors (e.g. GDP, unemployment rate, R&D expenditure etc.), family ties, social networks, personal beliefs, aspirations for careers and life, as well as their active interactions with structural factors were all found by existing studies to have vital influences on their decisions (Lee and Kim, 2010; Castles, de Haas and Miller, 2014; Gu and Schweisfurth, 2015; Hao, Wen and Welch, 2016). The aim of conducting semi-structured interviews was to collection more information from students in aspects that were mentioned above, which was not originally available in the DLHE dataset.

Second, the student movement patterns that have been identified by the quantitative results could work as a series of baselines for this study to explore the decision-making mechanisms of Chinese postgraduates through qualitative work. Based on the structuration theory of Giddens (1984), this study believes that socioeconomic contextual factors have important but not decisive effects on students' decision-making process in choosing career destinations. Results and analyses based on quantitative data could be used to identify the correlations between structural independent variables and graduates' employment outcomes. However, they might have difficulties in explaining why graduates with similar backgrounds have different employment outcomes, and why graduates with different backgrounds have similar employment outcomes. Some researchers who support the human capital theory or push-pull approaches, which heavily depend on quantitative data and analysis, might argue that the difficulties mentioned above could be partly solved by adding more vectors into the regression models, so the employment destinations of graduates could be predicted more accurately by having more comprehensive information of international students in multiple dimensions. However, according to Wu and Wilkes (2017), the correlations that were assumed by researchers might not be able to reflect the actual link between a given independent factor and employment destination outcome. Adding more variables into the models might lead to the overfitting problem of models, which may cause the coefficients, p-values, and model fit to be misleading. What is more,

students' career aspirations and migration intentions are not static. Rather, they would adjust their career plans based on their personal growth and development during the period of study.

Based on discussion mentioned above, it could be found that quantitative work has certain advantages in answering the first research question, which is "what are the factors influencing students' migration patterns". However, the quantitative work alone is insufficient for researchers to explore the mechanism of individual student's post-study movement. Therefore, in order to answer research question 2 and 3, corresponding interview questions were designed to explore interviewees' dynamic perception and reflexivity on those structural factors.

5.3.2 Qualitative Data and Design

The purpose of the interviews was to investigate students' past, study-to-work transition experiences and how those experiences influenced their on-going interactions with social structures, which were previously identified by the quantitative work mentioned above. Results from quantitative analysis informed the design of qualitative data collection and analysis, with a total of 13 Chinese postgraduates who graduated from the University of Southampton between 2014 and 2018 were sampled for semi-structured telephone interviews. Please see Appendix D for detailed interview schedule.

The recruitment advertisement (see Appendix E for the Recruitment letters) for interview participants was posted on Southampton Chinese Students & Scholars Association (CSSA) WeChat (i.e. the most popular social media platform among the Chinese community), and participants were recruited via voluntary sampling. Please see Appendix F, G, and H for the Participant Information Sheets, Consent Forms, and Ethics Form for this study. During the qualitative data collection period (1st September 2018 – 31st December 2018), there were in total 25 Chinese graduates contacted the researcher. After

the initial communication with the potential participants about the aim and interview schedule of this study, 18 graduates expressed further interest. Of this group, two participants decided to withdraw from this study for personal reasons. Interviews of the remaining 16 participants were conducted in Mandarin, and the interview data were audio-recorded, transcribed in Chinese, and then translated into English by the researcher for further analysis. During the initial data cleansing, the data quality of three interviews was found to be relatively lower compared to the reply of other participants, as those three interviewees could not provide clear information on how they made their study-to-work migration decisions. Therefore, there were only 13 interviews were kept for further analysis, and the social and biographic characteristics of those participants are detailed in Table 5.1.

Table 5.1 Social and biographic characteristics of interviewees

Name	Age (in 2018)	Gender	Subject area	Level of study	Marital status	Worked in China prior to study	Location of employment/ further study
XK	30	Male	Non-STEM	PhD	Married	No	France
ZH	23	Male	STEM	MSc	Single	No	China
YY	28	Female	Non-STEM	MSc	Single	No	China
JY	33	Female	Non-STEM	MSc	Single	Yes	China
GJ	30	Female	Non-STEM	MSc	Married	Yes	China
XQ	28	Female	STEM	PhD	Married	No	UK
HL	27	Female	Non-STEM	MSc	Single	No	China
XY	31	Female	Non-STEM	MSc	Married	Yes	UK
SW	31	Male	STEM	PhD	Married	Yes	UK
KH	27	Male	Non-STEM	MSc	Single	No	China
YH	28	Male	STEM	MSc	Single	No	Canada
JK	26	Male	Non-STEM	MSc	Married	No	China
XG	28	Male	STEM	MSc	Married	No	China

The interview recordings were listened by the researcher for several times before and during the process of transcribing into text in Chinese (interviewees' first language), and the translation (with sensitive information erased) was checked by proofreader before used in data analysis. The interview data was analysed by pen and paper. The translated transcripts were analysed by applying a hybrid approach of inductive and deductive thematic coding (Fereday and Muir-Cochrane, 2006). Findings from the quantitative results and previous studies were taken into account in constructing the coding

frame. Please see Table 5.2 for an example of the pre-selected codes that were extracted from the literature.

Table 5.2 Examples of pre-selected codes and their sources

Code	Source
• Government policy • Familiarity with the US • Funding source • Career opportunity for women	Kim, D., Bankart, C.A. and Isdell, L. (2011) International doctorates: trends analysis on their decision to stay in US. Higher Education, 62(2), pp.141-161.
• Working experience in US • Pay back parents' sacrifice • Make parents proud • Want to be independent	Lee, J.J. and Kim, D. (2010) Brain gain or brain circulation? US doctoral recipients returning to South Korea. Higher Education, 59(5), pp.627-643.
• Green card/permanent residency • Family ties	Zhou, J. (2015) International students' motivation to pursue and complete a Ph. D. in the US. Higher Education, 69(5), pp.719-733.
• Marital status • Economic prospect in home country • Field of study	Roh, J.Y. (2014) What predicts whether foreign doctorate recipients from US institutions stay in the United States: foreign doctorate recipients in science and engineering fields from 2000 to 2010. Higher Education, pp.1-22.
• Parents' opinion on return • Intention before arrival • Appearance of children • Culture comfort	Kellogg, R. P. (2012) China's Brain Gain? Attitudes and Future Plans of Overseas Chinese Students in the US. Journal of Chinese Overseas, 8(1), 83-104.
• Step stone for migration • Aspirations for career development • Positional advantages in labour market	Tran, L. T. (2015) Mobility as 'becoming': A Bourdieuian analysis of the factors shaping international student mobility. British Journal of Sociology of Education, 1-22.
• Lifestyle in host/home country • Experienced difficulties in labour market • Previous travel experience	Brooks, R., & Waters, J. (2009) International higher education and the mobility of UK students. Journal of Research in International Education, 8(2), 191-209.
• English language skills • Communication skills • Work experience • Two-step migration	Hawthorne, L., & To, A. (2014) Australian Employer Response to the Study‐Migration Pathway: The Quantitative Evidence 2007‐2011. International Migration, 52(3), 99-115.

Pre-selected codes were used in the initial qualitative data analysis for the purpose of checking whether the phenomenon/situations that were mentioned in previous studies also emerged in the context of this research, and in what form. Some of the pre-selected codes, such as 'step stone for migration', 'permanent residency', 'funding source', 'appearance of children', and 'career opportunity for women' etc., have not been mentioned by participants in this study, and therefore they were discarded in the following analysis. Due to the time and scale restriction of current study, although

those codes did not emerge in interview data, it does not mean that the phenomenon/situations, which were reflected by those codes, do not exist in the context of this study, and this might be a limitation of this study.

During the process of data analysis, some new codes emerged from the transcripts and they were allocated to themes, which were later summarised in developing meta-themes. Please see Table 5.3 for complete codes and themes trail, and please see Table 5.4 for a brief example of how new codes emerged from the text.

Table 5.3 Codes and themes trail

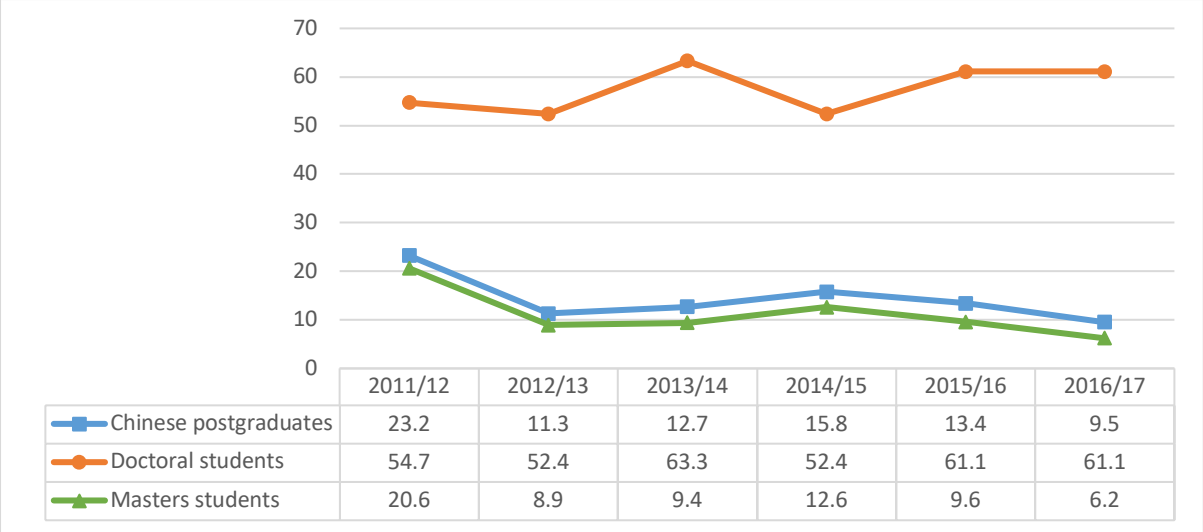
Codes	Theme	Meta-theme
• Familiarity with home/host country • World is changing so fast	Uncertainty of the global socioeconomic and political contexts	Proceeding without a fixed plan
• Accumulation of social ties • Study/work/living experience in host country • Unexpected career opportunity	Uncertainty of aspiration for career and lifestyle	
• Incomplete or inaccurate information/knowledge • Demand in labour market • English/communication skills	Difficulties in job-searching	Reaching a compromise
• Changes in recruitment requirements • Economy recession	Changes in structural contexts	
• Relationship with important others • Parents' desire/proposal • Negotiation with families • Sacrifice/pay back	Family tie	
• University career services • Efforts in improving skills • Adapt into society • Making informed choice	On-going negotiation with structural contexts	Knowing the goals and approaching to goals
• Self-reflection on personal abilities • Self-reflection on desire for career development	Reflection on self	

Table 5.4 An example of how new code emerged

Text	Code
In the past eight years, I have worked as receptionist in a pizza shop, student ambassador, student recruitment staff, and teaching assistant. With those work experiences, I knew I was more capable than just doing experiments in laboratory… Because I think I have the skills in project management, and I also have leadership skills, time-management skills, as well as the solid undergraduate and PhD background in engineering. That is why I felt the works I mentioned are suitable for me. I am not the person who only focuses on my experiments and does not consider about other things in other areas. In addition, I am not a student graduated from a business school, those students might know nothing about engineering and scientific research. I think I am a person with combined skilled in those two aspects.	Self-reflection on personal abilities

5.4 Post-Study Labour Migration Patterns of Chinese Postgraduates

There were distinct differences between the labour migration patterns of doctoral students and patterns of masters students in 2011/12-2016/17 (Figure 5.1). First, doctoral students had much higher possibility than masters students to remain in the UK for employment. Second, the stay-rate (i.e. percentage of staying to work in UK) of masters students decreased significantly since 2012/13, while the stay-rate of doctoral students remained relatively more stable during the same period. This might be because the Post-Study Work (PSW) visa route for international students was closed in 2012, and the new regulation only allows doctorate recipients to apply a one-year Doctoral Extension after graduation. Third, doctoral students from non-STEM backgrounds were less likely to work in the UK compared to their counterparts from STEM background, but this difference in stay-rate by subject area is very small among masters students (Figure 5.2).



	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Chinese postgraduates	23.2	11.3	12.7	15.8	13.4	9.5
Doctoral students	54.7	52.4	63.3	52.4	61.1	61.1
Masters students	20.6	8.9	9.4	12.6	9.6	6.2

Figure 5.1 Percentage of Chinese postgraduate students remaining in UK for employment, by level of study, 2011/12-2016/17

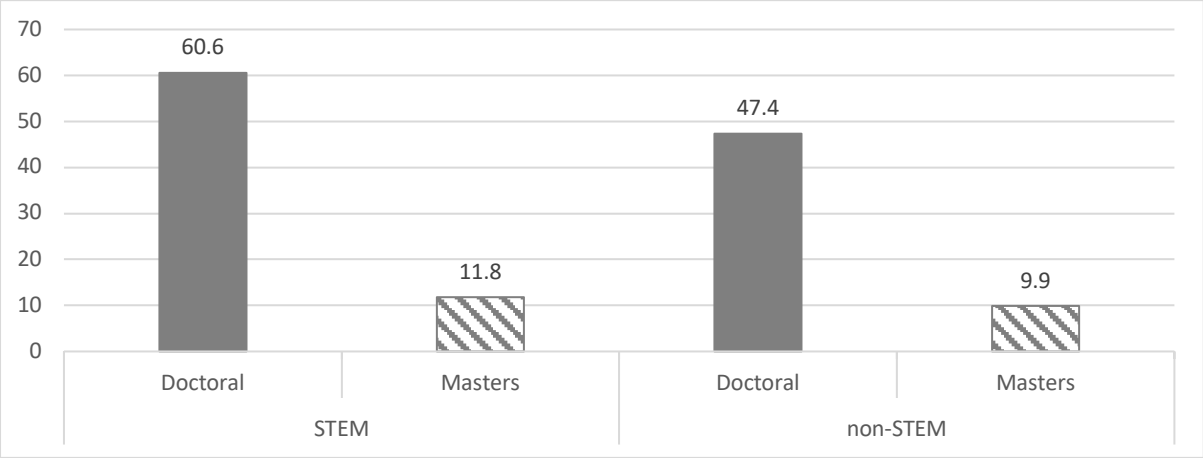


Figure 5.2 Stay-rate of Chinese postgraduate students, by subject area and level of study, 2011/12-2016/17

In terms of gender, males (15.3%) were more likely to remain than females (12.6%) (χ^2=41.065, d.f.=1, p<0.001). When their level of study was taken into consideration, among masters students, females (10.8%) had higher possibility of staying than males (9.5%) (χ^2=11.797, d.f.=1, p=0.001), but this difference was not statistically significant between males (59.2%) and females (55.6%) at doctoral level (χ^2=2.305, d.f.=1, p=0.129). When the subject area was taken into account, significant difference in stay-rate was found between males (22.4%) and females (19.6%) in STEM area (χ^2=9.302, d.f.=1,

p=0.002), but there was no significant difference in stay-rate between males (10.1%) and females (10.8%) in non-STEM area (χ^2=2.543, d.f.=1, *p*=0.111).

