Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to Greater Manchester

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Abstract

The understanding of graduate migration is limited mainly to international or interregional flows in the UK, and not much is known about the patterns and drivers of graduate migration at the local level. This thesis uses Greater Manchester in the North West of England as the site for a mixed-methods study that investigates graduate migration in a city context. The research design combines the econometric modelling of microdata provided by the Higher Education Statistical Authority (HESA) with the analysis of primary survey and interview data, whilst also offering a new conceptualisation of Richard Florida's theory of place quality.

This thesis represents the first study to use HESA data to model graduate migration on a local level using binomial and multinomial logistic regression. The findings demonstrate that patterns of graduate retention in Greater Manchester reflect existing hierarchies and inequalities related to geography, gender, ethnicity, socioeconomic status, and employment. This thesis also offers a new conceptualisation of Florida's place quality theory by relating locational choice to social structures and subjectivities. The survey and interview findings contribute additional evidence that graduate decision making is more complex than Human Capital Theory would suggest, and decisions about where to live and work after leaving university are linked to place attachment, identity, constraints, and subjectivities.

Finally, it is argued that the study of graduate migration suffers from being under-conceptualised and under-theorised, and this thesis will bring greater clarity to the issue by making linkages between higher education, human capital, migration, and local economic development. After having brought greater conceptual clarity, this thesis offers a new analytic process to model graduate retention within cities. This thesis will argue that how we measure graduate retention has important policy implications, and policymakers should consider a mix of metrics when developing graduate retention targets for cities.

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I view this thesis primarily as a work about ideas and how we can make sense of complex social phenomena. As such, the ideas contained in these pages are the product of a well-rounded education in diverse fields and disciplines. I would like to thank my parents and grandparents for surrounding me with books as a child, without which a curious mind would have had nowhere to go. I would also like to thank Professor George S Day of the Wharton School, whose ideas related to education and innovation inspired me to investigate the relationship between higher education and economic development. I would like to thank Dr Stephen P Steinberg of the University of Pennsylvania, whose courses on the philosophy of nationalism and the philosophy of the mind provided this work with its philosophical foundations. I would like to thank Dr Helen Carasso of the University of Oxford for providing me with an introduction to higher education as a discipline of social science. I would like to thank Alison McGrath Peirce for her friendship and mentorship over the years, which has provided me with great comfort in the sometimes-solitary life of a PhD student. I would like to thank Michael Tomasetti for his friendship and for taking in a wild terrier, a selfless act which has allowed me to move to England with a clear conscience.

I would like to dedicate this thesis to the memory of my late mother, who, had she have lived to read this work, would probably tell me that I always had the makings of a scholar.

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Tables and Figures

Abbreviations

BiS	The Department for Business Innovation and Skills
BLR	Binary Logistic Regression
CES	Conference of European Statisticians
CfC	Centre for Cities
CIPD	Chartered Institute of Personnel and Development
DLHE	Destinations of Leavers in Higher Education survey
GDP	Gross Domestic Product
GM	Greater Manchester
GMCA	Greater Manchester Combined Authority
GMIPR	Greater Manchester Independent Prosperity Review
Go-Science	The Government Office for Science
HCT	Human Capital Theory
HE	Higher Education
HECSU	The Higher Education Careers Services Unit
HEFCE	Higher Education Funding Council for England
HEI(s)	Higher education institution(s)
HESA	The Higher Education Statistical Authority
IOM	The International Organization for Migration
KW	The Kruskal–Wallis test
LFS	Labour Force Survey
MIER	Manchester Independent Economic Review
MLR	Multinomial Logistic Regression
MMR	Mixed methods research
MMU	The Manchester Metropolitan University
MW	The Mann-Whitney U test
NSS	National Student Survey
NVQ	National Vocational Qualification
NW	North West England
OECD	The Organisation for Economic Co-operation and Development
OfS	The Office for Students
ONS	The Office for National Statistics
POLAR	Participation of local areas
R&D	Research and development
REF	Research Excellence Framework
RNCM	The Royal Northern College of Music
SIC	Standard Industrial Classification
SMC	The Social Mobility Commission
SOC	Standard Occupational Classification
STEM	Science, technology, engineering and mathematics
TEF	Teaching Excellence and Student Outcomes Framework
UK	United Kingdom
UN	United Nations
UNECE	United Nations Economic Commission for Europe

Must We All Live in Southeast England?... What are the priority requirements of key and other workers? It may be access to the theatre…but it more likely to be good shopping facilities, high quality housing, easy access to London, Manchester or Edinburgh…It is time that a little more began to be known about what it is that people want, or think they want in life. If we allow that individual preferences exist and can have some effect upon the location patterns of employment and population… One of the more effective means of preventing the further concentration of population in one area may be systematically to ensure that the northeast of England, Scotland and other regions are equipped with the facilities which will make them attractive places in which to live.

Michael Chisholm, *Must We All Live in Southeast England?* (1964, p. 12)

1. Introduction

This dissertation focuses on a classical question, clearly articulated by Chisholm in 1964, about what drives the attraction and retention of highly skilled and educated workers to cities. A long tradition, going back at least to Alfred Marshall (1890) at the height of the industrial revolution, sees urban economic growth as an outcome of firms, people, and ideas being located near to one another. Although the benefits of agglomeration economies have formed the basis for many of the local and regional development policies in the United Kingdom (UK) (R. Martin et al., 2016; Swords, 2013), the UK remains a spatially divided country today, much as it was in the time of Marshall and Chisholm. The UK is, in fact, the most spatially unequal country in the OECD (McCann, 2020), and various policy initiatives like the Northern Powerhouse and Devolution are part of a larger goal of 'levelling up' the divergent economic performance of cities like Greater Manchester in the North of England with London and the South East. The levelling up agenda has an important human capital dimension, and both the recent UK Industrial Strategy (HM Government, 2017) and findings from the Social Mobility Commission (Buzzeo et al., 2020) highlight the role of attracting and retaining university graduates to the long-term success of cities. University graduates are also a primary focus of most empirical studies of human capital (Holland et al., 2013), but as Storper and Scott (2009) admit, the relationship between economic development and the spatial movement of people in and out of cities remains one of the most complex problems of contemporary social science.

The study of graduate migration in a UK context has generally been approached by modelling inter-regional or national flows of graduates (Faggian & McCann, 2009; Hoare & Corver, 2010; Kidd et al., 2017), but few studies have examined graduate migration at the scale of a single UK city. Therefore, there is a tremendous opportunity to learn more about the patterns of migration in and out of UK cities, as well as exploring whether these patterns differ between groups according to gender, ethnicity, socioeconomic status, higher education characteristics, and employment outcomes. There has also been increased interest in the sociology of graduate migration from scholars interested in international movements (Brooks & Waters, 2018) and local movements (Finn & Holton, 2019), but there are few studies that seek to understand what graduates want– or think they want in the words of Chisholm – in terms of UK places and spaces. Ultimately, this thesis is concerned with understanding the link between migration, higher education, local economic development, and subjectivities. Put quite simply, this thesis investigates the attraction and retention of graduates in Greater Manchester (GM).

1.1 Research aims, design, and contributions

The overall aim of this thesis is to investigate the patterns and drivers of graduate retention in Greater Manchester. The research objectives that fall under this overarching aim are:

- To develop an understanding of the theoretical and conceptual linkages between higher education, human capital, migration, and local economic development
- To assess different measures for graduate retention, specifically as they relate to both places and people
- To determine whether Greater Manchester's universities have different relative impacts on local stocks of human capital
- To examine the characteristics of graduate retention and patterns of graduate migration in relation to Greater Manchester
- To explore the subjective understandings of graduate retention and onward migration in a local context

In light of these aims and objectives, this thesis seeks to answer three principal research questions:

1. Who stays in GM after their undergraduate studies?
2. What factors influence the retention of graduates from local universities beyond the obvious reasons of work and why?
3. How is GM viewed by students studying there and what impact do these perceptions have on decisions about where to live and work?

The reader should note that the first question is a question of fact that can largely be answered mathematically, but the last two questions can only be answered by making inferences from multiple sources of data that capture the characteristics, tastes, and preferences of students and graduates. If we think of cities as goods that people consume, then we can use the economics of demand to understand the attraction and retention of graduates to cities. This thesis will do just that by analysing the flows of graduates using econometrics. However, if we concede that the demand for cities is also affected by tastes, preferences, fads, culture, beliefs, and constraints, then we must find other ways of knowing the phenomenon. Economics has little to say about the forces that influence consumers' tastes and preferences relative to disciplines like marketing, psychology, or even sociology (Krugman & Wells, 2018). Therefore, the approach taken by this thesis is to combine the econometric modelling of graduate retention and onward migration with other ways of knowing the phenomenon. Therefore, an eclectic approach is taken to answer these questions, which is a consequence of both the complexity of the phenomenon and as a consequence of using a mixed-methods research design.

In the language of mixed methods research employed by Creswell and Clark (2007), this work uses an explanatory design that is characterised by two sequential phases. Phase 1 examines the movements of graduates from the universities in GM over the five-year period of 2012/13-2017/18, which is done by the econometric modelling of microdata provided by the Higher Education Statistical Authority (HESA). GM makes for an interesting research location because it has four universities that are indicative of the broader UK higher education (HE) landscape: the elite Russell Group (The University of Manchester), the plate-glass universities founded in the 1960s after the Robins Report (The University of Salford), and the post-92 universities (The University of Bolton and Manchester Metropolitan University). It will also be argued that understanding which graduates leave GM is equally as important for answering these questions as which graduates stay on after university. So, there is a need to evaluate both 'stayers' and 'leavers' to arrive at a more complete picture of graduate retention. GM is also the third-largest metropolitan area in England by population after Greater London and the West Midlands conurbation, whilst also being a location that has long been discussed

in terms of the North/South divide (D. Massey, 1995). As a representative of the Northern urban experience, GM is a key party to the levelling up, devolution, and Northern Powerhouse initiatives mentioned previously. Finally, GM represents an interesting case study because of its unique story of being the world's first industrial city that underwent painful deindustrialisation in the twentieth century only to have a resurgence in the first quarter of the twentieth-first century. As a now growing and vibrant city, the role of its universities and graduates in its economic fortunes deserves scholarly inquiry.

Phase 1 of the research design will explore whether retention rates and overall mobility rates differ according to geography, higher education characteristics, gender, ethnicity, socioeconomic status, employment outcomes, along with other important variables. As an explanatory study in the language of MMR, Phase 2 of the research design is meant to help *explain* the quantitative results that emerge in Phase 1. This explanation is accomplished by a questionnaire survey and interviews of current students of GM's four universities, with the intent of uncovering attitudes toward mobility, perceptions of place, and subjective meanings. Both phases of this study are concerned only with the retention and migration characteristics of home students who stay within the UK (and the Crown dependencies), which is to say this is a study of *inter-regional* migration and not *international* migration. Therefore, international students are not included in the scope of this thesis, nor are the international destination of home students

This thesis will offer the following main contributions to knowledge, theory, and policy. First, this work represents one of the first city-level analyses of graduate migration using HESA microdata, and this claim to originality will be made more evident in the literature review chapter. In addition to the novelty of the scalar aspect (focusing on the urban), the calculation of marginal effects in the HESA data analysis represents an innovation in its own right by bringing the latest methodological techniques for logit models (Karlson et al., 2012; Mize, 2019) to the study of graduate migration. It will be argued that another original contribution to knowledge comes from bringing greater conceptual clarity to the study of graduate migration by offering definitions for many of the key concepts and related to the phenomenon, particularly in a city context. Although graduate migration is becoming a better-known topic, it has been less investigated and treated in a systematic way than other areas of migration and mobility studies (Brooks & Waters, 2018; Corcoran & Faggian, 2017a). The conceptual contribution is furthered by offering a framework for graduate migration that links flows of students to both the local higher education landscape and their impact on local economic development, which draws inspiration from work done by Findlay et al. (2012) on international student mobility. These contributions have intrinsic scientific value which will be of interest to scholars of regional science, higher education, geography, and quantitative sociology.

This thesis also represents one of the one of the first studies to use Richard Florida's theory of place quality ([2002] 2014) in the study of UK graduate migration, which represents its main contribution to theory. The use of place quality to help explain decisions about where to live and work follows in the tradition of Darchen and Tremblay's study of student perceptions of place in Montreal and Ottawa (2010) and Wesselmann's (2018) study of student locational choice in Osnabrück. Rather than apply Florida's theory to Greater Manchester without modification, however, this thesis broadens his largely amenities-based conception of place quality to account for some of the weaknesses of the theory mentioned by Peck (2005), whilst also incorporating important findings that have emerged out of the so-called 'mobility turn' in the social sciences. This theoretical contribution will be of interest to scholars broadly interested in place like urbanists, geographers, and marketers.

The main contribution to policy stems from a simple premise: *scale matters.* Much like Doreen Massey's claim that "place matters" (2005) for how we come to understand identity and social relationships, scale matters for how we come to understand graduate migration in a local context. A

key finding of this study is that Greater Manchester's high graduate retention rates – which is a stated policy goal – also reflects the relative immobility of local students from low participation backgrounds. Therefore, there needs to be a complete and radical change in how cities approach the issue of graduate retention since high retention rates may reflect existing hierarchies and inequalities in society.

1.2 Personal motivation

1.2.1 On outer worlds and inner lives

If this project can be distilled into a brief statement, then the essence would be coming to the know the complex phenomenon of graduate migration in all of its multiplicity. I first learned about the topic of migration to cities in a German history class, and the lesson that stuck in my mind had to do with urbanisation in the Late Middle Ages. In German-language classrooms (as my then class was conducted in German), this topic is almost always taught using the rhyming medieval legal dictum of *Stadtluft macht frei nach Jahr und Tag* [city air makes you free after a year and a day], which is usually shortened to simply *Stadtluft macht frei* [city air makes you free]. The conventional explanation of this saying is that artisans, craftsmen, and runaway peasants were attracted to the Free Imperial Cities of the Holy Roman Empire primarily for higher wages, but also to break free from oppressive feudal obligations — obligations which usually bound serfs to the land and to landlords. Since these cities were beyond the reach of any authority other than the Emperor himself, runaway peasants gained their freedom — freedom from bondage — after a *year and a day* of living in the city.