It is noteworthy that the university from which Chinese students graduated could also influence their labour migration flows. Those who obtained degrees from G5 (i.e. Oxbridge, UCL, LSE, and Imperial College) universities (25%), the most prestigious universities in the UK, were generally more likely to remain in the UK for employment than those who graduated from other Russell Group universities (10.0%) and non-Russell Group universities (14.3%) (Figure 5.3).

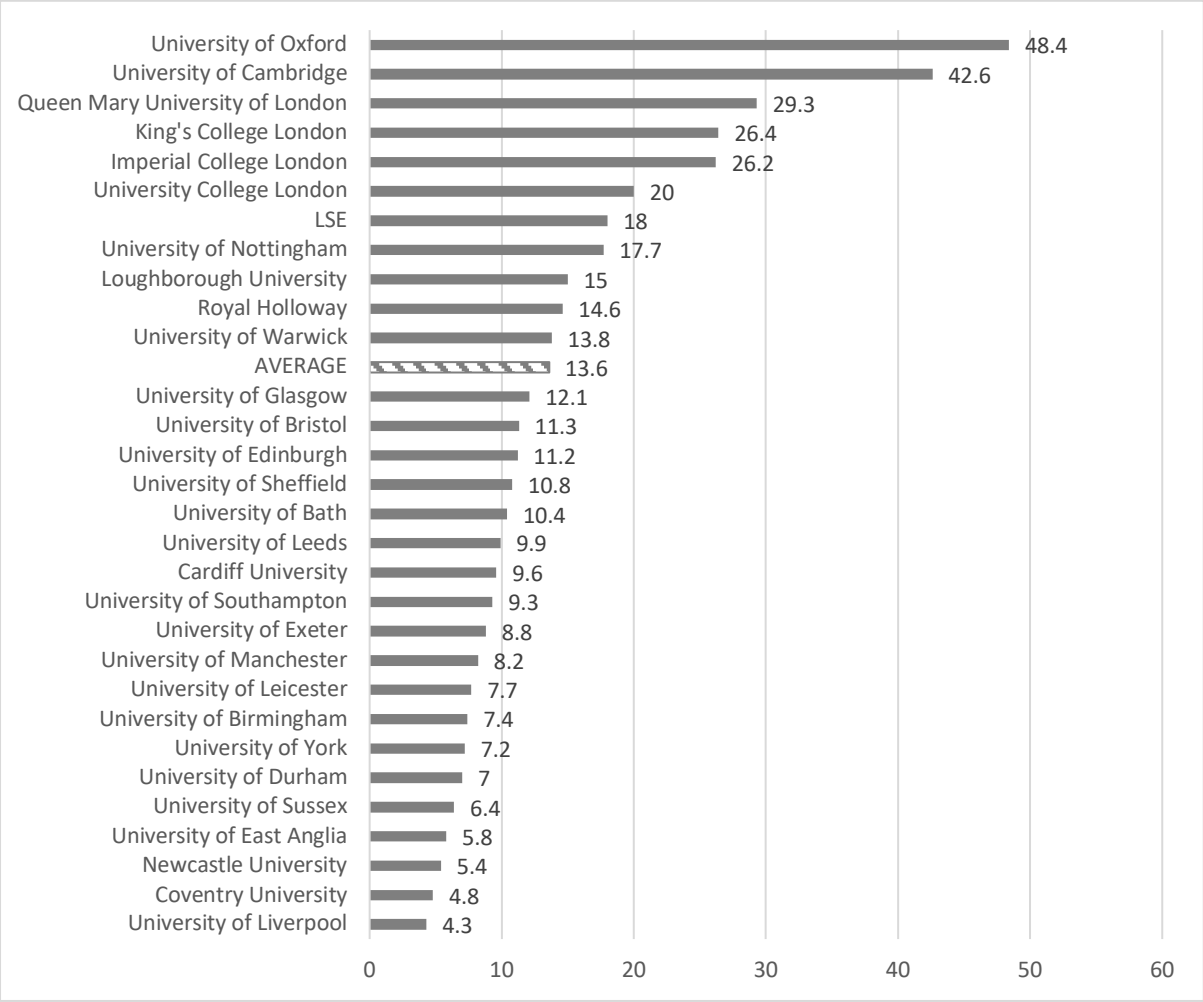


Figure 5.3 Stay-rates of Chinese postgraduate students who graduated from the top 30 HEIs that received the highest numbers of Chinese postgraduate students in 2011/12-2016/17

5.5 How Chinese Students Navigate Their Way in Global Labour Market

The quantitative results indicated that immigration policy, level of study, discipline, and prestige of HEI might have influence on Chinese students' labour migration. By bridging together patterns identified in the quantitative analysis and the themes formed from the qualitative data, it becomes clear that, although students' decisions in choosing employment locations were heavily shaped or even constrained by certain structural factors, many of them have managed to actively interact with political and socioeconomic relations and to construct new self-identity.

5.5.1 Chinese Students' Knowledge about Their Career Opportunities

Immigration policy

Immigration policy was found to be one the most important structural factors in shaping Chinese students' labour migration patterns, especially for masters graduates. For many Masters students in this study who had the intentions to gain work experience in the UK, the strict visa restriction was the biggest difficulty for them in securing employment, and eventually all of them had to return to China after graduation. For example, YH, 28 years old, who finished his master's degree in STEM reported that,

> *I received an invitation email from my faculty student office, which encouraged us to attend a career talk delivered by a large UK cooperation. My classmates and I attended the talk, and we even discussed about which positions we should apply. However, we were informed at the very end of the talk that those posts were only available for EU citizens.*

This experience was not uncommon among Chinese students. Some Masters graduates who attended university career fairs mentioned that many local companies were not able to provide visa sponsorship to applicants from outside EU, which means it was almost impossible for them to get those jobs. Under the context of 2008 financial crisis, economic recession and increased domestic unemployment rate, policy environment in Britain gradually shifted to a goal of reducing overall number immigrants to the UK which including international students (Tannock, 2013). The cancellation of PSW visa scheme and restrictions on international student employment have left Chinese students the impression that UK labour market was unfriendly to international students: 'I did not plan to stay in the UK for employment because I know it is extremely difficult for international students to find jobs here' (YY, Masters, non-STEM, 28).

The Doctoral Extension Scheme (DES), which enables doctoral graduates to extend their visa for 12 months to work or look for jobs in the UK, was reported by interviewees with doctoral degrees as one of their advantages in the UK labour market compared to international masters students. All three of them reported that they were fully aware of their eligibility to apply for the visa extension and the requirements for application. SW, STEM, 31, commented that he might not be able to get his current job without the help of DES visa.

> *I planned to remain in my research group to work as a postdoctoral researcher before the completion of my study, but for some reasons the position was not available until few months after my graduation. I applied for the DES visa, so I was able to stay in the UK and wait for the application to be opened.*

Students' response and experience showed that immigration policy, as a political structural factor, have distinct influence on doctoral graduates and masters graduates, and this difference had directly or indirectly shaped their career plans.

Educational background and demand-supply in labour market

The demand-supply in labour market is another structural factor that could influence graduates' post-study migration. Quantitative result suggested that among all Chinese students, graduates with doctoral degrees in STEM areas had the highest possibility of staying in the UK (60.6%, Figure 5.2). This result is in line with previous studies in Australia (Hawthorne and To, 2014) and the USA (Kim, Bankart and Isdell, 2011), which suggests that international students with higher level of degrees in highly needed areas were more likely to stay in host countries for work. The high stay-rate of this selective group of Chinese students might can partly be explained by the high demand of skilled workers in STEM areas in the UK (BEIS, 2017). The high demand of skilled STEM workers in the UK, as a social structural factor, have distinct influence on STEM graduates and non-STEM graduates, and students were clear aware of the influence of this structural factor. For example, this smooth absorption into labour market in the UK was also noted by interviewees who received doctoral degrees in STEM: 'I know I can get jobs in the UK long before my graduation, as many postdoctoral researchers in my research group told me do not worry about finding jobs in the UK' (SW, PhD, STEM, 31).

Students' field of study was also found to have influence on their career destinations in China, especially for students who studied in finance related subjects. Many students' first choice for careers in China was metropolitan cities like Beijing and Shanghai, as they believed that facilities, financial resources and career opportunities in metropolis are much better than the conditions in their home cities. The uneven employment opportunities in finance sector within China is also a social structural factor which could shape students' job-searching intentions and actions. For example, HL, Masters, non-STEM, 27, who worked in a fund company, noted that,

> *If I stayed in my hometown, I probably could only work in commercial banks…. However, in Shanghai, the financial centre in China, you can find many different types of financial institutions, such as investment banks, securities companies, fund companies, and insurance companies. Unless there is a financial crisis and*

Shanghai is losing its competitiveness, otherwise I do not think I will leave Shanghai in the short-term.

5.5.2 Chinese Students' Reflexivity Overtime: Goals and Actions in Post-Study Labour Movement

Due to the personal growth throughout their course of studies and early careers, Chinese students' intentions for career development and preferences for employment locations would be adjusted or changed over time (Wu and Wilkes, 2017). Different configurations between students' career goals, actions for career-readiness, and reflexivity on the past would result in different job-searching strategies. More specifically, career goals refer to students' aspirations and intentions for their future careers, which include the type of work and the location of work. Actions for career-readiness refer to students' actions in collecting employment-related information and in improving their employability. The reflexivity on the past refer to students' reflexivity on their previous career and life goals, expectation from close others, as well as work/life experiences. This study has identified three different strategies from the on-going and dynamic interactions between students' agency and structural contexts.

Proceeding without a fixed plan

The uncertainties for their future careers and migration plans had made some Chinese international students intentionally chose not to work towards to a certain career goal. Students' intentions and aspirations for careers and employment locations are shaped by their past personal, academic, and work experiences, and their labour migration decisions are based on the negotiation between their intentions/aspirations and their knowledge about career opportunities (McAlpine and Amundsen,

2018). The first uncertainty relates to the changes in socioeconomic and political contexts over time. Students were aware that viable and desirable employment options could change due to the shifting structural contexts. For example, ZH, Masters, STEM, 23, noted that: 'this world is changing so fast, and I was not sure what job in which country would be more suitable for me when I finish my studies. That is why I decided not to have a fixed career plan for the future'.

The second uncertainty relates to the changes in students' intentions/aspirations over time. As mentioned above, students' intentions/aspirations are shaped by their previous experiences. Through their engagements with the social relations and labour markets during the period of their course of studies and earlier careers, Chinese international students may adjust or even change their original intentions/aspirations based on their reflections on the recent experiences.

> *I had the intention to work in the State Grid Corporation of China since the first year of my undergraduate in China, as many alumni told us that it was probably the best employment option for students in our field. When I finished my studies in the UK, I successfully got the job in the State Grid and worked in there for nearly two years. However, during that period, I gradually realised that it was not the job for me, although the salary was very good. I did not like the poor working environment, terrible work-life balance, and the limited career advancement in that company…. When I look back and reflect on my initial intention, I feel I was just following the crowd…. I wanted to have a different life, so I quit my job and went to Canada for another Masters course in Business. Now I am working on an entrepreneurship programme in Canada, but I may give up this programme if I feel it is not suitable for me. I did not want to give myself a very clear career plan for the future, as I know that I might change my intention again when I have more personal and work experience. (YH, Masters, STEM, 28)*

Proceeding without a fixed career plan does not suggest that those students preferred not to actively think about their future careers. Rather, this strategy was a proactive response to the shifting personal circumstances and structural contexts. YH had a very clear career goal, which was working in the State Grid, and he eventually achieved that goal. However, the two-year working experience in that company had made him question his previous career decisions and re-thinking about what he really wanted for the future. ZH and YH all expressed the idea that they need more information to form their future career goals, which implies that students were not passively responding to the pre-existing structural contexts. Their desires and actions in acquiring more employment-related information could be seen as a reflection of their construction and negotiation of self-identity in the world of work (Giddens, 1991; Tomlinson, 2010). Therefore, for students who have actions for career-readiness and reflexivity on the past, proceeding without a fixed plan was their job-searching strategy to overcome the uncertainty for future careers within the dynamic social contexts.

Reaching a compromise

In some cases, international students were not able to achieve their initial employment goals for a variety of reasons. These students had clear plans for their future careers and preferred employment locations based on their aspirations and previous knowledge on labour markets, organisational structures, and government policies. However, their knowledge could be incomplete or inaccurate. The accumulation of networking in related sectors and engagement in career exploration led to a more robust knowledge of available opportunities, which provide students a new perception of viable options in employment (McAlpine and Amundsen, 2018). For example, KH, Masters, non-STEM, 27, who was working in Shanghai, China, commented that,

> *The reason why I chose to study abroad was I like the lifestyle and values in western countries, and I think these are very important to me. When I planned to remain in the UK for employment, I did not realise how difficult it was to find a job in the UK*

> *for international students. Before the completion of my study, I submitted many job applications, but none of them received response from employers…. I eventually chose to work in a foreign company in Shanghai, as I think it is the most internationalised city in mainland China, which might can provide me the lifestyle I desired.*

KH had a career goal, but he did not have enough actions in preparing himself for the upcoming potential employment opportunities, as KH reported that apart from attending the university career fairs, he did not have other employment-related activities. The lack of knowledge and information on immigration regulations/visa restrictions and labour market in host countries have posed many international students the difficulties in matching their career goals and aspirations with the suitable job vacancies in host labour markets (Spencer-Rodgers and Cortijo, 1998; Crockett and Hays, 2011). KH's later reflexivity on both himself and the wider social and economic world has led to his attempt to match up his personal knowledge about himself as an individual agent who desired western lifestyle together with his knowledge about the society and labour market in China (Strauss, 1993). As a result, his career goal has changed from goal one (original career goal) to goal two (updated career goal). Although this was the result of compromise, it still reflected student's agentive engagements with the wider structural relations.

Students' knowledge about labour markets could also be out-of-date because of the changes in structural contexts throughout their course of studies. As JY, Masters, non-STEM, 33, who was working in Shenzhen, a metropolis in south China, noted that,

> *Before I went to study abroad, my parents wanted me to leave Shenzhen and return to my hometown to find a stable job. Although I was tired of my job in Shenzhen at that time, I was reluctant to return. The agreement between my parents and I was that I would stay in my home city if I could work in our local college as a teaching staff. The college required applicants to have at least a master's degree, and that*

> *was why I decided to study abroad…. However, when I returned, the new requirement was to have a PhD degree, which means working in that college was longer an option for me. My decision was to return to Shenzhen, as I could find belongingness in that city.*

Relationships and desires of important others were also found to have influence on the desirable or possible career options for students. For East Asian students rooted in Confucian cultures, the greater good of entire family, primarily spouses and parents, is usually more important than the specific desires of the individual (Lee and Kim, 2010). For instance, XY, Masters, non-STEM, 31, said that:

> *Before I came to the UK, I was working for a securities company in Beijing. I wanted and planned to return after graduation, but my husband was in his second year of PhD in the UK. I did not want to be separated from him for too long, so I decided to give up my career in the securities company in China and stay in the UK on a Dependant visa…. Currently I am doing a non-professional job which does not require my expertise at all.*

JK, Masters, non-STEM, 26, commented that:

> *I always wanted to work in big cities in China, because I like the lifestyles there. After completion of my study, I had a job that I loved in Beijing. However, my parents wanted me to return to my hometown. Their desired me to get a PhD in our local university and then work as an academic staff. I could not say no to their proposal because of my filial obligations to them.*

The experience of JY, XY and JK showed that their job-searching activities were heavily shaped by their family members, but it is noteworthy that none of those students reported that they have been forced by family members in making any particular decisions. The influence of family tie between student and his/her important others varies depending on student's personal context, as some other students

commented that their families did not interfere in their decision-making process. The reflexivity of XY and JK on their relationship with their families has led to their re-negotiation of their identities as workers and family members. According to Tomlinson (2010, p 83), graduate identities are often 'fluid and contingent upon specific aspects of graduates' lives', and the shifts in students' identities shaped their orientations to future career actions.

Knowing the goals and approaching to goals

While some students were reaching a compromise in choosing career destinations, some others had managed to obtain desired jobs in locations that they preferred. The success of achieving career goal is not the outcome of a one-off static labour movement decision. Alternatively, it is the result of active and on-going negotiation between students and the dynamic structural contexts, which is also the process of constructing their identities as workers and migrants in a way of seeking balance between opportunities and risks. As XQ, PhD, STEM, 28, noted:

> *I did not have career plans at the beginning, and what I did was trying to gain as much work experience as possible, trying my best to adapt into the English society, and improving my skills in different aspects. I believe that career opportunities would come to me if I were good enough…. In the past eight years, I have worked as receptionist in a pizza shop, student ambassador, student recruitment staff, and teaching assistant. With those work experiences, I knew I was more capable than just doing experiments in laboratory, and then I realised that I wanted to have a career outside academia…. That was why I turned down the research position in a Dutch university. Going to Holland also means I have to give up the networks I have built in the UK, and my husband might not be able to find a suitable and good job in there.*

XQ eventually found her dream job in the UK, in the same city in which her husband was working. Although it was an unexpected career opportunity, her rich work experience in the past together with her PhD degree in STEM helped her successfully obtained the job. Her self-reflection on what she was capable of doing and what she desired to do, together with her concerns about her social network in the UK and her relationship with her husband eventually led her applied and then accepted that job. What has been emphasised by XQ was: 'making a choice is easy, but making an informed choice is difficult', which stressed her agentive actions in making herself informed about tasks and responsibilities in different jobs.

5.6 Conclusion and Implication

This study has examined the employment destinations of Chinese international students who received postgraduate degrees from HEIs in the UK, and it has extended understandings of Chinese students' study-to-work transitions in the context of global labour market. The transition experiences of the Chinese international students in this study reveal three distinctive strategies that different groups of students have adopted in their agentive engagements with the dynamic social relations and global labour markets throughout their course of studies and early careers. They also point to the necessity and appropriateness of using structuration theory as an analytical framework.

The adoption of structuration theory as a conceptual framework for the study of international student migration enables researchers to investigate students' post-graduation migration flows with the recognition of individuals as sophisticated social beings with reflexive agency. Compared to push-pull models which tend to make mechanistic links between given factors and observed migration outcomes, the structure-agency approach pays more attention to the relationship between individuals and the wider social and economic contexts within which they were located. The experiences of participants in this study showed that human beings were not individuals who passively respond to

structural factors. In contrast, their post-study labour mobility was a dynamic, socially and biographically embedded process that engenders graduates' active negotiation of their future positions in the global labour market. Under the fluid conditions of social relations in the late modernity, international students' on-going reflections on their prior social, cultural, educational, and work-related experiences shape their agency-driven orientations to future career actions. In addition, the specificity of individuals' career goals is varied in degrees, and each individual has different capacity in working towards to goal. Students' strategies, such as: proceeding without a fixed plan, reaching a compromise, and approaching to goals, are meaningful and purposive actions, which reflect their reflexive understanding of themselves as individual agents within the wider social and economic structures that frame their intentions/aspirations.

The findings in this study have implications for policy makers and HEIs in the UK. Many of the current government policies, whether in relation to the Points-based system and Doctoral Extension Scheme in the UK , or the initiatives to attract foreign-educated students to return to China (Yang, 2011), seemed to be constructed on human capital theory (Becker, 1993). One of the fundamental assumptions of this theory is that individuals are economically rational beings with full access to information. The study-to-work transition experiences reported by these interviewees showed that many non-economic factors, such as family relations, cultural affiliation and belongingness, were emphasised to have significant influence on Chinese international students' migration flows. In addition, the lack of accurate and up-to-date information about labour markets may lead to greater uncertainties and risks in students' future careers, which in turn would influence their aspirations and decisions in terms of employment locations. In order to attract more skilled graduates to stay, British government and HEIs need to provide more support to students in enhancing their knowledge about labour markets and society. For instance, HEIs in the UK have not paid enough attention to the employability needs of international students (Huang and Turner, 2018). The UK policy makers could encourage university career services to proactively assist international postgraduate students in understanding the UK labour market at the beginning of their courses, so students who had the

intentions to remain in the UK for employment would have more time for preparation and have more robust understanding about viable employment options in the UK. What is more, for reducing Chinese international students' uncertainties and challenges in their future work and life in the UK, government and HEIs could take actions in promoting students' cultural and social adaptation and integration in the UK.

As this study has presented, the analysis of structure-agency interactions between international students and wider socioeconomic contexts has important implications for understanding and managing the movements of international postgraduates as an important group of highly skilled migrants. However, the secondary data used in this study was not originally designed for the purpose of investigating students' agentive interactions with structural relations. Due to the limitation of available data, the influence of many social and economic factors on students' migration patterns could not be analysed. This is a major weakness in using this study to test the structural-agency framework. Future studies need to conduct better designed surveys and provide more empirical statistics models to increase the understanding of how international student migrants engage with socioeconomic structures.

CHAPTER 6 CONCLUSIONS

6.1 Discussion of Findings

This research has analysed and discussed the study-to-work migration of non-UK domiciled graduates (Chapter 3), EEA graduates (Chapter 4), and Chinese graduates (Chapter 5) who obtained postgraduate degrees from British universities. Based on the quantitative DLHE data received from HESA, Chapter 3 and 4 discussed what factors might shape the migration patterns of non-UK domiciled graduates through building multilevel cross-classified models. In Chapter 5, based on the quantitative DLHE data, semi-structured interview data and structuration theory, this study analysed how Chinese postgraduates responded to and interacted with the dynamic personal, socioeconomic and political contexts. Through comparing and synthesising the findings in Chapter 3, 4 and 5, some additional findings emerged and are listed below.

6.1.1 Job-finding Method

The term job-finding method refers to the method to secure employment as oppose to merely job-searching methods. It could be found that in all three research contexts, international graduates were more successful in securing jobs through personal contacts outside the UK rather than within the UK. In terms of all non-UK domociled graduates, according to Table 3.2 in Section 3.4.1, almost one third (30.8%) of graduates who worked in other countries reported personal contacts as their job-finding method, which was in contrast to a smaller proportion of students (18.2%) who used personal contacts to find employment in the UK. In terms of EEA graduates, 23.9% of graduates who worked outside the UK reported personal contacts as their job-finding method, while only 14.0% of graduates who worked in the UK used presonal contacts in the UK. In terms of Chinese graduates, the percentages of

graduates who used personal contacts in securing jobs outside the UK and in the UK were 28.5% and 18.1% respectively. It is reasonable to assume that the majority of international students has more useful contacts/networks in their home countries than in the UK. These personal contacts could reduce the costs and risks of international graduates in finding jobs and rise the probability of migrating back to their countries of origin (Massey *et al.*, 1990; Guerassimoff, 2003). The result of this study seems to provide additional support the importance of personal contacts in obtaining jobs which has been emphasised by previous research (Goel and Lang, 2019).

In addition, this study found that students worked in the UK seem to be more successful in obtaining a job through HEI sources (e.g. Careers Service, lecturer, university website etc.) than all other channels. In terms of all non-UK domiciled grauates, around one fifth (19.8%) of students who remained in the UK secured a job through their universities/colleges, and doctoral graduates (25.3%) seem to have higher probability in obtaining a job via these sources than masters graduates (18.1%). The similar patterns were also found in the context of EEA graduates (20.2% for overall graduates, 26.5% for doctoral graduates, and 18.6% for masters graduates) and in the context of Chinese graduates (21.6% for overall graduates, 29.4% for doctoral graduates, and 18.5% for masters graduates). This result stresses the importance of HEIs in assisting international students to find employment in the UK.

Nevertheless, the university/college careers and employability services are commonly underutilised by international postgraduate students because of linguistic and cultural barriers (Raunic and Xenos, 2008). The descriptive statistics in Table 3.2 show that only 9% of the employment of international graduates was found on the basis of job information provided by HEIs. What is more, HEIs in the UK are less helpful in facilitating international students to find employment outside the UK, as they generally have not paid enough attention to the employability needs of international students (Huang and Turner, 2018). This empirical result in previous study was partly confirmed by findings in Chapter 5, as only one out of 13 Chinese interviewees mentioned that he attended activity that was organised

by the university career services, which eventually turned out to be designed for UK and EU students only.

6.1.2 Educational Backgrounds

Based on the quantitative and qualitative results in the previous three chapters, this study found that STEM graduates and doctoral graduates had higher probability of remaining than graduates with other educational backgrounds, and this could be explained by several potential mechanisms. Firstly, STEM graduates could obtain work permits more easily in the UK. Several government reports have mentioned that there is a considerable high-skill labour shortage in STEM fields in the UK (Bosworth *et al.*, 2013; Störmer *et al.*, 2014; UKCES, 2015; BEIS, 2017). According to the UK Home Office (2019), migrants in shortage occupations could be awarded attribute points for the Tier 2 General work visa sponsorship more easily than other migrants. Secondly, different labour market opportunities for doctoral graduates and masters graduates might lead to their different migration processes. Compared to taught masters, PhD holders are generally more likely to work in higher education sector and R&D positions in the private sectors (Garcia-Quevedo, Mas-Verdú and Polo-Otero, 2012). However, the absorbing capabilities for highly qualified human capital in less advanced countries are lower due to the insufficient R&D expenditure in industry, which might result in doctoral graduates who came from those countries are more intended to remain in host countries (e.g. UK) for employments that match their skill-levels (Morano-Foadi, 2005; Harvey, 2011). The UK's increasing demand for highly skilled labour in those fields might provide STEM international postgraduates, especially at doctoral level, more opportunities to remain in the UK for employment.

6.1.3 Gender Influences

The descriptive and regression results in Chapters 3-5 suggest that female graduates in all three contexts are generally more mobile than males, and the influence of gender on employment destination is depending on students' level of qualification and subject area. The gender difference on employment destinations was negligible among doctorate recipients, but it was much more obvious among masters degree recipients.

There are mixed arguments on the influence of overseas education and living experience on female students in the literature. Some claim that the experience of different social and cultural norms in the host country of study might empower female migrants to revisit or even to question and challenge constructed cultural and gender norms in their home countries, which might result in higher stay rates of female international postgraduates (Ryan, 2004). This might because some female students, especially those from more masculinity-based societies, were more inclined to work in more egalitarian host countries after graduation due to better career prospects there compared to their countries of origin (Kim, Bankart and Isdell, 2011; Musumba, Jin and Mjelde, 2011; Cattaneo *et al.*, 2017). In addition, some female students who want to achieve their career goals or self-realisation may use studying abroad as a step stone for careers in host countries and also as a way of escaping gender norms from home societies (Lin and Kingminghae, 2018). The arguments mentioned above seem to be confirmed by the regression results in Chapter 3 and Chapter 4, which indicate that, overall, in the UK the influence of studying abroad on empowering international/EEA female students is greater than the constraints of social/cultural-specific gender norms in their home societies.