As I struggled with the arcane German terms for serfdom and imperial immediacy, it was apparent to me, however, was that these canonical explanations for migration were deficient – or partial - in some way. Legal and economic explanations simply did not resonate with me at the time, particularly since cities conjured such vivid thoughts in my own teenage mind. Living on the outskirts of a major city myself, I knew that cities represent a freedom of a different kind, one which offers a young person the excitement and culture that suburbia lacked. A bustling metropolis is full of exotic places, faces, tastes and smells, and I suspected then that cities have always held an allure that is visceral, sensual, and subjective.

I imagined those young people fleeing to the cities of the Holy Roman Empire did so with more than vague notions of higher wages and freedom in mind. Surely, those young people must have also craved the excitement of city life, but for whatever reason, these explanations have not been deemed worthy enough to be passed down to generation upon generation of school children. This idea is very much in the spirit of Christopher Isherwood who, when writing about the fun to be had in the fleeting brilliance that was Weimar-era Berlin, "Read about us and marvel! You did not live in our time—be sorry!" (Isherwood, [1976] 2012, p. 194). Since then, I have thought it an injustice to reduce the lives and motives of young people who crave city life to purely economic reasons. However elegantly contrived these explanations are, they remain factitiously partial - and wilfully so.

I am not the first person whose intellectual curiosity about a subject can be traced back to an unsatisfactory history lesson as a child. Isaiah Berlin recounts in his essay of *The Hedgehog and the Fox* ([1953] 1994) how Tolstoy's vivid writing style in his historical works like *War and Peace* stems from his fascination with the everyday lived experiences of the men and women that featured in his childhood history books. Young Tolstoy could only have been disappointed by the scant attention paid to social history by writers in the 19th century, and in later life, he came to the realisation that our received versions of history, or what Berlin refers to as "History, as it is normally written", usually "represents 'political'– public – events as the most important, while spiritual –'inner'– events are largely forgotten" (ibid., p. 447, emphasis in the original). These, political or public events can also be

thought of as the material, the empirically demonstrable, the measurable, and instrumental – terms which will be used throughout this thesis.

Tolstoy, like his contemporary Max Weber, was interested in understanding the inner life of historical subjects. Weber references the works of Tolstoy in the development of his social theories (Ray & Reed, 2002), including his *Methodology of Social Sciences* ([1917] 1949) that features prominently in this dissertation. When discussing Tolstoy's fascination of the inner life, Berlin criticises the tendency of those "blind materialists" who often reduce explanations of events to "the so-called social, economic, political realities" (Berlin, 1994, p. 451), largely forgetting

> the individual experience, the specific relation of individuals to one another, the colours, smells, tastes, sounds and movements, the jealousies, loves, hatreds, passions, the rare flashes of insight, the transforming moments, the ordinary day-to-day succession of private data which constitute all there is – which are reality. (ibid)

The terms of 'outer worlds' and 'inner lives' will be used as a leitmotif throughout this work to give a semblance of cohesion to what might otherwise seem to the reader like a discordant jumble of theories, methods, and research philosophies. A leitmotif is nothing more than a stylistic device in the literary sense of the meaning, but there is a grain of truth in these two categories as well. 'Outer worlds' correspond roughly to the phenomenon that the caricature of a naïve positivist would insist on counting and statistically modelling, whilst the 'inner lives' correspond to subjectivities that are somehow beyond the counting ability of this naïve positivist. According to Berlin, scholars often prefer explanations that fall within narrow disciplinary or theoretical bounds because taking a broader approach sometimes means, quite simply, having to work with much more data. In other words, there are practical issues – both methodological and analytical - arising from combining the quantitative data with the data of lived experience. In the words of Berlin,

> Our ignorance of how things happen is not due to some inherent inaccessibility of the first causes, only to their multiplicity, the smallness of the ultimate units, and inability to see and hear and remember and record and co-ordinate enough of the available material. (ibid., p.460).

In the era of big data and rich data, we might refer to this as an issue of 'analysis paralysis', and Berlin sees scholars taking one of two paths out of this paralysis: the wily way or the fox or the single-minded way of the hedgehog.

1.2.2 On foxes and hedgehogs

In the same essay that meditates on Tolstoy's fascination with 'outer' worlds and 'inner lives', Berlin assigns artists and scholars into two broad groups categories, foxes and hedgehogs, where membership is often based on personal temperament, aesthetics, or matters of conviction. Berlin drew inspiration for these groups from Archilochus's ancient fable where "the fox knows many things, but the hedgehog knows one big thing" (ibid., p. 437). The hedgehog scholar craves unity and clarity above all by relating everything to a central worldview, theory, or universal principle, whereas the fox scholar sees the world as irreducible to a single unity and employs different methods and explanations, which may sometimes be unrelated or even contradictory. Belin is conscious that this is distinction is ultimately a caricature, but it serves here as a useful – and amusing – way to frame the great divide between two scholarly traditions. Therefore, a hedgehog scholar will conduct a study of graduate migration and interpret the results according to some overarching theoretical construct like class conflict or human capital theory. A fox, on the other hand, will conduct a study of graduate migration and attempt to fit the evidence a "sometimes self-contradictory and incomplete, at times fanatical, unitary inner vision." (ibid., p. 436). This explanation might include gender, class, and human

capital theory, but its overall theoretical orientation is weak, and its sources and methods are varied. This thesis is very much the work of a committed fox. For those hedgehogs who prefer theoretical, methodological, and epistemological certainty, reading this thesis may prove to be a deeply frustrating task since this work refuses any single theoretical lens, causal explanation, or method in its quest to better understand graduate migration. For fellow foxes, however, you may find this thesis to be a novel and rigorous approach to explore a complex and timely social phenomenon. Although there is no unifying theory to bring cohesion to this thesis, a work of this magnitude does need some central organising principles to bring coherence to its argumentation and, of course, out of respect to the readers.

Therefore, Berlin's characters of the fox and the hedgehog will also make repeated appearances as playful anthropomorphisms, much like our leitmotif of observable outer worlds and the forgotten inner lives that deserve to see the light of day.

1.3 Conceptual Foundations and working definitions

A thorough understanding of what is meant by 'graduate retention and onward migration' is an essential precondition for this thesis, bearing in mind that the phenomenon is both under-conceptualised and under-theorised (Finn & Holton, 2019). A great deal of the literature review chapter is spent discussing the topic from the perspectives of economics, regional development, geography, and sociology. However, conceptualising the term in the introduction offers an opportunity to begin to use a common vocabulary from the very outset of the thesis. The working definitions offered here are intended to provide conceptual clarity in this particular dissertation, but they also may prove to useful to others working in the field.

The thesis is concerned with the phenomenon of graduate migration within the UK. 'Migration' can be defined as the process of crossing a boundary of any political or administrative unit for a certain minimum period (Boyle et al., 2014). Our focus here is on internal graduate migration rather than international migration and drawing upon the Office for National Statistics' (ONS) definition of internal migration may help. The ONS (2016) defines an 'internal migrant' as "someone who moves home from one geographical area to another. This may be between local authorities, regions or countries within the UK. Unlike with international migration, there is no internationally agreed definition." (p. 3)

Influential academic studies (e.g., Faggian et al., 2007a; Hoare & Corver, 2010) and reports from think tanks and government (e.g., Ball et al., 2015; Office for Science, 2016; Swinney & Williams, 2016) tend to evaluate graduate migration from an inter-regional rather than local perspective. Although authorities disagree about the specific length of time that differentiates migration from other forms of movement or changes in residential addresses, the UN uses 12 months to distinguish between short-term and long-term migration (UN Statistics Division, 1998). In a UK HE context, HESA surveyed UK graduates six months after leaving university to determine their graduate destination until 2018 when it was extended the time period to fifteen months. There is evidence, however, that the HESA metrics might contain a degree of measurement error since the data is collected during a precarious period in the lives of many graduates where they frequently move from one place to another, often between the parental home and independent living arrangements (Finn & Holton, 2019; Sage et al., 2013). However, there is no evidence at this stage that the HESA metrics are more error-prone than other cross-sectional measures of internal migration. Therefore, a definition of a graduate migrant for use in this study is:

> *A graduate migrant* is a university graduate who changes residences from one geographical area to another, i.e., between local authorities, regions or countries within the UK.

By extension, *graduate migration* can be defined as

> The process of changing one's usual residence in conjunction with entering and leaving higher education.

Graduate migration can also be conceptualised according to 'stocks' and 'flows' of graduate migrants, which are both quantitative measures derived from economic and demographic concepts. These graduate stocks and flows are analogues to other stocks and flows used in economics like measures of human capital and wealth. Take measures of national wealth as an example, Gross Domestic Product (GDP) is a *flow* of the value of all final goods that are produced by an entire economy (e.g., measured in pounds sterling per annum), and national wealth is a *stock* measured in the form of pounds sterling, full stop (Dasgupta, 2007). We can adapt the United Nations' definition of 'migrant stock' and 'migrant flow' (IOM, 2016) to develop terms for the study of graduate migration, i.e.,

> *Graduate migrant stock* for statistical purposes is the total number of graduates present in a given geographic unit who have changed their usual residence.

An area's stock of graduate migrants contributes to its total graduate human capital stock (i.e. graduate migrants as well as local graduates), which, in turn, contributes to its overall human capital stock, which can be calculated on any number of geographic scales or administrative units from the national to the local level. For example, the UK national stock of human capital is calculated in line with international standards (see UNECE, 2016) by adding, for every age-gender-highest qualification obtained combination, their discounted lifetime earnings (ONS, 2018). Local authorities tend to approximate human capital stocks by measuring the percentage of the population having post-secondary education as measured by National Vocation Qualification (NVQ) (e.g., NVQ3 and/or NVQ4) (see Bolton Council, 2016; Manchester City Council, 2019). This dissertation, however, is ultimately concerned with modelling *flows* of graduates in and out of GM, which invariably impact the city-region's stocks of human capital, i.e.,

> *Flows of graduates* is a dynamic measure of the number of graduate migrants arriving in or departing from a geographic unit over a specific period of time.

The absolute values of these flows (i.e., 'stayers' or 'leavers') can then be inputted to any of the standard equations in the UN's *Guide on Measuring Human Capital* (UNECE, 2016) to calculate the financial impact of the gain or loss on a city or region. At this stage, however, the definitions offered so far are quantitative in nature and largely do not account for the reasons for migration (i.e., the social context and its constraints) (Bergmann & Jahn, 2008). At this stage of our conceptualisation, migration is simply an observed behaviour, i.e., human movement seemingly devoid of meaning or intentionality. We should, therefore, broaden this definition to captures socially meaningful behaviour like intentions, social interactions, and constraints.

The first research question seeks to understand who stays in Greater Manchester and why, but the answer to this question is inextricably linked to the process of moving to attend a higher education institution (HEI) as well. Graduate migration is often conceptualised according to two distinct, yet related, flows of geographic movements. First, there is a 'home-to-HEI' flow for students leaving home to enter university and, second, there is a 'HEI-to-work' flow for graduates leaving university and entering employment (Hoare & Corver, 2010; V. A. Venhorst, 2012). These flows are the 'outer worlds' that we borrowed from Isaiah Berlin and Leo Tolstoy that can be counted and modelled.

Although both flows have an instrumentalist orientation (i.e., 'moving for university' or 'moving for employment'), this thesis argues that the motivations for migration are also influenced by place, social structures, as well as the tastes, preferences, hopes, dreams, and the personality traits of the students themselves. The term 'inner lives' is being employed to describe these multiplicities. These two flows — home-to-HEI and HEI-to-work — also represent transitions in the life course for most young people when they are undergoing the process of becoming young adults with varying degrees of independence (Findlay et al., 2015; D. P. Smith & Sage, 2014; Whisler et al., 2008). This thesis is

concerned with the entirety of the process that includes movements from home to university and onward to the workplace, but particular emphasis will be placed on the process of students leaving university and transitioning to employment.

It should also be noted that this 'HEI-to-work' flow does not explicitly take into consideration home-grown graduates who study and remain for work in the same area as where they were born, raised and educated. Although these graduates are not migrants *per se,* they do represent an important and sizable part of the graduate workforce, which equates to 38 per cent of the graduate workers in large UK cities like Greater Manchester (Swinney & Williams, 2016). Essentially, these home-grown graduates who stay local also contribute to an area's stock of graduate human capital; yet, they may not be included in migration figures. Therefore, we can develop another definition that captures the full picture of graduate movements in a given area:

> *The attraction and retention of graduates* is a process of attracting non-local graduate migrants to an area and retaining local graduates within an area for purposes of living and working.

The terms 'local' and 'non-local' also require some clarification. 'Local' can mean either "home-grown" students who originate, study, and work in the same geographic area, or 'local' can also mean all students studying at local HEIs, no matter what their origin. This study differentiates the two by referring to the former as 'home-grown graduates', and the latter as 'non-local graduates'. Both types of graduates, however, can be described as 'locally produced' since they attended university in GM. Since this thesis only considers students and graduates form GM's four universities, its emphasis is mainly on graduate *retention* rather than *attraction*. However, since the concepts of attraction and retention are inextricably linked for non-locals (i.e., students from outside Greater Manchester), the forces of attraction do feature prominently as well.

By the very nature of this definition, the 'attraction and retention of graduates' is a place-based metric, which speaks to a recent interest in place-based policies by researchers and organisations like the British Academy (see Hewlett, 2017). The attraction and retention of graduates is the umbrella topic of this dissertation, and its place-based findings will represent some of its most important contributions to our knowledge of graduate migration, while also serving as the basis for recommendations to policymakers.