Some other studies, however, argue that transnational family ties (Geddie, 2013) and social/cultural-specific gender responsibilities within the family (Lee and Kim, 2010) may constrain the migration decisions of female international students. This argument was partly confirmed by the qualitative results in Chapter 5. There were more female graduates than males reported that their migration

decisions were shaped by the actions or thoughts of their important ones (e.g. parents, spouse) to a considerable extent. Some female interviewees in Chaper 5 mentioned that factors such as 'parents' opinion', 'marriage' and 'apperance of childeren' played important roles in their decsion-making, while these factors were mentioned much less frequently by male interviewees. It seems that compared to their male counterparts, females from mainland China were influenced more by the Confucian philosophy (Kellogg, 2012; Lee and Kim, 2010). Nevertheless, this does not suggest that Chinese female graduages were more likely to return to home country or home city. Those female interviewees also mentioned that they received great support from important others in making their own study-to-work migration choices. To conclude, Chinese female graduates who received masters degrees were generally more mobile than males, and the influence of family members on graduate's movement seemed to be stronger on females than on males. Due to the time and resources restriction of this study, it is worthwile for future studies to have more detailed research on the influence of Confucian culture and family members on the post-study migration of Chinese female graduates.

6.1.4 HEI Prestige and Location

In terms of HEI prestige, in the context of non-EEA graduates (Chapter 3), graduates from Russell Group universities were 42.7% less likely to remain in the UK compared to those graduated from other institutions (in Section 3.4.2). The similar pattern was also found in the context of Chinese graduates (Chapter 5), as students who graduated from Russell Group universities (13.2%) were less likely to stay in the UK for employment compared to students who graduated from other HEIs (14.3%). This situation may be partly explained by graduates' socioeconomic status (SES) and the social and economic conditions in some of the major sourcing countries. For example, in China, although the number of mainland Chinese students studying abroad has increased dramatically since the early 2000s, the high cost of overseas education could be afforded by a small number of privileged families.

In order to avoid the fierce competition for the limited places at elite domestic universities (e.g. Project 211 and Project 985 universities) as well as improve their competitiveness in Chinese labour market, an increasing number of students chose to study at high-ranking foreign universities, such as Russell Group universities in the UK (Bodycott, 2009; Iannelli and Huang, 2014). According to Xiang and Shen (2009), elite foreign credentials were regarded by many Chinese new rich as internationally recognised cultural capital, which could be further converted into other forms of capital (e.g. economic capital and political capital) during the period of wealth concentration and class formation in China. Therefore, international graduates from high-prestigious universities are more likely to leave the UK might because some graduates, especially those with more privileged backgrounds, believe that their investment in overseas education would be better rewarded in their countries of origin (de Haas, 2010). Unfortunately, as the data related to graduates' SES was not available in the DLHE survey for postgraduates, this study was not able to test the influence of SES on residential and occupational choices of international graduates in the context of UK.

Quantitative results in Chapter 3 and Chapter 5 indicated that students who were graduated from Russell Groups universities were less likely to stay in the UK compared to their counterparts who received degrees from other HEIs. However, it is also noteworthy that the stay rates of students who graduated from G5 (i.e. Oxbridge, UCL, LSE, and Imperial College) universities (26.3% in non-EEA context, and 25.0% in Chinese context) were still higher than the stay rates of students who graduated from non-Russell Group universities (24.4% in non-EEA context, and 14.3% in Chinese context). This finding suggests that the labour market in the UK remains highly compatitive in attracting the most talented overseas students who graduated from the most elite British universities.

Nevertheless, in the context of EEA graduates (Chapter 4), the multilevel regression results (Section 4.4.2) showed that the influence of HEI prestige on stay rate was statistically non-significant. It remains unclear that why the prestige level of HEI has different influences on EEA graduates and non-EEA graduates. A possible explanation is that EEA graduates might value more on the prestige level of

master's/PhD programmes rather than the prestige level of HEIs (Roh, 2015). However, as the related data was not available in current datset, it would be difficult to test this hypothesis in this study.

In terms of HEI location, as interviewees in Chapter 5 all came from the same university (i.e. the University of Southampton), therefore, the following discussion would be based on the findings in Chapter 3 and 4. In the context of non-EEA graduates (Chapter 3), regression results suggest that graduates who attended HEIs located within the Greater London area were 77.0% more likely to stay in the UK for work. In the context of EEA graduates (Chapter 4), graduates who attended HEIs in London area were 63.1% more likely to stay (Section 4.4.2). These results may be explained by two possible mechanisms. Firstly, the graduate employment opportunities is not evenly distributed in the UK, and the generation of job-matching opportunities is more aggregated on London and its surrounding regions (Faggian and McCann, 2009). Graduates from universities in London may have more time and opportunities to establish networks with potential employers or accumulate work experience during the period of study. Secondly, some graduates may be attracted by the employment opportunities, career prospects and incomes in London which were not available in their home countries, and they deliberately chose London as their study destination and planned to remain in there to work after graduation. Several studies have found that some students from other EU/EEA countries used this study-migration pathway as the stepping-stone for future employment in London (Csedő, 2008; Beaverstock and Hall, 2012; King *et al.*, 2014). It would be worthwhile for future studies to examine whether graduates from non-EEA countries have also adopted this study-migration pathway for employment in London.

6.2 Summary of Empirical Findings and Contributions

This thesis provides empirical support to the plea of King and Raghuram (2013) that current theorisation of ISM needs improvement. Although the quantitative results show that country of origin

and university of study both have substantive impacts on graduate mobility, it remains mostly unclear that what contextual factors could influence graduates' residential and occupational choices and how. This study suggests that the analyses of student migration need to be extended beyond the spatialities of migration, and focus more on the spatialities of knowledge (Raghuram, 2013), the aspirations for mobility (Tran, 2015), and the interactions between structures and graduate agency (Li and Lowe, 2016).

This thesis has been motivated by the proposal of Li and Lowe (2016) on the research of international student post-graduation labour movement. In the age of globalisation, international students are claimed to be an important source for the potential highly skilled worker who could make substantial contribution to a nation's economic development and competency in the global knowledge economy. Although UK is one of the most popular study destinations for both EEA-domiciled students and international students, the post-study migration patterns of those students were under researched in the context of UK. The three-level agenda proposed by Li and Lowe (2016) includes 1) 'Mapping the flows', which refers to having adequate data on student migration patterns. 2) 'Controlling the flows', which refers to using appropriate statistical methods to investigate what factors could effectively predict student migration patterns. 3) 'Theorising the flows', which refers to adopting appropriate conceptual framework in explaining student migration patterns. The research gaps in knowledge, methodology, and conceptual framework have been identified with regard to the study-to-work transition of EEA/international students in the contemporary world. Given the fierce competition between host and home countries in attracting students with advanced degrees and skills, the findings of this thesis have contribution not only to the academic research but also to policy makers and HEIs.

Given the broad scope of cross-border student migration, the present thesis focused on three primary research areas which has presented in Chapter 1. Each of the primary research area were investigated by specific research questions outlined in each empirical chapter (Chapter 3 to 5). The overarching research questions in this thesis were:

- RQ1: What is the post-study labour migration pattern of non-EEA students who graduated from masters and doctoral programmes from UK HEIs?
- RQ2: What is the post-study labour migration pattern of EEA-domiciled students who graduated from masters and doctoral programmes from UK HEIs?
- RQ3: How did mainland Chinese postgraduates respond to and interact with the dynamic social structures in their study-to-work transition processes?

The main objective of Chapter 3 was to test the appropriateness and necessity of cross-classified multilevel modelling in analysing student migration data. The main argument in that chapter was that previous studies that adopted fixed-effect regression models in analysing migration patterns of international students are inadequate and simplistic in two aspects. First, they ignored the fact the international students are not independent cases. Students are nested within home counties and simultaneously nested within HEIs, and the neglect of any of these two nest effects would result in overestimating the effects of other factors, especially at higher levels. Second, due to the possible multicollinearity issues, fixed-effect models could not to estimate group effects and effects of group-level predictors at the same time, which makes it difficult for researchers to identify where and how effects are occurring. Additional investigation focused on what factor at which level has what type of influence on student migration patterns.

The results of Chapter 3 showed that, at domicile-level, none of four factors (GDP, unemployment rates, English language and Commonwealth affiliation) were significant in predicting stay rates of international students. At HEI-level, students attending a Russell Group university would be 42.7% less likely to stay in UK, and students attending a HEI located within London would be 77.0% more likely to stay for employment. Variance at the domicile-level was estimated to be 1.67 times greater than variance at HEI-level, which indicates that home country is a better predictor of stay-rates than the HEI attended.

After controlling for clustering and other relevant factors, multilevel regression results suggest that the influence of gender on international students' migration decision-making depends on their level of qualification and subject area. In the case of master's degree recipients, females had a higher probability (24.2%) of staying than males. In the case of recipients of doctoral degrees, females were slightly less likely (2.7%) to remain to work in the UK compared to male graduates. Previous studies suggest that the lack of degree-relevant highly skilled employment opportunities for women in some less developed countries might make females with an advanced degree more likely to stay in the host country compared to male recipients or doctoral degrees (Musumba et al., 2011). The experience of different social, cultural, political, and economic norms in the host country of study might empower female migrants to revisit or even to question and challenge constructed cultural and gender norms that they experienced in their home countries, which might also result in higher stay rates of female international graduates with advanced degrees (Ryan, 2004).

The multilevel regression results in Chapter 3 confirmed the assumption that subject area has significant influence on international postgraduate students' migration patterns in the UK context. STEM graduates were found to have a higher probability of staying than graduates from other subject backgrounds, and this might be partly explained by the high-skill labour shortage in STEM fields in the UK (BEIS, 2017; Bosworth et al., 2013; Störmer et al., 2014; UKCES, 2015). The UK's increasing demand for highly skilled labour in those fields might provide STEM international postgraduates more opportunities to remain in the UK for work.

The main objective of Chapter 4 was to investigate the post-study migration patterns of EEA graduates, and then compare those patterns with the migration patterns of international students. The most obvious difference between EEA graduates and international graduates is that, EEA graduates are not restricted by the immigration policies because of the free movement of labour within the European Single Market when searching for employment in the UK. Based on the modelling strategy applied in Chapter 3, the results in Chapter 4 showed that it is also necessary to apply cross-classified multilevel

modelling in analysing EEA student migration data. In the non-EEA context (Chapter 3), 18.0% of variance was between domicile groups, while 10.8% of variance was between HEI groups. In the EEA context (Chapter 4), 9.5% of variance in stay-rate was attribute to domicile-level, and only 5.4% of variance was attribute to HEI-level (higher than the 5% threshold) (Hoskins, Janmaat and Villalba, 2012). It could be found that the differences in stay-rate between domiciles and between HEIs for EEA graduates were much smaller than the differences for international graduates.

At the domicile-level, GDP per capita was found to have negative association with stay-rate at 5% significance level, and this economic structural factor was not found to have statistically significant influence on stay-rate in non-EEA context (Chapter 3). One possible explanation for this difference is that the heterogeneity level in economic development within each non-EEA country is higher than the heterogeneity level within each EEA country. The GDP per capita data has mainly been used by previous studies to represent the income level in specific country. This implies that it might be problematic to use the country-level GDP data to estimate the potential income that an individual would receive in different countries/regions.

At the HEI-level, the influence of university location on stay-rate was similar between EEA graduates and non-EEA graduates, with being study in London would significantly increase students' possibility of staying in the UK. The prestige level of HEI could not effectively predict the stay-rate of EEA graduates. The pattern that non-EEA students who graduates from Russell Group universities were more likely to leave the UK might reflect that there was a high demand for those highly trained students from sourcing countries outside EU.

At the individual-level, EEA graduates with doctoral degrees were estimated to be 1.66 to 2.58 times (Table 4.5) more likely to stay than graduates with master's degrees, which indicates that the skill level of doctoral graduates were more desired by employers in the UK. For non-EEA graduates, doctoral graduates were 3.80 times (Table 3.4, Model 1) more likely to stay than masters. The difference in stay-rate between doctoral students and masters students in the non-EEA context is greater than the

difference in the EEA context, which could be partly explained by the visa restriction in the UK. Another individual factor that need to be further studied is gender. The results in Chapter 3 showed that females were more likely to stay in the UK for work, and it could partly be explained by the lack of degree-relevant highly skilled employment opportunities for women in some less developed countries (Musumba, Jin and Mjelde, 2011). However, this pattern was also identified in the EEA context. Female graduates from countries with higher level of gender equality and better economic conditions, such as Finland (50.2%), Norway (24.7%) and Germany (32.5%), were also found to have significantly higher stay-rates than males (28.6%, 14.7% and 25.1% respectively). This suggests that there might have been other factors could affect female graduates' decision to stay in the UK, especially for those from economically more advanced countries with higher level of gender equality.

Finally, the objective of Chapter 5 was to test Giddens's structuration theory in explaining student's decision-making in study-to-work transition. Postgraduate students from mainland China was selected as the target group for the in-depth analysis. The main hypothesis was that student study-to-work transition is more complex than what is described in neoclassical economic models, and individual agents are more than capable of passively responding to social forces or making economically rational choices (Li and Lowe, 2016). Findings in Chapter 5 confirmed this hypothesis and further found that individual students have dynamic and on-going agentive interactions with the wider social relations. What is more, it also found that different combinations between student's goal, actions and reflexivity would lead to different job-searching strategies in the global labour market. Conceptually, Chapter 5 suggested an alternative analytical framework which enables the investigation of interactions between human agency and dynamic social structures in a fast-changing world. The analysis was on the study-to-work transition of Chinese students, but the framework could be applied to research in other contexts. The results and findings in all three empirical chapters not only fill the gap of knowledge in literature, but also have proposed alternative statistical modelling strategy and alternative conceptual framework for future studies in student migration. Before turning to implications, it is also important to consider the limitations of present study.

6.3 Limitations

Although this thesis has filled the gap in knowledge, research methodology, and analytic framework, it has several limitations. The first limitation relates to the availability of variables in DLHE dataset. As the post-study migration is under researched in the UK context, one objective of this thesis was to test whether the factors that have been identified by existing literature to have significant influence on student migration could still effectively predict student migration in the UK. Therefore, Chapter 3 and 4 have introduced a series of biographic factors (age and gender), education background factors (level of degree, discipline, mode of study), HEI-level factors (HEI location and prestige), and domicile-level factors (GDP, unemployment, language background, and colonial ties) into the multilevel regression models. Most of the factors mentioned above could be found from DLHE data or could be informed by DLHE data. However, there are some other factors could not be tested in this thesis as they are not included in DLHE data, such as marital status, number of children, and funding source etc. For example, a previous study found that married students had higher possibility of staying in host country for work (Roh, 2015). In Chapter 5, interview data also indicates that ties with spouse have vital influence in student's migration decision-making process. As the variable, marital status, was not included in the DLHE data, this thesis was not able to combine the quantitative results with qualitative findings for a more in-depth investigation on the influence of this specific factor. The limited availability of variables in DLHE data has constrained the power of multilevel modelling in explaining student migration patterns, but this does not deny the merits of DLHE data as the best available national-level large-scale dataset in the UK.

The second limitation relates to the research method in Chapter 3 and 4. The alternative analytic framework proposed by this thesis in Chapter 5 is Giddens's (1984) structuration theory (structure-agency approach), which focuses on the dynamic and on-going interactions between human agency

and the wider social and economic structures. Some of the structural factors are hidden variables which are not directly observable (e.g. quality of life), but they could be inferred from other observable variables (e.g. GDP per capita, life expectancy, and HDI index etc.) through statistical models. In this circumstance, Structural Equation Modelling (SEM) might work better than multilevel modelling in capturing the relationship between structural factors and migration outcomes.

The third limitation relates to domicile-level predictors. Regression results in Chapter 3 showed that 18.0% of variance in stay-rate was between domicile groups, while 10.8% of variance was between HEI groups. In order to find out what factors at domicile-level could explain the differences between domicile groups, a cross-classified multilevel design was adopted to test a large number of potential domicile-level predictors. The domicile-level predictors that have been confirmed by multilevel regression models to have significant influence on student migration patterns would be further explored in Chapter 5 from the perspective of student reflexivity. However, this study did not find any domicile-level predictor that could explain the between group difference (Table 3.5, Model 4-9).

The fourth limitation relates to the sampling coverage of interview participants. In Chapter 5, only Chinese domiciled postgraduates who finished studies from the University of Southampton were selected for semi-structured interviews. The results in Chapter 3 showed that HEI locations and prestige levels could significantly influence international students' stay-rate. More specifically, students graduated from universities located within the Greater London area were more likely to stay, while students graduated from one of the Russell universities were less likely to stay. The hypotheses behind these two patterns were: 1) compared to other regions in the UK, London could provide more graduate employment opportunities relative to the number of people searching jobs (Faggian and McCann, 2009). 2) Russell Group universities have a very high reputation in providing high-quality teaching and research experience, and students graduated from those universities might represent a more scarce and desirable human capital resource in their home countries, which might be leading to more job opportunities relative to those available in the UK (Musumba, Jin and Mjelde, 2011). That is

to say, when searching for jobs in host/home countries, different combinations between HEI locations and prestige level would provide students different structural contexts to interact with. This study only investigated the reflexivity of students who graduated from a non-London Russell Group university. Students graduated from London Russell Group universities, London non-Russell Group universities, and non-London non-Russell Group universities might have different reflexivity on their career goals and activities.

6.4 Implications and Directions for Future Studies

The importance of international student migration (ISM) has been increasingly recognised by academia, and many scholars have emphasised the pressing need to improve the theorisation of ISM (Findlay *et al.*, 2012; King and Raghuram, 2013; Raghuram, 2013). Based on the three-level agenda proposed by Li and Lowe (2016) in their theoretical research, this thesis has contributed to the theorisation of ISM by conducting three standalone but interrelated empirical studies, which focused on three specific research areas. Based on the DLHE data and cross-classified multilevel regression models, Paper 1 (Chapter 3) and Paper 2 (Chapter 4) have offered future studies the directions about what domicile-level, HEI-level, and individual-level factors need to be further investigated and directions about what modelling strategies need to be applied in analysing the quantitative student migration data. Future studies could complement this study by collecting student destination data with a revised survey and applying a more advanced statistical model.

In terms of revised survey, although the DLHE data is the best available national-level census data in the UK context, it was not originally designed for the research objectives of this study. As mentioned previously, the limited availability of variables in the DLHE data has constrained this study in delivering a more comprehensive analysis on the factors that might influence students' stay-rate. In the UK context, the post-study migration of international/EEA graduates is seriously under researched.

Although this thesis has filled the gap in knowledge by providing a broad picture about the migration patterns of international/EEA graduates, much of the study-to-work transition process remained unknown. In the existing literature in the worldwide context, there are some empirical studies have examined ISM by using quantitative data/qualitative data, or a combination of both. In order to have a more robust knowledge and understanding about ISM and the factors that could influence ISM, it is necessary for future studies to test the influence of more factors that have been mentioned by previous research.

In terms of statistical models, this thesis has suggested that compared to single-level fixed-effect models, the cross-classified multilevel regression models have the advantages in providing more accurate estimations for higher-level variables (domicile-level and HEI-level) and in estimating group effects and effects of group-level predictors at the same time. The regression results in Chapter 3 and Chapter 4 also suggested that it is necessary and appropriate to adopt multilevel modelling design in analysing student migration data that has the multilevel data structure. With more student migration data will be available and more predictors will be tested and identified in the future, future studies could complement this research by extending the quantitative research methods adopted in current thesis. More specifically, the application of Structural Equation Modelling (SEM). One of the main objectives in ISM is to analyse and then theorise the influence of social, economic, and political structures on student migration and decision-making process. The SEM is likely to provide more detailed insights related to the results and findings in this thesis. Especially, the latent variable approach could be applied to examine the influence of those abstract structural factors which are not directly observable.

Finally, in terms of analytical framework, future studies need to pay more attention to the dynamic and on-going interaction between individual agency and wider social structures. Students are not agents who would only passively respond to social forces or who would only make economic rational decisions. The more robust knowledge and understanding on students' reflexivity would help policy

makers in designing and conducting more effective programmes in managing the movements of international/EEA students, and it would help HEIs to carry out career services that are more specific to the needs of international/EEA students.

APPENDICES

APPENDIX A LISTS OF DOMICILE-LEVEL VARIABLES

Table A.1 List of majority native English speaking country/region in this thesis

Antigua and Barbuda	Australia	Bahamas, The	Barbados
Belize	Canada	Grenada	Guyana
Ireland	Jamaica	New Zealand	St Kitts and Nevis
St Lucia	St Vincent and The Grenadines	Trinidad and Tobago	United States

Table A.2 List of English as official language country/region in this thesis

American Samoa	Antigua and Barbuda	Australia	Bahamas, The
Bahrain	Bangladesh	Barbados	Belize
Botswana	Brunei	Burma	Burundi
Cameroon	Canada	Eritrea	Ethiopia
Fiji	Gambia, The	Ghana	Grenada
Guyana	Hong Kong	India	Israel
Jamaica	Jordan	Kenya	Kiribati
Kuwait	Lesotho	Liberia	Malawi
Malaysia	Maldives	Mauritius	Micronesia
Namibia	New Zealand	Nigeria	Pakistan
Papua New Guinea	Philippines	Puerto Rico	Qatar
Rwanda	Samoa	Seychelles	Sierra Leone
Singapore	Sint Maarten (Dutch part)	Solomon Islands	South Africa
South Sudan	Sri Lanka	St Kitts and Nevis	St Lucia
St Vincent and The Grenadines	Sudan	Swaziland	Tanzania
Tonga	Trinidad and Tobago	Uganda	United Arab Emirates
United States	Vanuatu	Zambia	Zimbabwe

Table A.3 List of Commonwealth country in this thesis (previous colonial affiliation)

Antigua and Barbuda	Australia	Bahamas, The	Bangladesh
Barbados	Belize	Botswana	Brunei
Cameroon	Canada	Fiji	Gambia, The
Ghana	Grenada	Guyana	India
Jamaica	Kenya	Kiribati	Lesotho
Malawi	Malaysia	Mauritius	Mozambique
Namibia	New Zealand	Nigeria	Pakistan
Papua New Guinea	Rwanda	Samoa	Seychelles
Sierra Leone	Singapore	Solomon Islands	South Africa
Sri Lanka	St Kitts and Nevis	St Lucia	St Vincent and The Grenadines
Swaziland	Tanzania	Tonga	Trinidad and Tobago
Uganda	Vanuatu	Zambia	

APPENDIX B INTERVIEW TRANSCRIPT EXAMPLE

Researcher: Meng; Interviewee: XQ

Meng: Could you briefly introduce your experience of study and work please? Such as where did you study? Since when?

XQ: I finished my high school at 2009. The university I applied was the University of Southampton, and it was also my first choice, because I really wanted to study Electronic Engineering. I especially liked the offer provided by this university: MEng. It was an integrated master's programme, but this MEng programme required me to finish a foundation year first. Although I provided my transcripts when applied this programme, the university thought a foundation year was necessary for me as I did not take the A-level courses. The courses I studied in China were very broad, not like A-level with a specific focus, such as Physics and Math. The university was afraid I might not be able to keep up with others. It was not because my grades did not match the requirements of the programme. The IELTS score I had had already met the requirement of undergraduate programme. So, I started my foundation year in September 2009 for a whole year. During that year, I studied courses related to Engineering, Physics and Math. My final grade for the foundation was nearly 90%. Because I really like Electronic Engineering, and through the one-year foundation study in Southampton, I gained more knowledge about this university, in terms of study environment and living environment. I felt the academic environment and living environment in Southampton were very good, so I never thought about starting my undergraduate in other universities. During the whole three years of my undergraduate, my grade was always in the top 10% in my class. When I finished my first year, I did a summer internship in our Nano engineering research group, which was between June 2011 to September 2011. Because my personal tutor was the head of Nano Engineering research group, I have mentioned to him that I wanted to do summer intern and asked him about the available opportunities. So, he gave me an opportunity for summer intern in his research group. In the second year, my grade still was very

good, and I was always the leader for all of our group projects. My grades in experiment, exam and assignments were all very good in my class. I was the volunteer for 2012 London Olympic, so I did not do any intern during that summer. After that, I have mentioned to my personal tutor many times that I wanted to do a PhD. When I finished my second semester of my third year, around March to April, my tutor contacted me and told me that there was a very good PhD opportunity. It was an EU project, but they were also willing to support students from outside EU. So, I transferred my MEng programme to an undergraduate programme. During the summer vacation of my third year, I was doing intern in the Nano Engineering research group again. But I have actually started my PhD study in that summer. My PhD was mainly based on experiments and was funded by EU. I spent most of my time in the clearing room. I was the first and the only PhD student of my supervisor at that time. That is to say, I was the only person in my research group. Also, the work of the whole research group was finished my just me, which include design experiments, conduct experiments, collect data, analyse data, and report the data. I found my ability has improved a lot during that period. As I mentioned this research was funded by EU, so I had attended conference in Europe every year. I have learnt a lot of information, and also opened my eyes, which also made a good foundation for my future employment.

Meng: Could you introduce your current work? And where is your work based?

XQ: Because my husband found a job in Cambridge, so I also moved to Cambridge at the beginning of this year after I finished my VIVA. But I had not started finding jobs since I finished my VIVA, which was in February 2018. Because we just moved to a new house, and my husband just started his new job. I thought I need to support him during that period, that was why I was not searching for jobs at that time. The other reason was that I wanted to use some time to think about how exactly I would like to build my career. I forgot to tell you my previous work experience. In terms of my previous work experience, I started my first job in March 2010. I arrived in the UK in September 2009. Roughly, about 6 months later, I started my first job. I have done so many different jobs, and I really enjoyed it. I found that I really liked to work in my spare time. I can say that I have done all the available part-time jobs

within our university. When I was doing my PhD, I was the head of the UCAS visit day in our department. I was responsible for staff recruitment, provide training, and being the supervisors, need to arrange shifts for others. In the past eight years, I have worked as receptionist in a pizza shop, student ambassador, student recruitment staff, and teaching assistant. With those work experiences, I knew I was more capable than just doing experiments in laboratory, and then I realised that I wanted to have a career outside academia. I believe this is something we need to spend lots of time for exploration. So, I did not upload my CV to the internet so soon. I was afraid other people would use the key word to match my education background with the jobs I could do. It is like arrange me or offer me the job because I have the skill/degree to do it, rather than based on what I am interested in doing. That was why I read lots of books on alternative careers for PhD. I wanted to know apart from working as post-doc, or research fellow in a research institute, what else doctoral graduates could do. I have read lots of books, and also searched lots of related information online. I think making choice is easy, but making informed choice is very difficult. What is called 'informed'? It is about you need to know the situation in different industries. You need to know what options are available for you. If you do not spend time to explore the available options for you, and just rush to move forward, it will be walking on a road with your eyes been blinded. I feel it is very stupid. For me personally, making informed choice is very difficult. You can see from my experience; I was in schools/university for education in my whole life. Although I have done two summer interns and many other part-time jobs, I was still in university as a student. I did not have the chances to observe other industries. I have heard about some professions, I do not know what they need to do on a day-to-day base, and their responsibilities in the work. So, I had to spend a lot of time to finish the puzzle, so I could finally know what my career expectations are. Only when I know everything I just mentioned above, I could know what is the most suitable for me, and what jobs are worth doing, as well as what jobs are the ones that I really like. So later on, I gradually found that works related to business and management are the one really suitable for me, but with one condition, they are in the context of technology, engineering, innovation and research. Because I think I have the skills in project management, and I also have