As the course of this research project unfolded, however, it became apparent that place-based metrics may be useful in addressing the needs of vested interests like local, regional or national policymakers, but these same metrics are often poor ways of understanding the position and experiences of graduates themselves, and who are, ultimately, the subjects of this study. Therefore, there is a desire to refocus this discussion on the graduates themselves while, at the same time, preserving the place-based insights. Therefore, this study also employs a typology of graduate migration flows, which are termed 'graduate migration pathways'. Following the guidance in the methods literature about developing rigorous typologies in the social sciences (K. D. Bailey, 1994; Collier et al., 2012), these migration pathways are both multidimensional as well as conceptual. They are multidimensional because they account for a graduate's geographic origin as well as their post-university destination. The pathways are conceptual because they reflect relative incidences of immobility and mobility for all graduates. If graduate retention rates can be considered a *place-based* metric, then the insights gleaned from these migration pathways can be considered *people-based* insights. Therefore, we will speak of the entirety of the phenomenon being studied here as 'graduate retention and onward migration'.

A final conceptual distinction must be made between residential 'migration' and 'mobility', terms which are often used interchangeably in the literature. Rather than ruminate on the fascinating and nuanced distinction between the two in light of the so-called 'mobility turn' in the social sciences, this dissertation will rely on a working conceptualisation drawn from Findlay et al. (2015). Whereas

'graduate migration' can be thought of in terms of a gazetteer-like counting of figures, places, and movements, 'graduate mobility' is more concerned with social relations, emphasises individuals rather than geography, and is often studied with a cross- or trans-disciplinary orientation. This dissertation is concerned with both migration and mobility, and as a mixed-methods work that is also cross-disciplinary, this thesis is a deliberate attempt at bridging the migration-mobility divide. While the terms 'migration' and 'mobility' are employed interchangeably throughout the thesis, this usage fully acknowledges the contested nature of these terms.

With these concepts and definitions in mind, we can now firmly locate this study in the terrain of graduate migration-mobility. This study measures the flows of graduates in and out of GM, whereby these flows contribute to the city-region's overall stock of human capital. Since we are ultimately concerned with graduates from Greater Manchester's four local higher education institutions (HEIs), it can be described as both a study on graduate *retention* as well as a study on graduate *onward migration*. Insights from both place-based and people-based measures will make contributions to our understanding of the phenomenon, and practical recommendations will be offered to inform policy and practice. The operational definitions offered here are not the end of our conceptualisation of graduate migration. A framework offered at the conclusion of Chapter 2 will demonstrate how graduate migration impacts local economic development.

1.4 The role of the researcher, thesis structure, and COVID notice

1.4.1 The role of the researcher

As an empirical work that uses mixed methods as well as being cross-disciplinary, this thesis does spend time discussing the subtilities of epistemology, methodology, and ideology. The philosophical underpinnings of this work can be summarised as being pragmatic and postpositivist, but the interpretive lens used is broadly humanistic. A humanistic approach is one that, in the words of Tuan, takes "an expansive view of what the human person is and can do…" (1976, p. 266) rather than rely on narrower explanations like class, gender, or wages. Although an approach that emphasises individuality and subjectivity can be criticised as being overly voluntarist by those who favour structural explanations, great care will be taken to reflect on the entrenched social structures and power relations that might impact graduate migration.

A humanistic approach to this study of graduate migration does not deny economic or sociological explanations; rather, it builds on them by also attempting to understand the attitudes, tastes, and preferences of students, and the impact these have on where they plan to live and work. Although this is first and foremost an empirical work of social science, its humanistic approach is also open to philosophical issues related to aesthetics and ethics. This is another way of saying that both the realist-quantitative tradition and the constructivist-qualitative tradition can play a role in explaining the phenomenon of graduate retention and onward migration. However, an empirical work that uses subjective data is not necessarily a member of the postmodern/post-structural family, nor is it necessarily an endorsement of Feyerabend's (1993) 'anything goes' approach. Instead, this thesis will draw upon diverse philosophical perspectives from Hume, Kant, Weber, Husserl, Popper, Berlin, and Tuan; perspectives which are related and complementary. This mixing of Anglo-American and continental philosophical traditions is also part of a spirit of ecumenism that pervades this work, one which is characteristic of contemporary postpositivist approaches to social science research. Stylistically, this thesis bears more similarity with the Anglo-American tradition because of a preference for clear language and rigorous argument, which is due to a personal preference resulting, no doubt, from schooling in formal logic and mathematics. This is a style of writing that is exemplified by Wittgenstein's dictum of "What can be said at all must be said clearly..." (1922, p. 23). Personal

preferences aside, the use of 'ordinary language' is also employed as a deliberate counterpoint to the postmodern preference for the language of metaphor, deconstruction, and obscurantism.

The choice for a humanistic foundation for this work may also be a product of my own background, being an international scholar who is also a product of American, English, and German education. It is certainly plausible that an itinerate academic like myself might also prefer ideas that take a more celebratory view of individualism and mobility, but the value of this work will ultimately be assessed according to the rigour and the weight of the empirical evidence provided, and not according to my demographic profile or life experience. It is conceivable, however, that a researcher with a different background and disposition would have chosen a different ideological basis and theoretical lens for this study. In short, a different scholar would have designed, conducted, analysed, and interpreted a wholly different work. This means to say that all social research is invariably theory-laden and value-laden. Any analysis and interpretation should admit with humility what Popper refers to as our ultimate fallibility, which he explains by quoting Voltaire's definition of tolerance in the *Philosophical Dictionary*, "It is a necessary consequence of our humanity. We are all fallible, and prone to error; let us then pardon each other's folly." (2014, p. 16) Fallible as I am, I am also aware that this work is modest when compared to what is possible. This is due to the constraints of time, the practical difficulties of social science research, and, no doubt, to the limits of my own intellect in coping with the task. I hope that those that come after are able to improve on this attempt.

1.4.2 Covid-19 – looking back and looking forward

This writing of this thesis was finished nearly six months after the Covid-19 pandemic was declared in March 2020, and the primary data collection ended well before the virus first appeared in December 2019. Much of this thesis, however, was written during lockdown in Manchester, England, and it seems appropriate to provide *de rigueur* speculative comments about the impact of the pandemic on cities and graduate migration. Only time will tell whether 2020 marks a great dividing line between an antediluvian world of mobility and some 'new normal' characterised by social distance and working from home. Speaking about cities in general, the leading urbanists Richard Florida, Michael Storper, and Andrés Rodríguez-Pose (Florida et al., 2020) suggest that social scarring caused by lockdowns and social distances will diminish over time, but there will be more durable changes how people work and consume amenities in cities driven by social distancing measures and intermittent lockdowns. They also foresee the centrality of cities in the human experience as being unaffected, but the crisis could accelerate the divergence from large cities of a global consequence like London, New York, and Tokyo from middle-tier cities like Manchester.

Although prognostication by social scientists is always a tricky affair, there is speculation at this stage that the pandemic will have far-reaching implications for both national and regional economies (D. Bailey et al., 2020), as well for governance and devolution in the UK (Kenny & Sheldon, 2020). With any event of this magnitude, it is difficult to distinguish between temporary changes in how people and enduring structural shifts in how people live, move, work, and study. Previous research has shown that internal rates of migration often reflect the ups and downs of the business cycle (Green, 2017), and evidence from the 2008 Financial Crisis suggests that downturns in the economy do reduce rates of internal migration in the UK (Buzzeo et al., 2020). There are also reports that the pandemic may accelerate the exodus from large cities like London and New York, which is a trend that predates the crisis itself (Safi, 2020; Tavernise & Mervosh, 2020). COVID may bring to an end the renewed love affair with the city that began in the 1990s, a resurgence that also propelled urbanists like Richard Florida to celebrity status (Peck, 2016). For future directions of research, this may mean greater scholarly interest in suburban life as was witnessed in the post-war years.

In the UK today, cities and large towns account for over half of the population and nearly 60 per cent of the country's economic output, and there is already evidence that the shutdown due to COVID is having a serious impact on employment, high streets, and transport. (Enenkel, 2020) This may precipitate a long-term crisis in growth and productivity in towns, cities, and regions, and a hollowing out of amenities and employment in cities that may make them less attractive to the highly skilled and educated. As the most spatially unequal country in the OECD, we should be seriously concerned about unequal recoveries and COVID deepening spatial divides between the UK's towns, cities, regions, and nations. As Storper (2013) reminds us, the winners of urban development in the twenty-first century will be celebrated for their ability to attract the best and the brightest, and the losers of urbanisation will be focal points for anger and division.

The OECD reports that the 'COVID-19 generation' – which includes both the research participants and the author of this dissertation – faces unprecedented disruption to education and a radically altered labour market (Schleicher & Mann, 2020). There is also compelling evidence that entering the labour market during a recession has *permanent* adverse effects on future earnings and career progression (Gregg & Tominey, 2005). Since graduates from low participation and ethnic backgrounds are disproportionately working in high public contact occupations, there is also reason to suspect that the pandemic will have a disproportionate impact on these groups (Bavel et al., 2020). Aside from these speculative matters, some of the findings offered in this work are based on the plans and dreams of real students, plans that have been undone and dreams that are now put on hold. The pandemic does not diminish the merits of the findings, but COVID should give us pause to reflect on the lives that are represented in these pages. Langston Hughes famously asked, "What happens to a dream deferred?" The answer, of course, depends on the individual in question, as well as where she comes from, where she was educated, her tastes, the resources at her disposal, and countless other factors.

1.4.3 Structure of the thesis

This thesis is organised into six chapters. This introductory chapter has provided a flavour of the recent debates about graduate migration, while also providing information about the study method, its contributions, motivations, initial discussion of key terms, and a discussion of the role of the researcher. Chapter 2 provides a cross-disciplinary literature review that serves to situate the thesis within the context of current debates in the field, while also providing two-interrelated conceptual frameworks that will serve as the principal guides for the research design, analysis, and interpretation. As was mentioned previously, this dissertation intends to be a preliminary effort at bridging the divides — epistemological, methodological, and disciplinary — that separate the rich study of graduate migration in the UK. Therefore, it is hoped that this review represents a contribution in its own right. The literature review concludes by providing two inter-related conceptual frameworks. The first depicts the outer world of graduate migration that can be modelled, whilst also making important conceptual linkages to higher education institutions and local economic development. The second framework provides a way of viewing the inner lives of graduates as they face the locational choice of staying or moving on from Greater Manchester. Relying on theories of place quality and aesthetics, the second framework also provides an explanation for the migration patterns that we observe in the first framework.

Chapter 3 provides a detailed description of the research design and procedures for this thesis, which includes both a survey questionnaire and interviews of current undergraduate students in Greater Manchester's four universities. Whereas Chapter 3 provides an overview of the method and methodology of the primary data phase of the research, Chapter 4 is a stand-alone chapter for the secondary HESA analysis that provides the method, analytical techniques, and the findings. The findings are presented according to the themes of geography, demographics, higher education, and employment outcomes, and particular attention is paid to those results that have both statistical

significance and sufficiently strong relationships. After the presentation of the findings from the secondary data analysis, Chapter 5 presents the results from the primary data collection via questionnaire and interview. The survey and narrative data are interwoven and discussed thematically to provide both a rigorous and rich description of the phenomenon of graduate locational choice. The discussion and conclusion in Chapter 6 synthesise and discuss the results from chapters 4 and 5 considering the research questions, literature review, and conceptual framework. Concluding remarks are also offered about the study's contributions and limitations, as well as recommendations for policy and future directions for research. The backmatter includes all appendices (fourteen in total) and references.

Better, surely, not to pretend to calculate the incalculable, not to pretend that there is an Archimedean point outside the world whence everything is measurable and alterable; better to use in each context the methods that seem to fit it best, that give the (pragmatically) best results; to resist the temptations of Procrustes; above all to distinguish what is isolable, classifiable and capable of objective study and sometimes of precise measurement and manipulation, from the most permanent, ubiquitous, inescapable, intimately present features of our world…

Isaiah Berlin, *The hedgehog and the fox: An Essay on Tolstoy's View of History*, ([1953] 1994, p. 495)

2. Literature Review

2.1 Introduction

The opening lines of Rousseau's *The Social Contract* (1762) – "man is born free, but he is everywhere in chains" – were provocative at the time because the idea "that man is born free" challenged the very foundations of the traditional European order, which was then still largely an agrarian society built on feudal or semi-feudal social obligations that restricted the movements of the majority of the population. A noticeable exception to this general trend, however, was England, where the more restrictive forms of serfdom – *villeinage* – largely disappeared by the reign of Richard II. Today, we take it for granted that UK citizens are 'free' to move about the country and live wherever they like, in principle that is. The provocative thing to say in the 21st century Britain, however, is that the effective practise of this freedom falls short of the ideal, and almost people – including graduates – face constraints to their mobility based on who they are, where they come from, and the resources at their disposal. In summarising the state of mobility in contemporary Britain, the Social Mobility Commission (SMC) recently concluded, "Put simply, not everyone who wants to move is able to do so." (Buzzeo et al., 2020, p. 9) It is also apparent that the ability to live wherever you like within your own country is not a 'universal' right as understood by Enlightenment thinkers, but, rather, a feature of mainly liberal democracies. Some authoritarian regimes still restrict the internal movements of their citizens in the twenty-first century, with China's *Hukou* system that regulates rural to urban migration being a notable example. In addition to the value our society places on the ideal of mobility, the attraction and retention of highly skilled workers to places also has practical implications for the economic and social wellbeing of cities and regions.

At the heart of this dissertation is the question 'why graduates decide to either stay put or move on from where they studied?' Adam Smith, a contemporary of Rousseau, found the causes of labour migration at the beginning of the Industrial Revolution difficult to untangle, writing in *The Wealth of Nations* (1776) that "…it appears evidently from experience that a man is of all sorts of luggage the most difficult to be transported." (quoted in Chiswick & Hatton, 2003, p. 65). These words have proven prophetic in writing this literature review since there is no simple answer to the question of graduate locational choice. This literature review will attempt to synthesise a diverse body of literature from economics, geography, and sociology, and by marshalling the most salient points from seminal theory and recent empirical works, and endeavour to explore what is known and what is knowable about graduate migration. In the late nineteenth century, Ravenstein modelled his immutable "laws of migration" (1885, 1889) on Newton's laws of motion, many of which have not survived the scrutiny of naïve positivism or the rigours of empirical study in the 20th century.