leadership skills, time-management skills, as well as the solid undergraduate and PhD background in engineering. That is why I felt the works I mentioned are suitable for me. I am not the person who only focuses on my experiments and does not consider about other things in other areas. In addition, I am not a student graduated from a business school, those students might know nothing about engineering and scientific research. I think I am a person with combined skilled in those two aspects. I do not want to give up my years' experience and background in STEM, but at the same time, I am not willing to lock myself in the lab to do experiments on every day. I think that does not match with my interest and does not match the career development I want to have. Yeah, that was my career goal! Now it is the interesting stuff. I got married in last year, I was celebrated our anniversary with my husband earlier this year, by having a very nice dinner in a restaurant. Also, recently, I got a new car. My husband has a job, but I still have not. I was thinking I have spent so much money recently. My original plan was to buy a new car as the present for getting a new job. But my car was broken, and we did not want to spend money to repair it, so we bought the new car before I could find a job. With all that money been spent, I felt pressure. What I was thinking was how I could get all that money back. That was how I decided I need start looking for jobs. What happened next is more interesting. One day, when I was doing the preparation work for job searching, I heard few police vehicles passed my house. I just wanted to know what happened. So, I went to the website for local news, trying to find out what happened. I did not find what I was looking for, and then I saw there was a career section on that webpage. I clicked in, and found there were careers in different areas, including engineering and science. I clicked on engineering and browsed the information randomly. One of sudden I noticed there was that job ad, which is the job that I really wanted to do. It mentioned that within that role, I could do business development, or visiting different universities, providing consulting service, or helping other to apply funding for scientific research. I would definitely not be doing the client-based consultancy, because I need to be away from home quite often. But I could accept office-based consulting. Because I can base in office and waiting for clients to approach to me. It looks like a very good position for me, but that website did not provide enough details about the duties and

responsibilities of that job. I used some key words and looked up online myself. It was very easy for me to find out the original job ad from their official website. I have got the detailed descriptions and requirements for that job. I found that post on 16th or 17th, it has been posted by less than a week, but the deadline for application was 22nd. I started working on the CV for that job post without hesitation. The CV I had at that time was an academic CV. I have not given up the opportunity in Holland, working as a research fellow. But I know I definitely cannot use academic CV to apply for that job in Cambridge, if I do that, they would definitely not be considering me as a candidate. So, I re-write a CV based on their job description, together with a new cover letter. The title for that job was 'innovation project leader'. Do you want to know more details about that job?

Meng: Yes, if you could share more information about it.

XQ: The employer is a research institute, but it was also more than a research institute. It is technology company, but also a consultancy at the same time. What I need to do in my job is to: I will need to apply research funding from those major public funding holders. That job itself is a combination of engineering, scientific research, technology, business and management. It also requires a lot of presentation based on the projects. Also, it requires me to contact different partners, so I will need good communication skills, leadership skills and skills in organising. This job for me is an ideal fit. I submitted my application on the 22nd and waited about one week before I received notification for telephone interview. The interviewer is the leader of my current team. I had a conversation for about 1 hour and 15 minutes. I felt that he was quite satisfied with me in the interview. Two days later, I received the job offer.

Meng: Could you say little bit more about why you wanted to do a PhD? And roughly at what stage that you had the idea that you want to apply for PhD?

XQ: My grandparents are all professors in university. I was living together with them since I was very young. When I was still in nursery, my grandparents would invite some of their PhD students to our home. So, I knew about PhD students from long time ago. My uncle went to Japan for PhD, my family

thought that I would also be doing a PhD in the future. So, I had the idea that I would do a PhD in the future when I was still in primary school, although that idea was very blur at that time. After I started my study in Southampton, I saw how PhD students do scientific research by my own eyes. I felt it was acceptable for me to do a PhD as well. My family also thought it would be very good if I can be a lecturer in university. In their eyes, girls need a stable job, such as lecturer in university.

Meng: you mentioned earlier that your first choice was Southampton. Could you explain why you decided to study in the UK?

XQ: My uncle went to study in Japan at a very young age. My family thought that I need to go somewhere further than Japan. I started learning English at 5, because my family believes that English is a tool which could help you go to study and live in other countries, and a tool which could connect you with the world. The primary school I was in was the only school that teaches English from grade 1 in my city. My family has invested a lot on me in learning English. So why study in the UK? My family really like to tradition and the culture in the UK. In addition, they have universities such as Oxford, and Cambridge. Overall, it has a very good environment for study.

Meng: When you first arrived in the UK, do you have any plans for your careers in the future?

XQ: No. I only focused on my study. When I had the opportunity to accumulate work experience, I started doing different type of part-time jobs. In addition, trying my best to blend myself into the local society, and improving my skills in different areas. I did not have career plans at the beginning, and what I did was trying to gain as much work experience as possible, trying my best to adapt into the English society, and improving my skills in different aspects. I believe that career opportunities would come to me if I were good enough.

Meng: Have you thought about staying in the UK for employment? You mentioned that you want to blend yourself into the local society and improving your skills. Or, you planned to return to China for employment?

XQ: My thought was I wanted to be the person who can work in the place wherever she wants. I did not think about staying in UK or returning to China. What I wanted myself to achieve is that I could find good jobs no matter in China or in the UK.

Meng: Could you tell me more about your part-time experience during your foundation year?

XQ: My first part-time job was working in a Pizza shop. I was living in student accommodation during my foundation year. The flat was shared by 7 students, and I was the only international student among them. I had a very good relationship with others, and many of us are good friends now. I noticed that one English girl in my flat always return very late on Friday and Saturday nights, so I asked her about this. She told me that she was working in a pizza shop as receptionist, and sometimes she would bring us some free pizzas. I was thinking this job sounds quite good. I could get free pizza, get paid, and practice my English for free. There were two different positions in two different pizza shop. The first one, was also the one where my friend worked for, was recruiting a pizza maker. The second pizza shop was recruiting a receptionist. I have attended interviews in both pizza shops, and both got accepted. I eventually chose to work in the second pizza shop, because I want to have some challenges. They recruited 10 people but would only keep 4 eventually. The reason why I wanted to find part-time job was not because I need the money. The main purpose was to improve my skills. I was very nervous when the phone started to ring during my first week. It was very difficult for me to get used to the different accents. I never like to give up, after one to two months' practice, the accent was no longer a problem for me. I learnt quite fast, and I worked very well, so I passed probationary period and stayed in that pizza shop. The story after that was: I became team leader, I started providing training to new staff, and I was the most senior staff before I quit that job. In the first year of my undergraduate, I found another job in the university, worked for the XX office. I worked really hard in that job and was elected for the 'XXXX'. In my second year working for the XX office, I worked even harder, and was eventually been elected as the 'XXXX'. In my third year, I got the 'XXXX' award. After I started doing my PhD, I got less time to work for the XX office, because I started teaching foundation year. I have a

very good relationship with teachers in foundation year. They told me when I was still in my foundation year that if I start doing a PhD, I must come back to help as teaching assistant. I was also the teaching assistant for year 1 Mathematics. My thought was, if I do not use mathematics regularly, I would definitely forget the knowledge in math. So, I told myself that I need to teach mathematics.

Meng: What do you think is the biggest challenge for you when you were looking for jobs?

XQ: I think it is the gap between what I have learnt from my PhD and what I wanted for my career development. I know I could be a good researcher in Nano engineering, because I have already worked quite well in this area, I have the experience. If I want to find a job in related area, my experience in my PhD would be useful for me in competing with others. However, if I want to find a job that is not directly related to that area, I need to consider do I have enough competitiveness power compared to those who have related experience. It would be a really big lose to me if the job I found does not require my PhD experience. So, I need to find a job which could appreciate my four-year experience in PhD. In addition, I think interest is very important. My husband really likes his current job. Although he was a rookie in this team at the beginning, but now he is one of the best people in the team. It is really important to do a job that you are interested in. I have some friends complained a lot about their jobs, although their salary was very high. I can see that they are not happy, do not have the passion in their work, and do not have expectations for the future. I told myself that I do not want to be the same as them. I do not want to give up my passion to work and life for money. My husband also told me that 'I should not worry about jobs, as I have PhD degree. For those people who do not have the degree, they work to raise their family, but we are different'. What he told me really inspired me and encouraged me to pursue the jobs that I really want to do.

Meng: Could you share more about the job you rejected in Holland?

XQ: I did not like that job. It was very similar to what I have done in my PhD: do experiments by myself, do not lead any other people, and do not lead any projects either. Even the equipment was the same as the one I used in my PhD. In addition, my husband and I would need to move to the Netherlands,

and we were not sure whether he could find a job that he likes. What is more, when I rejected that offer, my husband has received some interview invitations in the UK, which included the one in Cambridge. So, we finally decided not to go to the Netherlands. We all have lived in the UK for many years, so we knew we could have good career development in this country. If we moved to the Netherlands, I probably would have a good career, although I do not like it. But we did not whether my husband could have a good career as well. So, it was not very difficult for us to make that decision.

Meng: Do you have any questions for me? Or do you have anything want to add at this point?

XQ: Yes. When I was in the interview for my current job, the team leader asked me whether I have the right to work. I told him that I could apply for the Doctoral Extension Visa. In addition, I have stayed in the UK for almost 10 years, I would be able to apply permanent residency very soon. Two days later, when they gave me the job offer, my team leader told me that I do not need to apply for the Doctoral Extension Visa. The institute would like to offer me Tier 2 sponsorship and will cover all the fees for one-day primer service to apply for visa. So, I do not think visa would be a very big restriction for international students to find jobs in the UK. If you are good enough, or if the employer really likes you, then visa would not be a big issue.

APPENDIX C MISTAKE IN DLHE DATA CONFIRMED BY HESA

Zhan M.

From: Katie Martin <katie.martin@hesa.ac.uk>
Sent: 19 September 2018 08:09
To: Zhan M.
Subject: RE: possible mistake in bespoke data, HESA Reference Number: 39053_KM

Hi Meng

Thank you for your email.

You are correct, male is code 1 and female code 2. I can only apologise for the typo in the labelling file.

Please let me know if you have any other queries.

Kind regards,
Katie

Katie Martin
Data Intelligence Analyst Lead
HESA
95 Promenade, Cheltenham, GL50 1HZ
T +44 (0) 1242 211 480
W www.hesa.ac.uk

From: Zhan M. <M.Zhan@soton.ac.uk>
Sent: 18 September 2018 22:28
To: Katie Martin <katie.martin@hesa.ac.uk>
Subject: possible mistake in bespoke data, HESA Reference Number: 39053_KM

Hi Katie,

I hope this finds you well.

I contacted you two years ago and received bespoke DLHE data from you. The dataset was quite useful, but recently I found that there might be a mistake in the '39053_Notes_and_Labelling_File'. In that file (please see attachment), in the field labelling tab, female is marked as '1', while male as '2'. However, when I compared my data analysis results to the free publications and tables on HESA website, the result does not match. More specifically, in some tables from online free publication, the number of UK domiciled full-time postgraduate female leavers is much larger than male in subject areas like: Subjects allied to medicine and Education, but in the dataset I received, it says the opposite. This attracted my attention, and I compared more results from bespoke data to the HESA DLHE online tables, which also confirmed my suspicion in my opinion. I reckon that the person who prepared this piece dataset, Jessie Gomer, might attached wrong labels to SEXID. What is more, I also received another bespoke DLHE dataset recently, in that notes and labelling file, male is marked as '1' and female as '2'.

I understand that I need to interpret DLHE data I received from HESA cautiously, but the problem I have so far really put me in a dilemma. I am wondering whether you or someone else could take a look of the dataset and give me an official confirmation. If there really is a mistake, I need to invest a lot of time to modify my models, results and thesis before I submit my draft to examiners. I know it's been a long time, but I would be much appreciated if you could help me. Thank you very much and looking forward to hearing from you soon.

Best regards,

1

Figure C.1 Email communication with HESA inquiring potential mistake in the 'notes and labelling file'

Meng

Meng Zhan
Postgraduate researcher
B32/2093
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University of Southampton
Highfield
Southampton
SO17 1BJ
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Figure C.2 Email communication with HESA inquiring potential mistake in the 'notes and labelling file' (continued)

APPENDIX D INTERVIEW SCHEDULE

Interview schedule:

1. Confirm and emphasis the purpose of the interview (through participant information sheet);
2. Emphasis the confidentiality of the interview, and retrive the verbal consent from interviewees via telephone (interviewees also need to send signed consent form by email before interview);
3. Start the interview, and it would be audio recorded if receive consent from interviewees;
4. Thanks for the participation.

Guided interview questions:

About you	Subject, level of qualification, mode of qualification, year of graduation, education experience, work experience
Study abroad experience	• Why did you choose to study in the UK? • How did you choose University of Southampton as your Higher Education provider?
Migration intention	• What was your migration intention when you first arrived the UK? Do you want to stay in the UK or return? • What was your migration intention when you were about to finish your programme of study? • Has your migration intention changed for the duration of your programme of study in the UK? Why?
Career plan	• What was your career aspiration? • Have you achieved your career goal?
Job-seeking experience	• What efforts have you made to achieve or trying to achieve your career goal? • How did you interact with social, cultural, economic and political environment when you were searching for employment opportunities? • What were the biggest challenges for you when searching for your ideal employment opportunities?
Labour movement decision	• What was main reason for taking the job that you are doing? • Does your labour movement match with your migration intention and your career plan?
Influence of social network	• What was the role of your family in your decision-making process? • How did you build up your network of contacts or an appropriate social relation in the UK? What was the role of it in your decision-making process?
Immigration policy	For those stayed and employed in the UK • How did you deal with the immigration policy? For those employed in other countries • Was immigration policy a major factor that made you to leave the UK?

APPENDIX E RECRUITMENT LETTERS

Recruitment for semi-structured interview participants

I am looking for volunteers to take part in semi-structured interview. If you are Chinese (mainland China) postgraduate leavers who have received Masters or Doctoral degree from the University of Southampton, and you are currently in full-time/part-time employment, please come and join our study.

I plan to start interviews in the middle of September 2018, running through to the end of December 2018. It is my aim to run semi-structured interviews, as I am particularly interested in how you made your labour migration decision and how you interacted with social, cultural, economic and political factors during your decision-making process. These interviews can take place face-to-face (only if you are located within Southampton area) or over the video call or over the telephone and are estimated to take between 45 minutes to 1 hour, depending upon your convenience and how much information you provide. If you are still interested in participating then please e-mail me by 31st August 2018 and we can arrange a suitable location, date and time.

For more information about this study, or to volunteer for this study,

Please contact:

Meng Zhan

@

Email: M.Zhan@soton.ac.uk

This study has been reviewed by, and has received ethics clearance (Ethics number 45202) through the University of Southampton Research Ethics Committee

Recruitment for pilot interview participants

I am looking for 5 Chinese (Mainland China) graduates who have received Masters or Doctoral degrees from the University of Southampton and are currently working in the University of Southampton to take part in my pilot study. The purpose of this pilot study is to develop the researcher's skills as an interviewer. Your voluntarily participation would help to identify the time requirement of the interview and also identify any contentious issues that might arise through the questions. The interview is estimated to take 1 to 1.5 hours.

For more information about this study, or to volunteer for this pilot interview study,

Please contact:

Meng Zhan

@

Email: M.Zhan@soton.ac.uk

This study has been reviewed by, and has received ethics clearance (Ethics number 45202) through the University of Southampton Research Ethics Committee

APPENDIX F PARTICIPANT INFORMATION SHEETS

Pilot Interview Participant Information Sheet

Study Title: The study-to-work transition of Chinese international students: navigating a future in the global labour market.

Researcher: Meng Zhan

ERGO number: 45202

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

I am a postgraduate research student in the University of Southampton. The initial interview is devised as the pilot study before the main data collection. This pilot study forms part of my doctoral degree dissertation. The aim of conducting this initial interview is to provide the researcher with an opportunity to develop his skills as an interviewer, to consider the time requirements of the formal interview, and to identify any contentious issues that arise through the pilot study.

Why have I been asked to participate?

You have been invited to take part as you have received Masters or Doctoral degree from the University of Southampton and are currently in employment. Your voluntary participation will be highly valuable, as it will help the researcher to have the opportunity to develop his skills as an

interviewer, to consider the time requirement of the interview and to identify the contentious issues that might arise through the pilot. Therefore, your voluntary participation in this study is greatly appreciated. About 5 participants will be in this pilot study.

What will happen to me if I take part?

This study will be undertook as the face-to-face interview. You can choose your preferred time and location to have the interview. It is not expected that your lifestyle will be affected by this study. Because this initial interview is devised as the pilot to develop the researcher's interview skills and to consider the time requirement of formal interview and to identify any contentious issues that might arise through the interview. Therefore, this pilot interview will take approximately 1 or 1.5 hour. The interview will be guided by some main questions, but the researcher will ask some more questions depending upon your answer. You will not be contacted again. The interview may will be audio recorded, but this is optional and will only happen under your permission. The only purpose of audio recording is to help researcher transcribe the interview conversation. Audio record and electronic interview data will only be stored in a password protected university desktop, and only the researcher has the access. The interview will be questions guided, exploring your study abroad experience, job-seeking experience, migration intentions and labour movement decision-making process. This pilot interview study is part of researcher's doctoral degree dissertation, and this doctoral research is expected to be finished by September of 2019. If you are interested in participating in this interview study then you will be asked to complete the consent form.

Are there any benefits in my taking part?

You might not get any direct benefit for participating in this pilot study but it is hoped that your voluntary participation of this interview will benefit in developing the researcher's skills as an interviewer, and help him to identify the time requirement for the formal interview and any contentious issues that might arise through the pilot interview. You are not expected to travel or make

any other activities that need payment, therefore, there will be no reimbursements. In addition, no incentive (e.g. gift vouchers) will be provided for participation in the study.

Are there any risks involved?

There will be only very small risk involved when you participate in this pilot study. The researcher has put into place a number of procedures to minimise these risks. You will be asked to choose a public location where you feel safe and comfortable. No sensitive questions will be asked, however, if you have any distress or discomfort during the pilot study itself, please notice the researcher, and he will offer to cease the interview and signpost you some support services. Interview will be audio recorded (only with your permission), but all electronic data will be kept secure on the university computer which will be protected by a password in order to access. No one will be able to access the data except for the researcher.

What data will be collected?

The data will be collected are qualitative interview data. More specifically, it is information about your study abroad experience, job-seeking experience, migration intentions and labour movement decision-making process. It also includes some of your personal information, such as age and location of employment. All the interview participants will be mainland China domiciled graduates who have received postgraduate degrees from the University of Southampton and are currently working in the University of Southampton as well. The purpose of collecting these data is to help researcher develop his interview skills and to consider the time requirement of formal interview and to identify any contentious issues that might arise through the interview. Researcher will ask participants' agreement if they would like the interview to be recorded, and the purpose of recording is to help the researcher transcribe interview conversation. The recording then will be destroyed after transcription. The pilot interview is semi-structured and questions guided. The researcher, Meng Zhan, will be the only person who collects interview data. No database or third party will be involved in this study.

This study will be compliant with the Data Protection Act/University Policy. Although this study will collect personal data, it will not report any information from which you can be uniquely identified. Your name will be replaced by pseudonym and other special personal data that might compromise your anonymity and confidentiality will not be reported or used. In addition, key-coding might be used to reduce the risk of identification, and the researcher will be the only person who has the access to codes.

Only the researcher will have the access to pilot interview data. All data will be stored on a password protected university computer, accessed only by the researcher. Your consent form will be stored in a university lockable cabinet that will only be accessed by the researcher, and it will be kept separate from non-identifiable data. Your contact details will be stored in a separate file on a password protected university computer, which will only be accessed by the researcher. They will be deleted and destroyed by the researcher once the pilot interview is finished.

Will my participation be confidential?

Your participation and the information I collect about you during the course of the research will be kept strictly confidential. Only the researcher has the access to data about you.

This pilot study will be compliant with the Data Protection Act/University Policy. All interview data will be held in electronic format. The data will be encrypted and stored on a password protected university computer, accessed only by the researcher. Your consent form will be stored in a university lockable cabinet that will only be accessed by the researcher, and it will be kept separate from non-identifiable data. Audio recording will only be stored on a password protected university computer accessed only by the researcher before being transcribed. After it has been transcribed, it will be destroyed from the computer. If your data will be reported in the thesis, your name will be replaced by pseudonym. All information will be treated as anonymous and confidential, and you will not be identified through your responses.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, please contact the researcher via email at M.Zhan@soton.ac.uk. The researcher will send you a short induction about this pilot study and arrange the interview with you via email. You will need to sign a consent form to show you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time within a month after you completed the pilot interview without giving a reason and without your participant rights being affected. If you do decide to withdraw then please inform the researcher at M.Zhan@soton.ac.uk as soon as possible, and he will facilitate your withdrawal and discuss with you how you would like your data to be treated.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports will not include information that can directly identify you without your specific consent. The main purpose of conducting the pilot interview is to develop the researcher's interview skills, to identify the time requirement of the formal interview, and also to consider any contentious issues that arise through the pilot. The project will be written up as doctoral degree thesis. If you would like to receive a copy of the results, please contact the researcher at M.Zhan@soton.ac.uk.

Data sharing could promote research, enable data citation as well as publication, and facilitate follow-on funding. At the end of the study, the data would be deposited in ePrints Soton as anonymised transcripts for long-term storage. All other copies of data in any other devices or cloud drives will be deleted after research finished. Personal data will be deleted and no longer accessible. Research data will be anonymised and cannot be traced back to an individual. You can no longer be singled out from the research data. According to the University of Southampton Research Data Management Policy,

this dataset would be held in ePrint Soton for a minimum of 10 years. The data will only be used for academic purposes.

The researcher will consult the University of Southampton's Research Data Management Policy regularly, and he will strictly abide by it all the time before, during and after my data analysis. You can contact the researcher Meng Zhan (Education School, University Of Southampton) via email at M.Zhan@soton.ac.uk. If you have a complaint about any aspect of this pilot study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Where can I get more information?

If you have any questions about this pilot study, you may contact the researcher via email at M.Zhan@soton.ac.uk.

What happens if there is a problem?

If you have a concern about any aspect of this pilot study, you should speak to the researcher who will do his best to answer your questions via email at M.Zhan@soton.ac.uk.

If you remain unhappy or have a complaint about any aspect of this pilot study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying

a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights - such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you.

Thank you for taking the time to read the information sheet and considering taking part in the research.

Interview Participant Information Sheet

Study Title: The study-to-work transition of Chinese international students: navigating a future in the global labour market.

Researcher: Meng Zhan

ERGO number: 45202

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy to participate you will be asked to sign a consent form.

What is the research about?

I am a postgraduate research student in the University of Southampton. This study forms part of my doctoral degree dissertation. The purpose of this study is to explore the how Chinese postgraduate leavers interacted with the social, cultural, economic and political environment in the UK context and how they eventually made their migration decision. This interview is semi-structured, and the questions will be asked are:

1. Why do you choose to study in the UK? What was your career plan when you first arrived in the UK?
2. Have your career plan or migration intention changed during your programme of study?
3. What efforts have you made in achieving (or trying to achieve) your career goal during your programme of study?
4. What is your current location of employment? Why did you choose to work there?

Why have I been asked to participate?

You have been invited to take part as you have received Masters or Doctoral degree from the University of Southampton and are currently in employment. Your voluntary participation will be highly valuable as it will help the researcher to get a better understanding in relation to how Chinese postgraduate students make their labour migration decisions. About 30 participants will be in this study. Your voluntary participation in this study is greatly appreciated.

What will happen to me if I take part?

This study will be undertook as a mixture of face-to-face, video call and telephone interview, which depends on your location, preference and availability. You can choose your preferred time and location to have the interview. It is not expected that your lifestyle will be affected by this study. The time requirement of the interview will based upon the result of initial pilot interview, but it is expected that it will not last more than one hour. You will not be contacted again. The interview may will be audio recorded, but this is optional and will only happen under your permission. The only purpose of audio recording is to help researcher transcribe the interview conversation. Audio record will only be stored in a password protected university desktop, and only the researcher has the access. The interview will be questions guided, exploring your study abroad experience, job-seeking experience, migration intentions and labour movement decision-making process. This interview study is part of researcher's doctoral degree dissertation, and this doctoral research is expected to be finished by September of 2019. If you are interested in participating in this interview study then you will be asked to complete the consent form.

Are there any benefits in my taking part?

You might not get any direct benefit for participating in this study but it is hoped that your voluntary participation of this interview will benefit the researcher and the academia to obtain a better understanding of the labour movement of Chinese postgraduate leavers who finished degrees in UK

higher education institutions. You could also ask for a summary of the findings of this study by contacting the researcher at M.Zhan@soton.ac.uk. You are not expected to make phone calls, to travel or make any other activities that need payment, therefore, there will be no reimbursements. In addition, no incentive (e.g. gift vouchers) will be provided for participation in the study.

Are there any risks involved?

There will be only very small risk involved when you participate in this study. The researcher has put into place a number of procedures to minimise these risks. You will be asked to choose a location where you feel safe and comfortable. No sensitive questions will be asked, however, if you have any distress or discomfort during the study itself, please notice the researcher, and he will offer to cease the interview and signpost you some support services. Interview will be audio recorded (only with your permission), but all electronic data will be kept secure on the university computer which will be protected by a password in order to access. No one will be able to access the data except for the researcher. As this study forms part of the researcher's doctoral degree dissertation, the data will be reported in his thesis. However, your name will be replaced by pseudonym. The data will be collected will be only used for academic purposes.

What data will be collected?

The data will be collected are qualitative interview data. More specifically, it is information about your study abroad experience, job-seeking experience, migration intentions and labour movement decision-making process. It also includes some of your personal information, such as age and location of employment. All the interview participants will be Chinese postgraduate leavers who received degree from the University Of Southampton. The purpose of collecting these data is to help researcher understand the labour movement and migration decision-making process of Chinese postgraduate leavers. Researcher will ask participants' agreement if they would like the interview to be recorded, and the purpose of recording is to help the researcher transcribe interview conversation. The recording then will be destroyed after transcription. The interview is semi-structured and questions

guided. The researcher, Meng Zhan, will be the only person who collects interview data. No database or third party will be involved in this study.

This study will be compliant with the Data Protection Act/University Policy. Although this study will collect personal data, it will not report any information from which you can be uniquely identified. Your name will be replaced by pseudonym and other special personal data that might compromise your anonymity and confidentiality will not be reported or used. In addition, key-coding might be used to reduce the risk of identification, and the researcher will be the only person who has the access to codes.

Only the researcher will have the access to interview data. All data will be stored on a password protected university computer, accessed only by the researcher. Your consent form will be stored in a university lockable cabinet that will only be accessed by the researcher, and it will be kept separate from non-identifiable data. Your contact details will be stored in a separate file on a password protected university computer, which will only be accessed by the researcher. They will be deleted and destroyed by the researcher once the interview is finished.

Will my participation be confidential?

Your participation and the information I collect about you during the course of the research will be kept strictly confidential. Only the researcher has the access to data about you.

This study will be compliant with the Data Protection Act/University Policy. All interview data will be held in electronic format. The data will be encrypted and stored on a password protected university computer, accessed only by the researcher. Your consent form will be stored in a university lockable cabinet that will only be accessed by the researcher, and it will be kept separate from non-identifiable data. Audio recording will only be stored on a password protected university computer accessed only by the researcher before being transcribed. After it has been transcribed, it will be destroyed from the computer. If your data will be reported in the thesis, your name will be replaced by pseudonym. All

information will be treated as anonymous and confidential, and you will not be identified through your responses.

Do I have to take part?