As Ravenestein's views fell out of favour, explanations for migration were dominated by the Chicago School and neoclassical economics in the post-war era, and, ultimately, Human Capital Theory (HCT) that explains migration decisions on the basis of rational choice and wage maximisation (G. S. Becker, 1964b; Sjaastad, 1962). This is a view that largely predominates in the economic study of UK Graduate migration even to this day, but cracks are beginning to appear in the neoclassical artifice brought on by the revolution in behavioural economics (Kahneman, 2011; Tversky & Kahneman, 1979, 1992). As these behaviourist theories were catching on in economic circles in the 1980s and 1990s, the 'mobility turn' was taking place in the more sociology-oriented disciples of the social sciences. Today, scholarly interest in the mobilities of UK higher education students is growing, as evidenced by two recent monographs: *Materialities and Mobilities In Education* (Brooks & Waters, 2018) and *Everyday Mobile Belonging: Theorising Higher Education Student Mobilities* (Finn & Holton, 2019). Another unique feature of the higher education mobilities literature is that this diverse body of work emphasises the subjective experiences of students and graduates themselves.

Aside from the primary question of what drives graduate locational choice is a secondary question of equal importance: 'why is the attraction and retention of graduates significant?' The answer to this question is more apparent: the drive to attract and retain graduates as a matter of national and local policy in the UK is underpinned by economic theories related to agglomeration economies (Biagi & Dotzel, 2018; Duranton & Puga, 2004; E. L. Glaeser, 1999) and endogenous growth (Holland et al., 2013; Romer, 1990; Simmie & Carpenter, 2008). This context is fundamental for understanding the contemporary phenomenon of UK graduate migration, and, therefore, will serve as the starting point for our journey of coming to know the phenomenon of graduate migration and onward migration. So, the task before us is to provide a literature review on the topic of graduate migration-mobility that is interdisciplinary in nature, makes a distinction between outer worlds and inner lives, whilst also properly contextualising the phenomenon in policy debates and 'real world' implications.

Before we progress any further, it bears mentioning that this work sits at the contested boundaries of scale (Brenner, 2001; Couldry & Hepp, 2018; Cox, 1998; Hagen, 2011; Marston et al., 2005). Although Nigel Thrift famously claimed that "There is no such thing as scale" (1995, p. 33), this work encountered very real problems with conceptualising and operationalising scale as it relates to graduate migration. Part of the difficulty stems from distinguishing between scalar hierarchies (e.g., Manchester City, Greater Manchester, the North West, England, the United Kingdom, the European Union, etc.) from what Marston et al. (2005) refer to as the "Trojan horse" (p. 421) of the micro–macro scale in social analysis. For example, this first part of the literature review will examine policy documents from institutions that represent different scalar hierarchies: the UN, the central UK government, and local policy from the Greater Manchester Combined Authority (GMCA). This section will also discuss national policy on regions (e.g., The Northern Powerhouse) and national policy on cities (Office for Science, 2016), both of which traverse scalar divides. The introduction also provided a multi-scalar conceptualisation of graduation migration (i.e., both a place-based conceptualisation and a people-based conceptualisation of the phenomenon), which combines elements of micro-macro scale, scalar hierarchies, and flows between points. The theme of scale will be revisited throughout this work in various guises: agency and structure, local and global, micro and macro, people and place, and individuals and society. However, we will conclude this scalar detour for the time being and return to a discussion of the structure of the review itself.

2.1.1 Structure of the Literature Review

The late polymath and novelist Umberto Eco wrote a practical guide on the subject of dissertation writing for his humanities students at the University of Bologna, which he rather unpoetically titled *How to Write a Thesis* (2015). Although published in Italian in 1977, the first English translation only

became available shortly before Eco's death in 2016. Although a reader at this stage may be questioning the relevance to this study of a guide intended for use by students of medieval studies, Eco uses a metaphor to explain the essential purpose of a literature review that transcends all disciplinary boundaries: the metaphor of a doghouse. Eco says that a manual on how to build a doghouse cannot purport to be scientific work, but that a review comparing all known doghouse-building methods, however, could make a modest claim of scientific merit. Secondly, he says that any literature review of doghouse-building methods only has scientific value if It offers something of original value, i.e., a unique finding, identifying a significant gap, or a novel line of argumentation. If someone has already written a similar literature review on doghouses, then a similar review would be a waste of time at best or an act of plagiarism at worst.

There are a number of literature reviews on graduate mobility/migration in existence. A review on the relationship between graduates and economic growth across countries (Holland et al., 2013) commissioned by the Department for Business Innovation and Skills (BiS) provides the case for the attraction and retention of graduates based on endogenous growth theory. The *Manchester Independent Economic Review: Literature Review* (MIER, 2009a) provides an account of key literature related to the attraction and retention of graduates in a local economic development context. Faggian et al.'s (2018) review of interregional migration of human capital and its regional consequences provides a current overview of the economics of migration, with particular emphasis on the highly skilled and graduates. The first chapter of Corcoran and Faggian's (2017) edited edition on graduate migration and regional development provides as even more detailed account of the economic literature concerned with graduate migration and economic migration, with an in-depth discussion of the UK context. The introduction to Brooks and Waters' *Materialities and Mobilities in Education* (Brooks & Waters, 2018) provides an overview of the mobilities literature as it relates to education in an international context. The introduction and first two chapters of Finn and Holton (2019) *Everyday Mobile Belonging: Theorising Higher Education Student Mobilities* provide a thorough and up-to-date account of the mobilities literature as it relates to UK HE students.

So, conscious of Eco's admonishment that yet another literature review risks being either an exercise in futility or an act of academic malpractice, there is a need to demonstrate what the unique contribution of this literature review is (or aspires to be). The unique contribution stems from the fact that this study is a mixed-method research design combining econometric modelling with survey questionnaire and interview data, and this review must offer economic, subjective, and sociological accounts of graduate migration and locational choice. The two strands of literature, which can be crudely bifurcated as the 'economics of migration' and the 'sociology of mobility', largely do not speak to one another. Therefore, a review that addresses both strands of literature is in-and-of-itself a unique and novel contribution.

There is an extended line of argumentation that runs throughout the literature review, namely, that the two predominant ways of knowing the phenomenon of graduate migration - economic/demographic versus sociological/mobilities - are partial in their separateness. However, when combined, these two streams of literature yield a more complete picture of graduate migration that ultimately informs the design, analysis, and interpretation of the study discussed in this thesis. This line of argumentation is summarised below.

2.2 – Greater Manchester Context

Before the general literature of graduate migration is reviewed, it is important to situate this study in the local context of Greater Manchester. This will be accomplished by providing background information on the city-region, its higher education landscape, and what is known currently about the attraction and retention of graduates locally.

2.3 – Discourses on graduate mobility

Section 2.3 argues that public and private sector discourses of graduate mobility is almost exclusively conceptualised along narrow instrumentalist lines of employment and economic development from the perspective of policymakers, rather than from the needs and wants of students and graduates. This instrumentalist view will also be contrasted with recent work done by the Social Mobility Commission.

2.4 – Graduate migration and economic growth

Section 2.4 explores the theoretical basis of agglomeration economies and endogenous growth theory. It argues that while these two theories are useful for understanding the importance of the attraction and retention of graduates to cities and regions, they are not intended to provide an understanding of individual decision making, let alone explanations for graduate mobility patterns or locational choice.

2.5 – Human Capital Theory and graduate migration

Both agglomeration economies and endogenous growth theory are predicated on human capital, and many of the studies done on graduate migration using HESA datasets over the past twenty years take Human Capital Theory (HCT) as their starting point. This section will demonstrate that HCT and related theories provide little understanding of non-economic drivers of locational choice, whilst also reinforcing the understanding of graduate migration along narrow instrumentalist lines.

2.6 – Higher education mobilities

The penultimate section picks up the understating of graduate mobility where HCT left of by providing an overview of contribution from the growing corpus of mobilities literature to understanding how structural forces related to class, gender, and ethnicity that may shape and constrain graduate mobility, whilst also providing insights into individual motivations, aspirations, and subjectivities.

2.7 – Conceptual Framework and conclusions

This final section of this literature review seeks to accomplish two primary goals. First, it will introduce a conceptual framework that will guide the conduct of Phase 1 of the research, which is modelling the place-based outer world of migration. Secondly, it will introduce a modified version of Florida's (2014) place quality thesis that casts graduate locational choice as essentially a judgment based on subjective tastes and individual characteristics.

2.2 Greater Manchester Context

The story of GM's transition from being the world's leading city of the industrial age to finding its place in the economy of 21st -century Britain can be understood from any number of perspectives or through any number of academic disciplines. It is tempting to reduce the stories of cities, or even whole societies, to objective measures like population growth, labour productivity, or GDP, because these figures often concisely — and elegantly — describe a range of economic and social phenomena. The story of GM, for example, is often told through the metaphor of its population growth and decline: its status as Britain's preeminent industrial powerhouse coincided with its peak population of 2,707,070 in the census of 1931, whereby an extended period of deindustrialisation and population shrinkage saw the city-region reach its population nadir of 2,482,352 in the 2001 census (ONS, 2011). Between 2001 and 2011, however, GM experienced an economic turnaround and experienced population growth of over 8 per cent, with Manchester City alone being the third fastest growing local authority in the country and the fastest-growing outside of Greater London (ibid.). GM and Leeds-Bradford are

the only Northern cities to see population growth over the past forty years (SMC, 2019). Today, GM is a metropolitan county and combined authority area in the North West region of England with a population of 2.78 million people, of which 1.78 million are between the working ages of 16-64 (New Economy, 2016). As a combined authority that includes the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan, it is often described as a 'city-region' to reflect a scalar unit between a city (e.g., Manchester City) and a true English region (e.g., the North West).

When introducing Greater Manchester in their study of globalisation, place, and belonging, Savage et al. (2005) call attention to its rise as the world's first industrial city, its subsequent hard times, and the renaissance over the recent decades. Manchester is often discussed in reference to its past, a past which Storper (2013) situates in a larger historical narrative of when the industrial cities – Manchester foremost among them – supplanted the great merchant cities of the Silk Road like Venice and Xi'an in the 18th century in terms of power and prestige. Manchester's past includes many notable first, including the first modern canal (1761), the first steam-powered mill (1783), and it is where John Dalton developed atomic theory (1803), the first international art exhibition was held (1857), the first meeting of the Trade Union Congress took place (1868), where Ernest Rutherford discovered how to split the atom (1917), where the first programable computer was developed (1948), and many other notable firsts. Manchester is where the industrial, atomic, and computer ages began, and in which we are, in varying degrees, still living.

Manchester's past also includes a legacy of radicalism, which often conjures images of the Peterloo Massacre of 1891 that took place in what was then St Peter's Field, and which was recently the subject of Mike Lee's 2018 film *Peterloo.* The Moss Side native Emmeline Pankhurst is remembered as being the driving force behind securing women win the right to vote in the UK, the centenary of which was marked in 2018 by erecting a statue to Pankhurst in St Peter's Square in central Manchester. This legacy of radicalism also includes Fredrich Engels, a sometimes resident who lived in Manchester both as both a young man and as a mature writer while tending to his family's textile mills in Salford. A Soviet statue of Engels, which was relocated from Ukraine, was erected at Tony Wilson Place near Deansgate railway station in the past decade. Tony Wilson, on the other hand, relates to another side of Manchester as the impresario behind the 'Madchester' music and party scene that spanned the late 1970s until the early 1990s. As a co-founder of Factory Records and the manager of the Haçienda nightclub, Wilson was instrumental with the global success of such bands as the Happy Mondays, Joy Division, and New Order. The Manchester music scene, which is still vibrant today, also gave rise to globally successful acts like The Smiths, Morrissey, and Oasis. In addition to the bohemian music scene, work by Skeggs et al. (Binnie & Skeggs, 2005; Skeggs et al., 2004) has chronicled the transformation of Manchester's gay village into one of the global centres of gay consumer culture, as typified by the British television show *Queer as Folk* (1999-200) and the city's largest annual event, Pride.

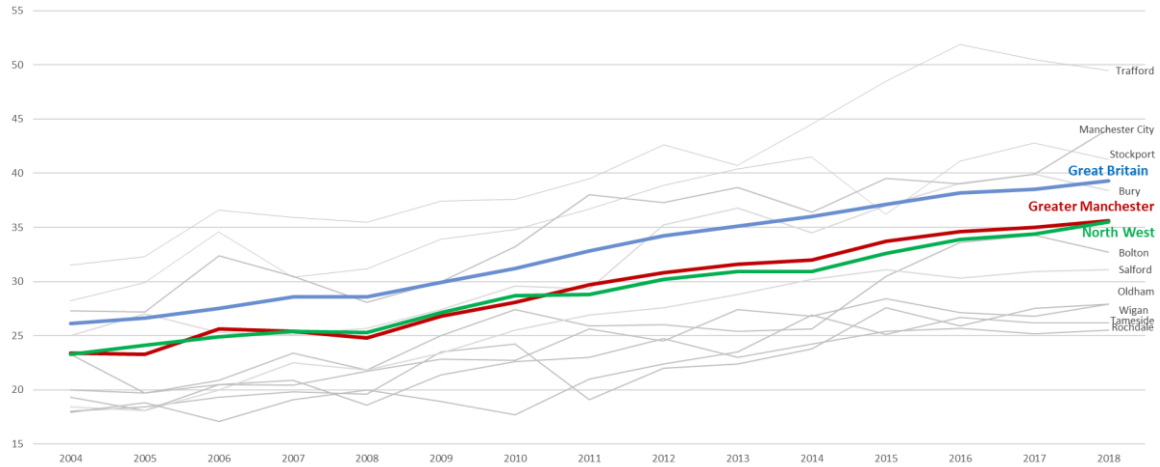
Today, Greater Manchester remains a regional, national, and global symbol for openness, tolerance, and left-of-centre politics (Miles, 2015), but it is also an international centre for television and film since the relocation of a substantial portion of the BBC and ITV's operations to Salford's Media City (Christophers, 2008). Its tradition of cutting-edge technology and manufacturing continues in the form of advanced materials, as underscored by the discovery and commercialisation of graphene (HM Treasury, 2016). To global audiences, Manchester is perhaps best known for its two leading football clubs, Manchester United and Manchester City, two brands with outsized international followings that make the city region a global tourist destination for sport (Poulton, 2017). GM is also one of the most diverse cities in the UK, with the ethnic minority population making up over 41 per cent of the population at the time of the last census (Jivraj, 2013). The largest ethnic minority group is Pakistani, accounting for 9 per cent of the population, and the second largest is African at 5 per cent (ibid.) The ethnic diversity of the city region is also reflected in the diverse and eclectic culinary scene, with the 'Curry Mile' in perhaps being one of the better-known ethnic food destinations in England. Manchester has also experienced a housing boom, which has been chronicled in a 2020 BBC

documentary series, *Manctopia: Billion Pound Property Boom.* This background will serve as useful context for our discussion of the interview data because many of the participants cite Manchester's history and reputation as an important factor in their locational choice.