No, it is entirely up to you to decide whether or not to take part. If you decide you want to take part, please contact the researcher via email at M.Zhan@soton.ac.uk. The researcher will send you a short induction about this study and arrange the interview with you via email. You will need to sign a consent form to show you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time within a month after you completed the interview without giving a reason and without your participant rights being affected. If you do decide to withdraw then please inform the researcher at M.Zhan@soton.ac.uk as soon as possible, and he will facilitate your withdrawal and discuss with you how you would like your data to be treated.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports will not include information that can directly identify you without your specific consent. The project will be written up as doctoral degree thesis. If you would like to receive a copy of the results, please contact the researcher at M.Zhan@soton.ac.uk.

Data sharing could promote research, enable data citation as well as publication, and facilitate follow-on funding. At the end of the study, the data would be deposited in ePrints Soton as anonymised transcripts for long-term storage. All other copies of data in any other devices or cloud drives will be deleted after research finished. Personal data will be deleted and no longer accessible. Research data will be anonymised and cannot be traced back to an individual. You can no longer be singled out from the research data. According to the University of Southampton Research Data Management Policy,

this dataset would be held in ePrint Soton for a minimum of 10 years. The data will only be used for academic purposes.

The researcher will consult the University of Southampton's Research Data Management Policy regularly, and he will strictly abide by it all the time before, during and after my data analysis. You can contact the researcher Meng Zhan (Education School, University of Southampton) via email at M.Zhan@soton.ac.uk. If you have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Where can I get more information?

If you have any questions about this study, you may contact the researcher via email at M.Zhan@soton.ac.uk.

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researcher who will do his best to answer your questions via email at M.Zhan@soton.ac.uk.

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying

a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

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Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.

For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights - such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you.

Thank you for taking the time to read the information sheet and considering taking part in the research.

APPENDIX G CONSENT FORMS

PILOT INTERVIEW CONSENT FORM

Study title: The study-to-work transition of Chinese international students: navigating a future in the global labour market.

Researcher name: Meng Zhan
ERGO number: 45202

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (*29/08/2018 /version no. 2 of pilot interview participant information sheet*) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw *at any time within a month after I completed the interview* for any reason without my participation rights being affected.	
I understand that taking part in the study involves audio recording which will be transcribed and then destroyed for the purposes set out in the participation information sheet.	
I understand that I may be quoted directly in reports of the research but that my name will not be used.	
I understand that I will not be directly identified in any reports of the research.	
I understand that information collected about me during my participation in this study will be stored on a password protected computer.	

Name of participant (print name) …… ……

Signature of participant……

Date…..……

Name of researcher (print name) …… ……

Signature of researcher …….

Date…….

CONSENT FORM

Study title: The study-to-work transition of Chinese international students: navigating a future in the global labour market.

Researcher name: Meng Zhan
ERGO number: 45202

Please initial the box(es) if you agree with the statement(s):

I have read and understood the information sheet (*03/08/2018 /version no. 1 of interview participant information sheet*) and have had the opportunity to ask questions about the study.	
I agree to take part in this research project and agree for my data to be used for the purpose of this study.	
I understand my participation is voluntary and I may withdraw *at any time within a month after I completed the interview* for any reason without my participation rights being affected.	
I understand that taking part in the study involves audio recording which will be transcribed and then destroyed for the purposes set out in the participation information sheet.	
I understand that I may be quoted directly in reports of the research but that my name will not be used.	
I understand that I will not be directly identified in any reports of the research.	
I understand that information collected about me during my participation in this study will be stored on a password protected computer.	

Name of participant (print name) ……

Signature of participant……

Date……

Name of researcher (print name) ……

Signature of researcher ……

Date……

APPENDIX H ETHICS FORM

This version updated December 2013

SSEGM ETHICS SUB-COMMITTEE APPLICATION FORM

Please note:

- ***You must not begin data collection for your study until ethical approval has been obtained.***
- ***It is your responsibility to follow the University of Southampton's Ethics Policy and any relevant academic or professional guidelines in the conduct of your study. This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.***
- ***It is also your responsibility to provide full and accurate information in completing this form.***

1. Name(s): Meng Zhan

2. Current Position Postgraduate research student

3. Contact Details:

Division/School Education School

Email M.Zhan@soton.ac.uk

Phone 07562846507

4. Is your study being conducted as part of an education qualification?

Yes ☒ **No** ☐

5. If Yes, please give the name of your supervisor

Professor Martin Dyke; Dr Chris Downey

6. Title of your project:

Navigating future in the era of globalisation: a critical realistic analysis of factors shaping Chinese international student mobility

7. Briefly describe the rationale, study aims and the relevant research questions of your study

In order to win the 'war for talent' and maintain their leading positions in the knowledge-based economy, it is crucial for nations and organisations to attract and retain creative talents from all over the world. However, there is only very limited research about the labour mobility of international postgraduate students who go on to be highly skilled labours in the UK context. The focus of this research would be on Chinese postgraduate students as China is the largest sourcing country of international students in the UK higher education market. This study intends to explore the how Chinese postgraduate students interacted with the social, cultural, economic and political environment in the UK context and eventually made their labour migration decision.

Research questions:

1. Why did Chinese postgraduate students choose to study in the UK? What were their career plans when their first arrived in the UK?
2. Has their career plan or migration intention changed during their programme of study?
3. What efforts have Chinese postgraduate students made in achieving (or trying to achieve) their career goals during their programme of study?
4. What is their current location of employment? Why did they choose to work there?

8. Describe the design of your study

This study uses an interpretivist approach.

Five participants will be recruited from posters to participate in the pilot study. Pilot study provides the researcher an opportunity to develop interview skills, to consider the time requirement of the formal interview and to identify any contentious issues that arise through the interview questions. After the pilot study, the researcher will contact those participants who indicate their interests to take part in the interview study and arrange the interview with them. Semi-structured interview aims to understand the connection between Chinese postgraduate leavers' decisions to study abroad and their perspectives on continuing their career in the UK after graduation. It explores Chinese postgraduate leavers' migration intention, career plan, and the efforts they have made in achieving their goals before graduation as well as why they chose their current jobs and location of employment. The questions will mainly focus on their personal experience about studying abroad, how they interacted with social-economic structural factors, and their decision-making process in choosing their location of employment. It is estimated that the interview will not last more than 1 hour and will be audio recorded (only with interviewee's permission).

9. Who are the research participants?

All the Chinese domiciled (mainland China) postgraduate leavers graduated from the University of Southampton will be invited to participate voluntarily in this study. The sample size of pilot study will be 5, and 15 to 30 leavers will be selected to participate in the semi-structured interview. These Chinese domiciled graduates all have received master's degree or Doctoral degree from the University of Southampton and will all be in full-time/part-time employment.

10. If you are going to analyse secondary data, from where are you obtaining it?

No secondary data will be used in this study.

11. If you are collecting primary data, how will you identify and approach the participants to recruit them to your study?

The pilot study interview participants will be recruited from poster. The researcher will hang the recruitment posters (please see attachment for the poster) on the bulletin boards at each faculty's corridor. Targeted pilot interviewees would be mainland China domiciled graduates who have received postgraduate degrees from the University of Southampton and are currently working in the University of Southampton as well.

The interview study participants will be recruited from social media post. The social media tool will be used by this study is WeChat. As the most popular social media platform in mainland China, WeChat is being used by almost 90% of population in China. The Chinese Students & Scholars Association (CSSA) of the University of Southampton operates an official WeChat account. The researcher will contact the CSSA and ask them to publish a recruitment post (please see attachment for the post), and the recruitment post will clearly specify the requirement of this study.

Prospective participants who are interested in participating in this research will be asked to contact researcher at M.Zhan@soton.ac.uk. Researcher will then contact those who have indicated their interest in participating this study and arrange interview with them. All participants will also be given clear guidelines in the Participation Information Sheet.

12. Will participants be taking part in your study without their knowledge and consent at the time (e.g. covert observation of people)? If yes, please explain why this is necessary.

No, all participants will be informed in advance regarding the nature of this study and what pilot interview study or interview study will involve when they are recruited. No covert methods will be used in this study.

13. If you answered 'no' to question 12, how will you obtain the consent of participants?

Participant information sheet and consent form will be sent to all interview participants. For both pilot interview study and interview study, each participant will be briefly regarding the nature of the study and what the research will involve when they are recruited. Then they will be given a participant information sheet providing the aim of each interview study and an explanation of what involvement would mean for them. If they agree to participate, they will be asked to sign a consent form before the interview begins. Finally, in the opening minutes of the study they will also be asked to give their verbal consent.

14. Is there any reason to believe participants may not be able to give full informed consent? If yes, what steps do you propose to take to safeguard their interests?

No, all participants will be asked to sign a consent form before they take part in this study.

15. If participants are under the responsibility or care of others (such as parents/carers, teachers or medical staff) what plans do you have to obtain permission to approach the participants to take part in the study?

No participants will be under the care of others.

16. Describe what participation in your study will involve for study participants. Please attach copies of any questionnaires and/or interview schedules and/or observation topic list to be used

For pilot interview study, prospective participants who saw recruitment posters on the bulletin boards will need to send email to researcher at M.Zhan@soton.ac.uk to indicate their interest in join the study. Then, researcher will select 5 respondents for pilot interviews. The aim of this pilot is to provide

the researcher with an opportunity to develop his skills as an interviewer, to consider the time requirements of the formal interview, and to identify any contentious issues that arise through the pilot study.

For the formal interview, 15 to 30 participants will be recruited from the social media posts by indicating their interest in take part in interview study. The researcher will contact them to ask if they would still like to participate and then arrange time for interview. It is estimated that there will be 15 to 30 interviews conducted through face-to-face, video calls or telephone in order to accommodate a range of geographic locations and time constraints. It is estimated the interview will not last more than 1 hour. In addition, the interview will be audio recorded (only with participant's permission) and ask participants to sign the consent form before the interview starts.

17. How will you make it clear to participants that they may withdraw consent to participate at any point during the research without penalty?

First, all the participants in this study will not be forced to participate. Before conducting the interviews, permission will be asked from all participants. Also, participants will have the right to do not participate in the study if they change their mind. Participants will also need to sign a consent form during which they will be informed clearly that they are able to quit the study at any time they want. Clear notice will be provided in participant information sheet that if participants have any concerns, they could discuss with the researcher. After participants have completed the interview, they could still withdraw their data within a month by contacting the researcher at M.Zhan@soton.ac.uk, and the researcher will facilitate their withdrawal and discuss how they would like their data to be treated. They will also be informed more than once that no penalty will apply to them if they choose to withdraw consent.

The detailed information about these issues will be offered to participants by information sheet and consent form.

18. Detail any possible distress, discomfort, inconvenience or other adverse effects the participants may experience, including after the study, and you will deal with this.

It is not anticipated that this study will cause any distress, discomfort, inconvenience or other adverse effects for participants. The only issue might arise is the time difference, as some participants might work and live in other countries.

In order to deal with possible adverse effects, first, all the participants will be contacted before interviews, and each participant would be able to choose his/her preferred time and location to have the interview. Second, during the process of the interview, participants could suspend at any time to take a break. In addition, when noticing participants show any signs of discomfort, they will be asked what is going wrong and whether do they want to stop the interview. Some interview skills will also be applied to make the interview process as smooth as possible. What is more, participants will be informed several times that information will keep confidential during and after the interview.

In addition, the interview questions will be piloted before interview study. Therefore, the researcher will identify any contentious issues that arise from the interview questions and discuss the issues with supervisor.

19. How will you maintain participant anonymity and confidentiality in collecting, analysing and writing up your data?

This study will be compliant with the Data Protection Act/University Policy. Only the researcher will have the access to any identifiable information, all data will be stored on a password protected university computer, accessed only by the researcher. Researcher will ask participants' agreement if they would like the interview to be recorded. Their responses may be quoted directly in the thesis, but participants' names will be replaced by pseudonym and other personal information that might compromise their anonymity will not be reported or used. In addition, key-coding might be used to reduce the risk of identification, and only the researcher can access the codes. All the electronic data will be kept secure on the university computer which will be protected by a password in order to access. No one will be able to access the data except for the researcher.

20. How will you store your data securely during and after the study?

The dataset would be stored in 'My document' file in my university desktop before and during the analysis. iSolutions provides secure storage for active research data. The data stored within this facility is regularly backed up and a copy of the back-up, regularly offsited to a secure location for disaster recovery purposes.

At the end of the study, the data would be deposited in ePrints Soton for long-term storage. All other copies in any other devices or cloud drives would be deleted, and any hard copies of the data would

be destroyed after my research. According to the University of Southampton Research Data Management Policy, this dataset would be held in ePrint Soton for a minimum of 10 years.

I will consult the University of Southampton's Research Data Management Policy regularly, and I will strictly abide by it all the time before, during and after my data analysis.

21. Describe any plans you have for feeding back the findings of the study to participants.

All participants will have the opportunities to ask for a summary of findings of this study by contacting the researcher at M.Zhan@soton.ac.uk, and it will be delivered through email directly to the participants.

22. What are the main ethical issues raised by your research and how do you intend to manage these?

The main ethical issue in this study would be trust between researcher and interviewees. This research requires Chinese postgraduate leavers to share their study experience, job-searching experience as well as the information of their current employment. Some participants might be reluctant to share their real migration intentions, and some others might exaggerate or understate their efforts in searching job opportunities.

In order to deal with these issues, first, it is important to build trust with participants to get real information. Second, researcher will remind participants serval times that this study is governed by the University of Southampton policy, and under no circumstance their personal data will be acquired by any other people. Third, this study will not make any judgements on their intentions, thoughts and actions. Fourth, data will be anonymous and no other people will be able to identify them and their personal information. In addition, all the electronic data will be kept secure on the university computer which will be protected by a password in order to access. No one will be able to access the data except for the researcher.

All this information would be given in the interview participant information sheet, and will also acquire their verbal consent before interviews starts.

23. Please outline any other information you feel may be relevant to this submission.

No.

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