2.2.1 Attraction and retention of graduates to Greater Manchester

Cities like Greater Manchester often measure their stocks of human capital against the national average to indicate whether they are leading or lagging in the race to attract human capital. Figure 2.1 below compares the share of GM's population with a NVQ4 or above against the national average. Despite some variation at the local authority level (e.g., Trafford versus Rochdale), the percentage of Greater Manchester residents with an NVQ4 or above (red line) is shown to below the national average (blue line) as shown in Figure 2.1 below.

Figure 2.1 – Comparison of GM's residents with an NVQ4+ against the national average



Source: Adapted from the Annual Population Survey (ONS, 2018).

Having fewer residents with higher education qualifications (i.e. NVQ4 and above) is also related to a local skills disequilibrium in GM that has been identified by the OECD (Green, 2012). The direct cost of the skills shortage is estimated to be £105 million per annum for hiring fees alone in GM, with firms in the science, technology, engineering and mathematics (STEM), financial services and digital sectors facing the most acute shortages (Greer, 2018). However, the true cost of GM's lagging stocks of human capital may be more significant when knock-on effects are taken into account as the theories of agglomeration economies (Duranton & Puga, 2004) and endogenous growth (E. Glaeser, 2000) suggest.

The map in Figure 2.2 below situates GM (shown in red) within the North West (NW) region of England (shown in orange). It is important to situate GM within the NW region because most of the scholarly analysis of graduate migration is done on a regional, national, or international basis, with scant attention paid to UK cities except London (e.g., Fielding, 1992; Gordon et al., 2015).

GM is also one of the largest student centres in the UK, as well as Europe more broadly, (New Economy, 2016) with over 100,000 university students studying at four universities and one specialist music conservatoire: the University of Manchester, Manchester Metropolitan University (MMU), the University of Salford, the University of Bolton, and the Royal Northern College of Music (RNCM)

(GMCA, 2018). The five HEIs in GM are shown in the inset map of Figure 2.2. The University of Manchester, MMU, and the RNCM are located in the Oxford Road Corridor of central Manchester, which is also an enterprise zone that plays hosts to startups and numerous science and technology parks.

Figure 2.2 – Greater Manchester, HEIs & the NW Region

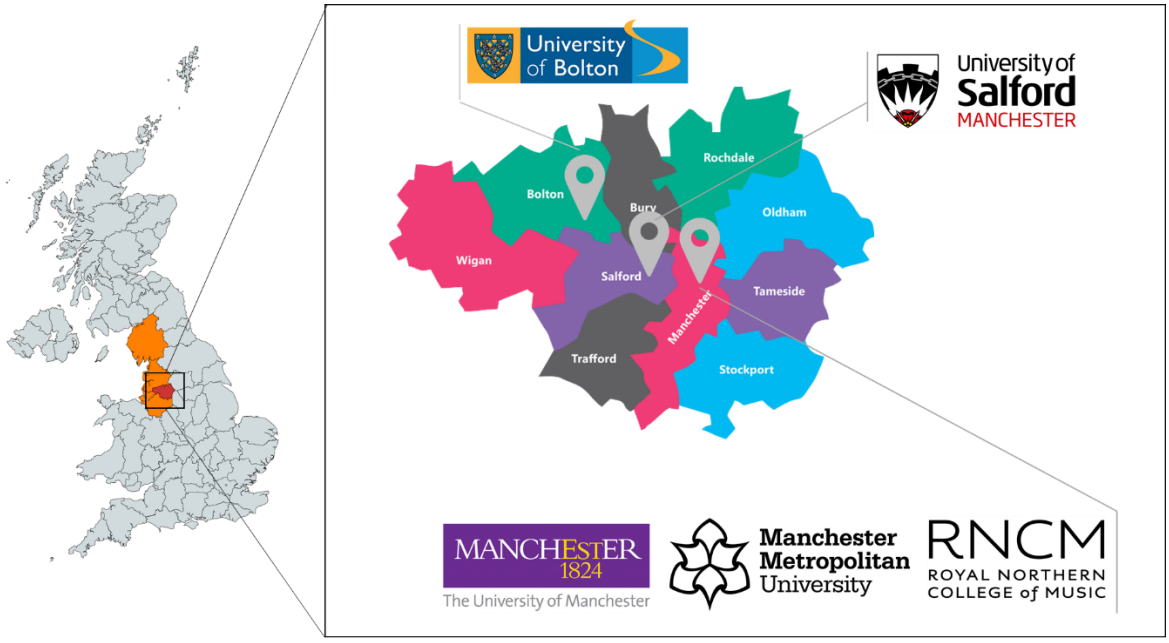
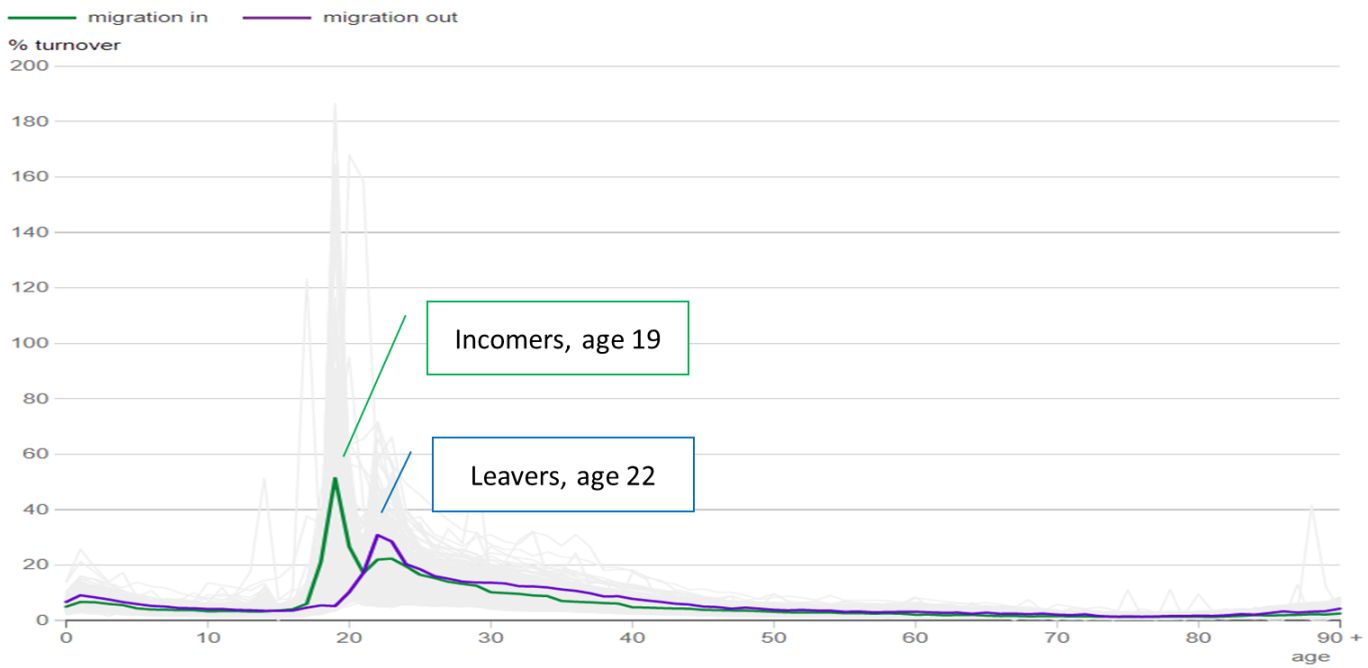


Figure 2.3 depicts flows in and out of GM based on subnational population figures (ONS, 2016a), and it shows a peak of incomers at age nineteen to Manchester (green line) and another peak of leavers at age twenty-two (blue line). The peak of inflows and outflows are contrasted with trends in other local authorities of England, which are depicted by the 652 grey lines in the background of the figure. This chart illustrates two important points.

First, the pattern of inflows and outflows of young people in GM is the reverse of many of the cold spots (i.e., areas with the poorest education and employment prospects) identified by the SMC (Milburn et al., 2016). In fact, four of GM's ten local authorities have been identified as the coldest of the cold spots in England and are included in a list of twenty-five of the least socially mobile areas in the country (SMC, 2020). Whereas cold spots without local higher education provisions experience a 'brain drain' of young people moving away for higher education around age nineteen (Buzzeo et al., 2020), Greater Manchester sees a massive influx of young people that the ONS attributes to the presence of HEIs (ONS 2016a). Although GM does experience outflows (roughly 30 per cent turnover), these figures alone can lead us to speculate that the city-region experiences net 'brain gain'. The SMC's 2016 *State of the Nation* report does include figures provided by the Higher Education Careers Service Unit (HECSU) that suggest that this is the case, but these figures appear to be partial and concerned only with Manchester City rather than the combined authority of Greater Manchester. Secondly, this report from the SMC concludes that graduates flock to the big cities such as London, Manchester and Leeds in search of employment opportunities without considering any other possible motivations like quality of place or quality of life.

Figure 2.3 - Average annual projected inflows and outflows (internal, cross-border and international moves), Manchester, 2014 to 2024



Source: Adapted from ONS (2016a)

A 2019 report from the Centre for Cities (McDonald) provides one of the first dedicated pieces of literature – scholarly or otherwise – on the attraction and retention of graduates in Greater Manchester. This report is part of a larger project by the Centre for Cities (CfC) on the attraction and retention of graduates to UK cities titled *The Great British Brain Drain: Where Graduates Move and Why* (Swinney & Williams, 2016). In addition to GM, the CfC has been commissioned by local authorities and institutions like universities to publish city-specific reports, including Coventry (CfC, 2017a), Crawley (CfC, 2017b), Derby (CfC, 2017c), Glasgow (CfC, 2019), Leeds (CfC, 2017d), Liverpool (CfC, 2017e), Newcastle (CfC, 2017f), Norwich (CfC, 2018), and Preston (CfC, 2017g).

The main finding of the GM report, which was commissioned by the University of Manchester, is that the city-region has the second-highest retention rate of all UK cities at 51 per cent for the years 2013/14 to 2014/15. London has the highest retention rate at nearly 74 per cent, and GM's rate is well above the national average of 38 per cent (Azmat et al., 2018). The retention rate findings are in line with assessments from the local government in GM (Manchester City Council, 2019) and has stayed relatively stable over the past decade (a 53 per cent retention rate was reported in the 2009 MIER report, see MIER, 2009a). The GM report from the CfC also finds that retention rates vary from institution to institution, with the University of Manchester having much lower rates than the region's other three universities.

Another key finding is that students at GM's universities tend to be drawn from the NW and other large UK population centres. Likewise, graduates leaving GM's universities also tend to move to other large cities or stay within the NW region. Figure 2.4 provides maps of origin and destination location for Greater Manchester students and graduates. The population flows pre- and post-university are hardly surprising, nor are these findings new. The 2013 *Future of Cities* report from the Government Office for Science (Go-Science) found that graduate destination flows are primarily a NW regional and North of England phenomenon, along with the notable flows to and from London. The CfC report is corroborated by findings from the Office for Students (OfSs, 2019b) which found that GM's local

universities are the largest provider of graduate workers to the local area, followed by universities in nearby Lancashire, Cheshire and Merseyside.

In GM, 30 per cent of students entering the four local universities are from the city-region itself (McDonald, 2019). Although a breakdown of local students on an institutional basis are not readily available, there are figures available on a regional basis. Only 27 per cent of students at The University of Manchester are from the North West, whereas the other three universities have rates ranging between 55 and 77 per cent (ibid). In other words, the non-Russell Group universities are more oriented to serving a local constituency, and The University of Manchester is more oriented to national and international students, which is in line with recent empirical findings (Donnelly & Gamsu, 2018a, 2018b). Table shows graduate retention rates on an HEI basis, The University of Manchester's retention rate of 30 per cent is the lowest, and the highest is the University of Salford at 46 per cent, which demonstrates that retention rates also differ according to HEI.

Table 2.1– Graduate retention rates by HEI, 2014/15, provided by the Centre for Cities

Institution	Retention Rate
Royal Northern College of Music	45%
University of Bolton	68%
Manchester Metropolitan University	53%
University of Salford	61%
University of Manchester	40%

Source: HESA destination of leavers survey

Source: McDonald, (2019, p. 19)

In addition, retention rates of local students are higher than non-local students for all universities except The University of Manchester, where more non-local students stay than local. Between 2010/11 and 2016/17, the retention rates of home-grown graduates from Greater Manchester has remained relatively steady at around 70 per cent (Manchester City Council, 2019). The CfC report also finds that retention rates for home-grown locals and non-locals differs according to HEI, where home-grown locals account for 83 per cent of retained graduates at the University of Bolton but only 42 per cent at the University of Manchester. However, since some HEIs have more of a local orientation as noted previously, it is unknown whether these differences are statistically significant or what the strength of the relationships are. However, these trends indicate that different universities attract different mixes of home-grown local and non-local students, and retention rates vary according to institution and geography as well.

Figure 2.4 – Origin and destinations for students who moved to Manchester for university, 2014/15

Source: Adapted from McDonald (2019, p. 11, 16)

In addition, retention rates of local students are higher than non-local students for all universities except The University of Manchester, where more non-local students stay than local. Between 2010/11 and 2016/17, the retention rates of home-grown graduates from Greater Manchester has remained relatively steady at around 70 per cent (Manchester City Council, 2019). The CfC report also finds that retention rates for home-grown locals and non-locals differs according to HEI, where home-grown locals account for 83 per cent of retained graduates at the University of Bolton but only 42 per cent at the University of Manchester. However, since some HEIs have more of a local orientation as noted previously, it is unknown whether these differences are statistically significant or what the strength of the relationships are. However, these trends indicate that different universities attract different mixes of home-grown local and non-local students, and retention rates vary according to institution and geography as well.

The literature presented here is entirely descriptive in nature, which is to say that further work is needed to determine whether the relationships identified by studies like that from the CfC are statistically significant. We also have very little understanding of the role of factors like socioeconomic status, gender, or ethnicity in the graduate retention or onward migration from these reports. Nor does any of the information presented in this section address the tastes, preferences, or experiences of the students or graduates. In essence, we have been viewing only the outer world of migration statistics with little understanding of the inner lives of the individuals in question. The remaining sections of the literature review will allow us to address some of these limitations, but other gaps, particularly those related to GM, will remain gaps.

2.3 Discourses on Graduate Mobility

According to Foucault, ‘‘each society has its regime of truth, its ‘general politics’ of truth: that is, the types of discourse which it accepts and makes function as true…” (1980, p. 131), which is to say, discourse is often a function of power and its ability to shape our understanding of the world around us. This oft quoted selection has become the touchstone for incalculable discourse analyses done in academic works. What follows in section, however, is not intended to be a Foucauldian discourse analysis per se, nor is intended to be a strict discourse analysis as conceived of by the methods literature (e.g., Wood & Kroger, 2000). This section is intended to be a critical examination of the key texts from public and private sector reports on the topic of graduate mobility, which will bring greater conceptual clarity to the main issues that underlie policies related to graduate migration. Table 2.2 below lists the key documents examined in this chapter.

If there is a general understanding – of what Foucault refers to as a ‘general politics’ – of graduate mobility in the UK, then an examination of the main policy documents that frame the issues is a reasonable place to start. This analysis will argue that three interrelated themes emerge from the texts. Firstly, human capital – and graduate human capital by extension – is largely seen as a fundamental driver of productivity and economic development at the national, regional, and local levels, particularly in the new ‘knowledge economy’. Secondly, discourses related to ‘brain drain’ and the competition for skilled workers reduce graduates to abstractions of ‘embodied human capital’. This abstract conceptualisation leads to the third key observation, viz., these policy documents are often written with the needs of vested interests like local and national policymakers in mind. There are also vested interests who also view the issue in the form of its place-based conceptualisation rather than its people-based alternative, largely ignoring the complexity, individuality, and subjectivity of graduates and their decision-making processes.

Table 2.2 – Key policy documents included in the analysis

Institution	Document(s)
The United Nations Economic Commission for Europe	*Guide on Measuring Human Capital* (2016)
HM Government	*UK Industrial Strategy: building a Britain fit for the future* (2017)
HM Treasury	*Northern Powerhouse Strategy* (2017)
Government Science for Office	*Future of Cities: Graduate Mobility and Productivity An experiment in place-based open policy-making* (2016)
Centre for Cities	*The Great British Brain Drain Where graduates move and why* (2019; 2016)
Manchester Independent Economic Review	*The Manchester Independent Economic Review: Understanding Labour Markets, Skills and Talent* (2009)
Greater Manchester Independent Prosperity Review	*Greater Manchester Local Industrial Strategy: a new approach to education training and skills - a technical report for the research on skills* (2019)
HM Government	*Manchester Local Industrial Strategy* (HM Government, 2019)

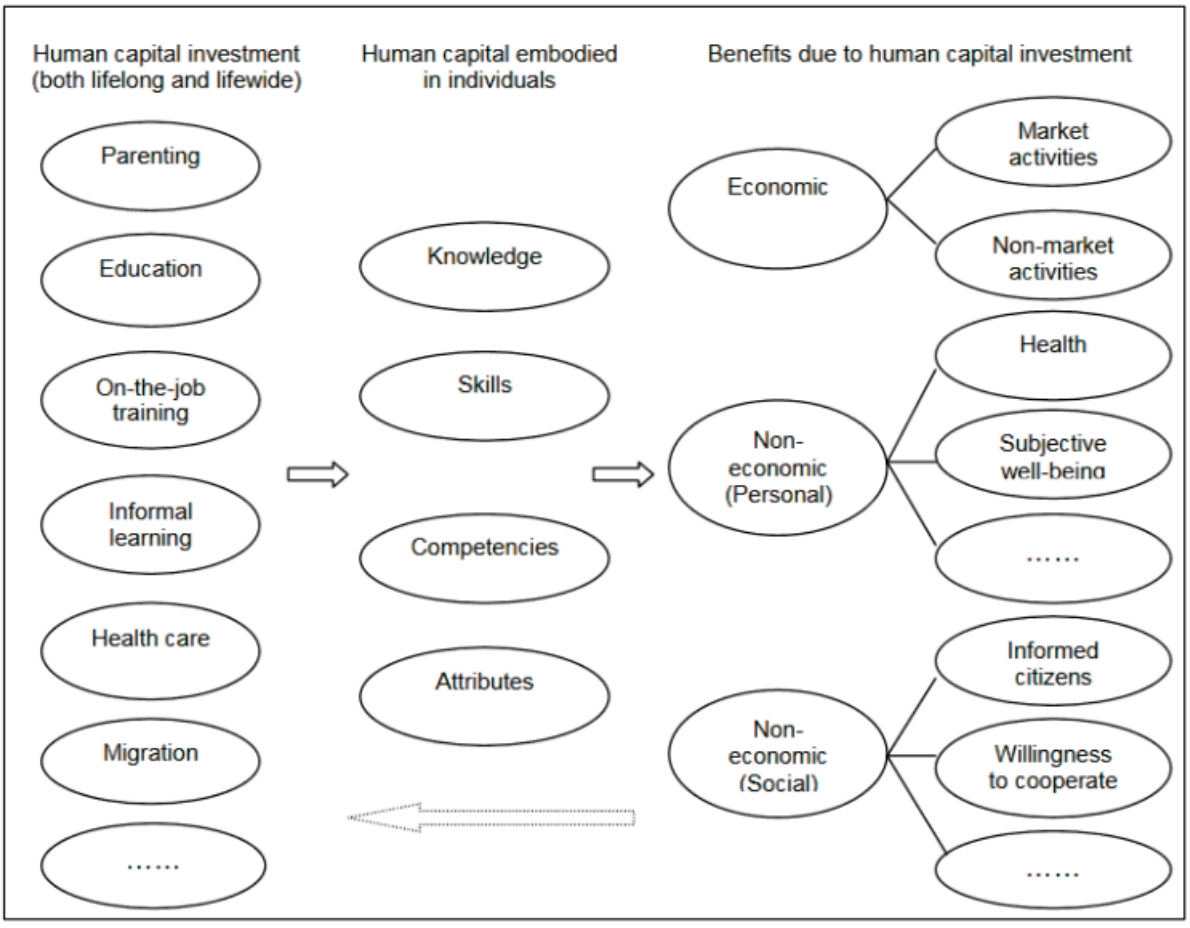
With this in mind, an extended line of argumentation that runs throughout this section is that the 'taken for granted assumptions' (McAlpine & Sharpe, 2006) that our frame of reference for understanding graduate mobility is almost exclusively economic, and this myopic view should be examined, challenged where appropriate, and expanded where possible to include other factors like tastes, subjectivities, and constraints.

2.3.1 Conceptual Context: Human Capital & Graduate Mobility

The dominant economic discourse in the case of graduate migration is Human Capital Theory. The OECD defines human capital as "the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being" (Brian, 2007, p. 29). The OECD broadened its definition of human capital to include "social and economic well-being" (UNECE, 2016, p. 9) in 2001, with previous definitions only concerned with purely economic dimensions. However, acknowledgement of the broader benefits of HC to societal wellbeing has only gained mainstream acceptance in the past twenty years. With an intellectual heritage stretching back to Adam Smith in the 18th century, modern HCT began with the pioneering theoretical work and empirical work by with Theodore Shultz and Gary Becker in the early 1960s, much of which will be discussed in detail in a subsequent chapter of this thesis. The basic thrust of HCT is that education is ultimately an investment by individuals and by society, and this investment pays dividends to both individuals and society. Individual benefits include increased wages and productivity, whilst stocks of human capital (i.e., aggregate levels of education) benefit society by driving economic growth (E. Tan, 2014). The United Nations Economic Commission for Europe (UNECE) has developed a guide (see UNECE, 2016) to formalise the economic measurement of HC, and these guidelines have been endorsed by the Conference of European Statisticians (CES) for use by governmental statistical agencies, including the ONS. Although the narrow scope of the guide is on the numeric valuation of only those elements which are related to the economic returns (i.e., calculating only the impact of human capital on the values of GDP, investment, consumption, savings and net wealth), it does make explicit reference to the wider economic and social context of human capital in modern life such as "improved health status, enhanced personal well-being and greater social cohesion." (UNECE, 2016, p. 9)

It is also important to note that although the UNECE mentions that the non-economic benefits of human capital may be *more* important than the economic benefits to societies in the long run, HC is strictly defined and measured internationally in terms of economic value (e.g., in pounds and pence). In line with other European and OECD nations, the ONS calculates stocks of human capital as a function of educational attainment and income, discounted by the number of years workers are forecasted to continue to work (ONS, n.d.) Figure 2.5 provides a sketch of the process of HC production through education and other foundational activities, its embodiment in terms of knowledge and skills, and its economic and non-economic benefits to individuals and society. The embodied nature of human capital means migration has an impact on stocks of human capital and it "can be accumulated (or diminished) by immigration (or emigration) of people (UNECE, 2016, p. 19), the implications of which are often discussed in terms of 'brain drain', 'brain gain' or 'brain circulation' (R. L. Tung, 2008).

Figure 2.5 - UNECE human capital framework: a sketch of its formation, composition and benefits



Source: United Nations Economic Commission for Europe (2016, p. 10)

In economics, the embodied nature of human capital comes with some interesting theoretical assumptions. In his seminal work of endogenous growth, Paul Romer (1990) argues that embodied human capital is both rivalrous and excludable, which can be compared to abstract and disembodied knowledge which is, according to Stiglitz (1999), a 'public good' since it is non-rivalrous and non-excludable. The implications of this are that embodied human capital can be "traded in competitive markets" (Romer, 1990, p. 5), which could take the form of firms vying for top talent or cities competing to attract and retain graduates and other highly skilled workers. In relation to human

capital and cities, graduates can be considered rivalrous since their embodied human capital can only be 'consumed' by one city at a time. For example, a graduate's human capital can only be accounted for in Manchester or London's human capital stocks, but not both simultaneously under the current system of national accounts. Embodied human capital is excludable because, in the words of Romer, "short of torturing me, there is no way for you to get information out of my neurons that I do not want to give to you." (2015) Romer is discussing human capital in the context of firms and individuals, but in the context of cities, human capital is excludable in the sense that individuals can migrate and take their human capital with them. Henry and Pinch (2000) also discuss knowledge as being embodied in people who 'travel' in the context of spatialising knowledge in their examination of Motor Sport Valley in South East England.

Another way to conceptualise this is to borrow the language of the Canadian political theorist C.B. Macpherson (1964) who used the term 'possessive individualism' to critique a sense of ownership in one's own skills, which he characterised as being a hyper-competitive and insatiable form of individualism. Macpherson's notion of possessive individualism can be extended to geographies to help us understand a form of a competitive and insatiable drive for an open-ended form of human capital accumulation, which can be described as 'possessive territorialism'. The policy documents that will be examined in this section stress the importance of increasing human capital stocks for cities and nations, but they also do not provide targets for the optimal levels of human capital stocks. The implication is that the demand for human capital by cities and nations is unlimited. In the 2019 annual lecture to the Regional Studies Association, Franklin (2020) argued that the driven by cities for endless population growth (and by extension, economic growth) is both unsustainable and undesirable.

2.3.2 UK Industrial Strategy, cities and higher education

The Government's most recent industrial strategy, *Building a Britain Fit for the Future* (HM Government, 2017), is primarily concerned with addressing the UK's persistent productivity crisis by addressing the so-called 'foundations of productivity', which includes three main policy targets or "pillars":

- 'ideas' related to investments in innovation and R&D
- 'people' related to establishing a technical education system
- 'places' involving continued devolution and the development of local industrial strategies

It was the work of leading economists like Krugman and Fujita working in the 'New Economic Geography' of the 1990s and 2000s who brought renewed focus on the productivity of nations and regions, where previously productivity was largely seen as a firm-level metric. As Krugman says, "productivity isn't everything, but in the long run it is almost everything" (1994, p. 1) since economic success is ultimately tied to the ability of workers to increase output. It is largely within this discourse of productivity that we can understand higher education's role in the UK national and regional economies. Within the industrial strategy document, there is also a recognition that higher education brings substantial benefits to the British economy, "particularly in the provision of higher-level skills that are needed by employers both nationally and within local areas" (HM Government, 2017, p. 99). It is through the development of local industrial strategies by cities and regions that the government articulates its vision of local solutions often built around universities and highly skilled labour. The government views universities as being key to local skills ecosystems, and the Greater Manchester Industrial Strategy will be examined later in this section with this in mind. The Northern Powerhouse initiative, of which GM is the largest urban area, is one such way the government envisions matching graduates with employers:

> In order to enable northern businesses to access the skills they require, there is a need to do more to attract graduates and other highly skilled workers. The government is interested in supporting the region to trial new approaches to tackling this challenge. This means focusing on interventions which increase information about highly skilled jobs that are available…The government will work with the northern city regions, and other local stakeholders, to develop innovative proposals for attracting skilled workers" (HM Treasury, 2016), p. 15)

In the 2016 Northern Powerhouse strategy document (ibid.), the government specifically highlighted the Sheffield RISE scheme as a promising model for graduate retention, which attempts to match recent graduates from Sheffield's local universities with local employers. The theme of graduate retention was further taken up in the OfS's first challenge competition, which is a portfolio of 16 projects across England designed to support the employment transition and improve outcomes for those graduates who want to work in their home region. The competition is meant to further the OfS priorities to "to promote social mobility and contribute to economic prosperity" (OfS, 2018, p. 2). To date, there are sixteen funded projects designed to support the transition from higher education to professional employment for those graduates who seek employment in the home region. There are a variety of interventions, including curriculums teaching employability skills, coaching, bursaries, internships, and targeted support for BAME and other disadvantaged student populations. This demonstrates that there is a recognition by the OfS that the retention of graduates in their home region is a complex and multifaceted phenomenon, including issues related to employability, subject of study, class, ethnicity, and first-generation students. However, the OfS Challenge Competition frames the issue of regional graduate attraction and retention as an *employment* problem to the neglect of other factors like quality of life, housing costs, and caring responsibilities. It follows then that the sixteen funded projects offer *employment* solutions to the *employment* problem framed by the OfS. The next section will explore some of these concepts as they relate specifically to policy related to UK cities.

A discussion of policy at the city-level begins with a Government Office for Science (GO-Science) 2013 report, *Future of Cities: Grad Mobility & Productivity* which starts with the premise that "too many of the UK's graduates appear to gravitate to London, at the expense of other UK regions" (Office for Science, 2013, p. 3). The phenomenon of graduates being disproportionately drawn to the capital at the expense of the regions is set in the following economic context:

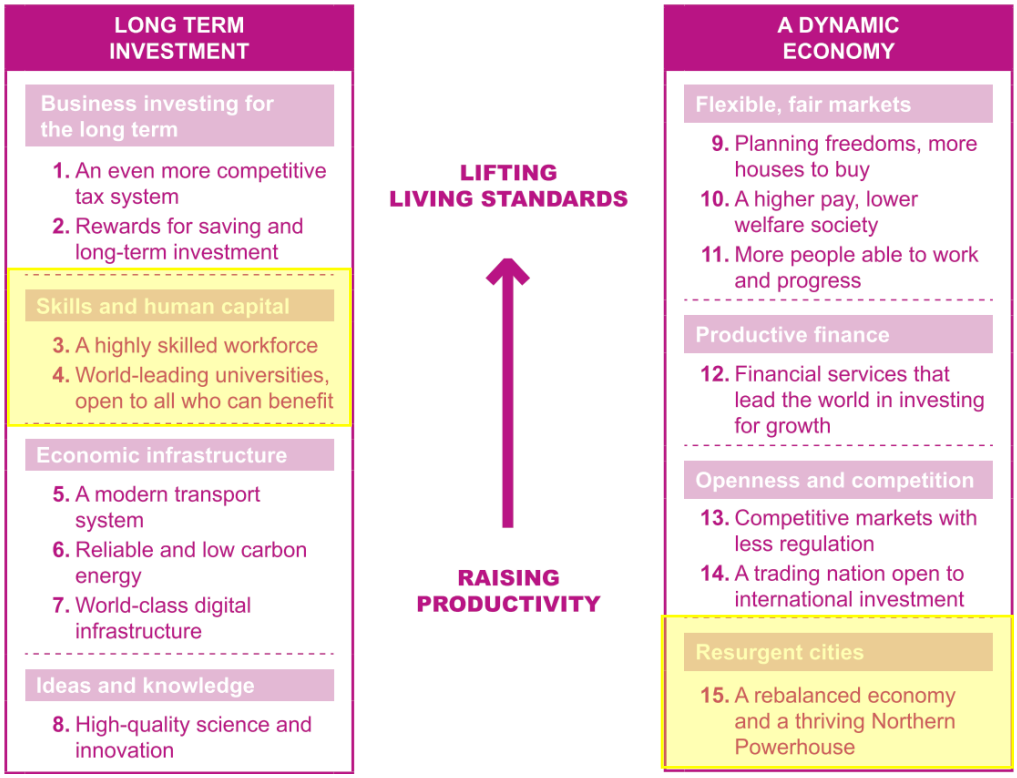
> UK labour productivity persistently lags behind other major economies, a trend exacerbated by the recent financial crisis [the 2007–08 financial crisis], despite the UK's achievements in education. Education is one factor that has a strong effect on productivity and the UK has 4 of the top 10 universities in the world, with many more in the top 250… yet the UK still has lower productivity than other countries, most of which have fewer leading institutions. (Office for Science, 2013, p. 5)

This excerpt brings into relief the overall government formula for economic growth: higher education produces human capital, which then drives the productivity of the UK's national and local economies. HM Treasury's fifteen-point plan for raising productivity is shown below in Figure 2.6, and it is organised according to twin pillars of "long term investment" and a "dynamic economy".

Central to understanding graduate mobility as an economic discourse are points three, four, and fifteen. ''A highly skilled workforce" (point 3) and "world-leading universities" (point four) are grouped as a "long term investment" in "skills and human capital", which have been highlighted yellow in the above figure. Under the pillar of creating 'a dynamic economy,' point fifteen relates to "resurgent cities" being underpinned by a "rebalanced economy and a thriving Northern Powerhouse". This report brings to the fore several recurring themes which are central to understanding graduate mobility context: the importance of place attractiveness, universities as 'anchor institutions', skills supply and demand, and existing policy frameworks. The GO-Science reports also cites work from

McKinsey (2008) that describes how the local graduate labour market is now a front in the larger global 'war for talent', which is a term that emerged from the human resources literature to describe the intense competition between firms for highly skilled and experienced workers (see Michaels et al., 2001).

Figure 2.6 - HM Treasury framework for raising productivity – fifteen-point plan



Source Adapted from Office for Science (2013, p. 14)

The whole offer that drives the ultimate attraction and retention of graduates to cities is said to include the concept of "place attractiveness", which the GO-Science report defines as "affordability, connections to multiple employment hubs, and cultural issues". (2016, p. 15) The report also broaches two areas that figure prominently in the scholarly literature about graduate migration. First, it stresses that tastes, preferences, and needs vary over the life course by saying that "leisure is prioritised by those early in their careers" (ibid., p. 16). It also mentions the so-called 'escalator effect' of London described first by A. J. Fielding (1992) whereby graduates are attracted to London because of the promise of rapid career progression. The discussion of place attractiveness concludes with the recommendation that local governments should adopt policies aimed at enhancing attractiveness to lure highly mobile graduates, which would then positively impact economic growth. While acknowledging that employment is key to attracting and retaining talent, the report is one of the few government publications that captures the mix motivations that drive graduate migration by focusing on dimensions rated to place quality.

It also deserves mentioning that the GO-Science report also highlights the role of universities as anchor institutions in cities, which connects the issue of graduate mobility to the larger debate of the value of higher education to the national and local economies. Although increasing the stocks of human

capital by producing graduates is one of the most direct ways universities contribute to the economic development of nations, regions, and cities (Goddard & Vallance, 2013), the emphasis in this report is largely on the economic activities of universities that are not tied to the core teaching mission, e.g., the role of HEIs employers, in purchasing goods or services, their role in innovation and research and development (R&D), and the so-called triple helix knowledge-based ecosystems (Etzkowitz et al., 2000).

Increasingly, however, the language of policy has begun to speak of higher education as being central to the United Kingdom's economic success and performance in the knowledge economy. Although the vital role of universities in producing the workers needed for a successful economy was acknowledged by the *Robbins Report on Higher Education* in 1963, the more recent attention payed to the importance of graduate employability by regulators and HEIs was triggered by the introduction of tuition fees based on the recommendations of the Dearing Report (Dearing, 1997) and the Roberts Review (S. G. Roberts, 2002) that made an explicit connection between the shortage of science and engineering graduates with the then Government's productivity and innovation strategy (A. M. Findlay, 2010). One of the most significant final acts of the Cameron government in the spring of 2016 was the publishing of a higher education White Paper, *Success as a Knowledge Economy,* which was mostly concerned with the creation of a new regulator, the Office for Students (OfS), and a new research funding body, the UK Research and Innovation (UKRI). Although much of the report is concerned with the particulars of regulatory and funding reforms, the forward from the then Minister of State for Universities and Science, Jo Johnson, uses the language and discourse of economic theory and competition to contextualise the reforms to be presented to parliament:

> Our universities rank among our most valuable national assets, underpinning both a strong economy and a flourishing society. Powerhouses of intellectual and social capital, they create the knowledge, capability and expertise that drive competitiveness and nurture the values that sustain our open democracy. (Department for Business Innovation and Skills, 2016, p. 5)

Even the title of the report touches on the very concepts that underpin this dissertation: graduate choice, mobility, and competition in the knowledge economy. It should be noted that the idea that the new knowledge economy of the 21st century has succeeded the industrial age of the 19th and 20th centuries was first postulated by Daniel Bell's seminal work, *The Coming of the Post-Industrial Society* (1976), and there is much scholarly debate on the relationship between this new 'knowledge economy' and the economic success of city-regions, particularly endogenous growth theories, agglomeration economies, the spatial dynamics of innovation systems, and the role of human capital (Nijkamp & Siedschlag, 2011). For our purposes, however, the policy emphasis on STEM subjects, digital skills, and innovation audits should be understood in the context of discourses on the knowledge economy and succeeding *economically*.

The concept of universities acting as anchor institutions is also related to what Tomaney and Pike (2020) refer to as the new 'levelling up' UK government slogan used to describe its agenda for addressing persistent spatial inequalities, particularly for 'left behind' places outside of London and the South East. The concept of 'levelling up' has been used by the government to describe an equitable rebalancing of the 2.4 per cent of GDP in investment in research and innovation funding in the UK, 52 per cent of which currently goes to London, the South East, and the East of London (HM Government, 2020), which is known as 'golden triangle' of London, Oxford and Cambridge. Citing the strengths of 'a northern R&D powerhouse' and initiatives like the Civic University Network, Science Minister Chris Skidmore sees universities in the North of England and throughout the UK as being important anchor institutions because of research innovation spill-over effects, but also more broadly when he said "Because universities are not just engines of growth or producers of skilled human capital. They are complex organisations…that need to be nurtured, developed and brought to bear for the benefit of us all." (HM Government, 2020) What is slightly more difficult, however, to quantify is the economic impact of universities' contribution to stocks of human capital. The report on the economic impact of

universities commissioned by Universities UK (Oxford Economics, 2017) mentions that the skills development function of universities contributes to the overall productive capacity of the nation. This contribution to the UK's productive capacity takes two forms: the value of human capital stocks and the value of R&D.

At an institutional level, universities view their economic impact through a variety of novel metrics. Figure 3.3 below is taken from an impact report commissioned by the University of Manchester (the only such impact report available from a university in Greater Manchester), and economic impact is shown as a function of

- Physical/environmental impacts as measured by sustainability metrics, well-being, and heritage value
- Socio-cultural impact as measured by graduate skills in society and supporting creativity and innovation
- Financial impact as measured by innovation, jobs, and GDP (The University of Manchester, 2017)

The number of the University of Manchester graduates in employment, and by extension, the figures related to the attraction and retention of graduates in the city-region, are concerned with the impact measure of productivity, which is line with the Universities UK report linking the production of human capital to economic productivity. The Universities UK report uses an HM Treasury's Green Book definition of supply-side project impact in relation to

> 'supply side' or 'structural' impact, which operates by altering the productive capacity of the economy… This can occur either because of a change in the size of the workforce or a change in the productivity of the workforce. (Oxford Economics, 2017, p. 35-36)

In other words, although the direct financial impact of cannot be accounted for in pounds and pence, institutions like the University of Manchester describe 'graduates in employment' as 'financial impact' to the nation, and by extension, local economies as well.

The Leitch Review (2006) was tasked with considering the long-term skills needs of the UK, with a recognition that there is a "direct correlation between skills, productivity and employment" (p. 3), but like most policy documents making this claim, scant direct evidence of such claims was provided. One of the key guiding principles of the review is that investments should focus on economically valuable skills that are also mobile by saying that "skills should be portable to deliver mobility in the labour market for individuals and employers." (Leitch, 2006, p. 69) In the past, Finegold and Soskice blamed the poor economic performance of 1980s Britain on being "trapped in a low-skills equilibrium, in which the majority of enterprises staffed by poorly trained managers and workers produce low-quality goods and services" (1988, p. 22). They then go onto suggest that the solution to the low-skills equilibrium was upskilling the workforce through education and training, thereby increasing stocks of human capital. Recent work from the OECD (McGowan & Andrews, 2015b) views skills shortages (or surpluses) as being related to the economic principle of job matching, with one interesting policy recommendation related to labour mobility:

> policies that promote residential mobility– e.g. lower transaction costs on buying property and less stringent planning regulations and rental contracts – are associated with lower skill mismatch. (Mcgowan & Andrews, 2015, p. 8)

The report acknowledges a tension between the two prevailing narratives on the perceived 'skills mismatch' (McGowan & Andrews, 2015a, 2015b), which could be explained from either a lack of demand for graduates or a perceived shortage of supply. UK organisations report experiencing a skills shortage, with a total economic cost to the British economy estimated to be £6.3 billion in the form of recruitment fees to find new workers, inflated salaries to retain existing staff, temporary staff fees, and the costs associated with training for workers hired at a lower level than intended (The Open

University, 2019). At a local level, the cost is estimated to be £105 million in GM, with firms in STEM sectors, financial services, and digital sectors facing the most acute shortages (Greer, 2018).

Figure 2.7 - The economic impact of the University of Manchester

Source: The University of Manchester (2017)

Manchester Digital's 2019 Skills Audit reports that 31 per cent of digital businesses have turned work away because they were unable to recruit the breadth of skill sets required for delivery (Manchester City Council, 2019). Although, there is a debate about how new or how persistent the skills shortage is. Although Greater Manchester (GM) has experienced rapid growth of skills commensurate with the

rise in the number of graduates, its share of the population with a NVQ level 4+ is below the national average (GMCA, 2019). A 2019 report from the Chartered Institute of Personnel and Development (CIPD), which draws upon the skills shortage/skills surplus typology from the 2015 OECD report of skills mismatch (McGowan & Andrews, 2015b), identified Greater Manchester as having a low skills equilibrium, which is a characterised by an area having both a *low supply* and a *low demand* for skills (Atkinson & Lupton, 2019). The Greater Manchester Labour Market and Skills Review for 2018/19 (GMCA, 2019) remarks that GM is not an isolated labour market and that highly mobile populations like graduates have a choice about where to work. A key recommendation from this review is to encourage "graduate retention through good quality jobs" (ibid), without any concrete policies offered to support graduate retention in the review itself. Although, any number of the OfS Challenge Competition schemes mentioned previously, including the Manchester initiative led by MMU matching disadvantaged student-graduates with employment opportunities with local SMEs, offer possible templates for action.

2.3.3 Regions, brain drain, and inter-regional competition

The GO-Science report contextualises graduate mobility within three existing policy frameworks: the powerhouses, science and innovation audits, and further education (FE) reviews. Powerhouses refer to two regional strategies designed to address growth issues in two English regions: the 'Northern Powerhouse' and the 'Midlands Engine'. These regional strategies aim to spur growth in areas outside of London and the South East through investment and developing regional specialisations in distinct technologies and industries. Given the importance of GM to the overall Northern Powerhouse, some explanation of the initiative is warranted at this stage.

Citing an OECD report on 'smart' regional specialisation, the GO-Science report recommends a process of regional audits to facilitate regional coordination to enable university-led research to be commercialised and foster growth. The 2017 Industrial Strategy has identified GM audit theme to be on "health innovation and advanced materials" (HM Government, 2017, p. 86) which reflects the labour market makeup and HEI competitive strengths (e.g., graphene development at the University of Manchester). Citing a report commissioned by the Department for Transport (Venables et al., 2014), GO-Science also highlights the importance of policy commitments for improving transport like High Speed Rail (HS2) because of their role in business site selection and unifying fractured labour markets. It does not mention, however, the importance of public transport for individuals, particularly students and recent graduates who may depend upon public transport.

Once again, the impetus for the GO-Science report is the persistent productivity crisis where the UK's productivity lags behind all of its G7 peers, excepting Japan. The report mentions five practical initiatives that can be implemented, including:

- Synchronising learning, employers and work
- Building long term engagement between SMEs and graduates
- Developing the ecosystem for knowledge-rich enterprise
- Gathering better data to support graduate careers
- Establishing knowledge-economy strategies in cities (Office for Science, 2013, p. 6)

The recommendation to establish knowledge-based economy strategies in cities recognises that innovation and knowledge-led growth for cities is a joint enterprise being undertaken by universities, industry and government. Along with fostering innovation ecosystems, promoting city or region-specific specialisms (e.g., advanced materials like graphene in Manchester), the report also specifically recommends "understanding and enhancing the non-job attributes that make a place attractive to talent, including culture, housing, services, amenities, identity and reputation" (Office for Science,

2013, p. 56) And through the establishment of New Economy Hubs, with a goal of improving liveability and connectivity in cities and regions to better connect "students and graduates better into local communities and place can increase their appreciation of the local fabric and their loyalty" (Office for Science, 2013, p. 57). Many of these recommendations, and the other policy initiatives cited in the UK Industrial Strategy and the Northern Powerhouse strategy, have informed policy discourses at the local level as well.

One of the first city-level analyses of HESA data on student mobility (i.e., origins and first job destination) done anywhere in the UK was the Manchester Independent Economic Review (MIER) review of 2008/9. MIER analysed graduate origins and destination for GM and the other core UK cities (London, Glasgow, Bristol, Birmingham, and Leeds). The key findings are that GM universities tend to attract students from the local area (38.5 per cent in 2002/3, 41.1 per cent in 2006/7) and greater North West region, (19.7 per cent in 2002/3, 18.6 per cent in 2006/7). GM also had the second-highest graduate retention rates after London, with an overall retention rate of 37.8 per cent in 2002/3 and 41.6 per cent in 2006/7. A subsequent analysis done by the Greater Manchester Independent Prosperity Review (GMIPR, 2019), found that the retention rates between 2018 and 2018 remained largely unchanged. It is in this context that the CfC published its inaugural report on the *Great British Brain Drain* in 2016*,* mentioning that the "attracting and retaining talent is increasingly critical for the success of city economies as the UK continues to specialise in ever more high-skilled, knowledge-intensive activities." (Swinney & Williams, 2016, p. 1) The CfC reports also cites an influential analysis of regional graduate mobility, the 2015 *Loyals, Stayers, Returners and Incomers: Graduate Migration Patterns* (Ball et al.) report published by HECSU. The findings and typology of regional 'loyals', 'returners', 'stayers' and 'incomers' were cited prominently in the GO-Science report on the *Future of Cities* that was examined earlier. One of the key findings from the HECSU report is that the NW region, of which GM is the largest urban area, retains more home-grown and non-local graduates than any other English region outside of London. However, a regional focus may obscure more granular phenomenon happening at the local authority level.

This notion that universities underpin economic success in the knowledge economy is the central assumption that underpins many of the policy documents reviewed thus far, particularly the 2016 BiS white paper, the 2016 GO-Science report, and the 2016 CfC series. Harding and Laske summarise what might be described as this new *zeitgeist of* knowledge-driven economic growth when they say "universities are to the 'information age' what coal mines and steel mills were to the industrial economy, that is to say spatially rooted engines of economic, social and environmental change…" (Harding & Laske, 2016, p. 3). The headline finding of the 2016 CfC report deals with the lure of London: the most mobile graduates are those with the highest grades and from the best institutions (i.e., Russell Group universities), and these 'high achievers' are disproportionately attracted to the capital. Cities other than London, however, also experience a 'graduate brain gain', but they do not retain most of the non-local students graduating from local institutions. The report also suggests that jobs are the primary driver for migration, but this claim is not made based on any UK data of cities. Rather, this claim is based on research done by Faggian and McCann (2008) on regional UK migration (i.e., not cities) and Storper et al.'s (2015) study of San Francisco and Los Angeles. Therefore, the claim that graduates migrate only for jobs is problematic.

The CfC report on GM (McDonald, 2019) was commissioned by the University of Manchester and found that one-third of all inward and outward migration is between Greater Manchester and the North West region. These patterns are in keeping with Greater Manchester's role as economic hub for the North West region, and similar patterns have been observed since at least the early 19th century at the height of the Industrial Revolution (Redford, 1926). Like the 2008 MIER and its 2019 successor reports, the CfC found that GM has the second-highest retention rate after London. Key original findings are that that the retention rates vary between the University of Manchester and the 'modern universities' (Bolton, Man Met, and Salford), attributing the difference to the University of Manchester

serving national and global constituencies and the 'modern' universities catering to local students. This finding is the premise for the report's key recommendation:

> Universities with lower retention rates tend to have these because of their role in educating national and international students, not necessarily because they are less successful at retaining their students. Therefore, instead of focusing on increasing the retention rates of these universities, policy should instead focus on continuing to improve the economy. (McDonald, 2019, p. 30-31)

It should be noted that the University of Manchester is the only university with graduate retention rate below 50 per cent, and this policy recommendation seems to apply only to the University of Manchester, the sponsor of the report. If universities are facing increasing pressure to retain graduates locally, then public relations efforts meant to explain graduate migration may become a more commonplace practice. Since the CfC report concludes on recommending that policy "focus on continuing to improve the economy", the next section will turn our attention to an analysis of local policy and graduate retention in Greater Manchester.

The CfC report does bring added detail to the understanding of the phenomenon of graduate mobility in GM, particularly regarding courses of studies, degree class, and student origins, and graduate destinations, details which are largely missing from the 2008 MIER analysis. Both the CfC report and the MIER analysis, however, do not provide sufficient explanation for student motives and attitudes toward mobility. As we have seen, the explanation that jobs are the prime reason for the attraction and retention of graduates in the local area is problematic, but the broader phenomenon of graduate mobility will be explored throughout this review.

2.3.4 Greater Manchester Local Policy: 2008 – 2020

When MEIR was published in 2009, it was the first independent economic review of a city to be undertaken in Europe at the time. The goal of the review was to inform both the actions of public and private sector leaders with the hope of achieving long-term sustainable economic growth for Manchester and, in turn, contribute to the performance of the national economy. The review was led by prominent business leaders and economists, most notably Edward Glaeser, a professor of economics at Harvard who is a leading expert in the role human capital plays in urban economic success. The findings of the report are often presented in a comparative format, whereby GM is compared to London and other core UK Cities. This is significant because the performance of Manchester according to various metrics, including the attraction and retention of graduates, is understood in relation to the performance of London. The MEIR report also appears to be the first document, scholarly or otherwise, to provide an analysis of intercity migration flows of graduates based on HESA datasets. In the section dedicated to the discussion of graduate attraction and retention, the importance of highly educated workers is discussed in no uncertain terms:

> Nonetheless the attraction of universities and the capacity of city regional labour markets to absorb and retain graduates, provide important demonstrations of escalator and fountain effects in their own right. They are increasingly seen as key to the attraction and development of economic activities that require high level skills. (MIER, 2009, p. 84)

A decade ago, graduates were seen as the key to developing the types of economic activities associated with the knowledge economy and creative industries. 'Escalator' effects describe a phenomenon where graduates are drawn to the capital because of the promise of rapid career progression in large, sometimes multinational firms. After achieving prosperity or advancement, these graduates then 'step off the escalator' later in life by leaving London for destinations that afford a better quality of life (A. J. Fielding, 1992). The empirical evaluation of this effect and its applicability

to English cities other than London will be discussed later in this literature review. The 'fountain effect' refers to the later stages of the escalator effect where older workers tend to leave urban areas for less densely populated areas, what Champion refers to as the "counter-urbanisation cascade" in England (2005). Given the graduate migration trends are focused on London and the South East, the MEIR views graduate retention as a counterbalance to the brain drain to London, saying that "MCR loses a substantial proportion of its highly skilled and mobile young workers to London and the Southeast…London and the Southeast are the most popular first job destinations for Manchester graduates after MCR itself and the rest of the Northwest." (MIER, 2009, p. 5)

The Manchester policy discourse of graduate attraction and retention then becomes inextricably linked with London, and Manchester is positioned competitively against London and the South East. 'Brain drain' has long been understood as the migration of highly skilled workers from sending nations to receiving nations since it was first used to describe the post-war emigration of scientist from Europe to North America (Bhagwati, 1976; Johnson, 1965), and the phenomenon has been extended to the discussion of graduate migration flows between the North and South of Britain. When using the 'brain drain' concept to explain regional flows of graduates in Britain, Hoare and Corver (2010) go so far as to describe 'winner' and 'loser' regions of Britain. The MEIR was informed by the works of Michael Porter (see MIER, 2009a), particularly his work on *The Competitive Advantage of Nations* (M. E. Porter, 1990), agglomeration economies (M. E. Porter, 1996), and local cluster development (M. E. Porter, 2000). Porter's work on clusters and agglomeration relates his theory of national competitiveness to the local and regional level by arguing that cities need to enable the competitiveness of clusters, including enhancing their attractiveness to incoming entrepreneurs and coordination with local universities. Many of the recommendations from MEIR were addressed by subsequent policy documents published by the Greater Manchester Combined Authority (GMCA), most notably the *Work & Skills Strategy and Priorities* (GMCA, 2016). The 2016-2019 priories were a list of 10 different goals, one of which that focused on developing higher-level skills through connecting "graduates with employment opportunities in Greater Manchester's SME base and retain more graduates in the city region" (GMCA, 2016, p. 11), and with a particular emphasis on the demand for graduates in certain 'growth sectors' like business, financial and professional services, digital, and health and social care.

Ten years after the MIER, the Greater Manchester Independent Prosperity Review (GMIPR) was convened in 2018 to make an updated review of the economic situation across the city-region. It is symbolic that the name of the review changed from the Manchester Independent *Economic* Review in 2008 to the Manchester Independent *Prosperity* Review in 2018, which signifies a shift from being a purely economic concern to one of 'shared prosperity'. This change reflects the trend noted earlier with the redefining of the OECD definition of human capital to include social as well as the customary economic well-being. The only returning board member from the original 2008 MIER review in 2018 was Edward Glaeser, the Harvard urban economist whose theories related to human capital will be discussed later in this literature review. Like Porter, Glaeser sees competition as being at the heart of the attracting and retaining talent to cities:

> the heart of economics is the belief that businesses work best by competing furiously in a market that the government oversees as impartial umpire. The same is true for cities. Competition among local governments for people and firms is healthy. (Glaeser in Peck, 2016, p. 10)

Much like the 2008 review, the 2018-2019 review sets the context as being the persistent low productivity problem in the UK. Notable changes in emphasis in the recent report, however, is the central importance of the "'long tail' of low-productivity firms and low pay" (GMIPR, 2019, p.4) and a more detailed analysis of the education and skills system. A notable recommendation is that "not enough is known yet about lifetime pathways for people born in the city region. Research into this area should be undertaken, and used to improve outcomes for individuals." (GMIPR, 2019, p. 30) This

emphasis on individual outcomes helped to shape aspects of this study, including the two-step analysis of the HESA and survey data to learn about both place-based and people-based outcomes.

Although both GMIPR and its predecessor, MIER, stress the need for attracting and retaining talent, neither offer concrete recommendations for how to do so. Similar to how the GMIPR embraced a more-than-economic orientation, the 2018 Greater Manchester Strategy deliberately sought to balance the past "drive for economic growth" with "ensuring that the people of Greater Manchester can all benefit" from the economic growth (GMCA, 2018, p. 7). One of the key priorities of the strategy related to skills involves matching local graduates with employment opportunities by connecting graduates with employment opportunities with the city regions small and medium enterprises (SMEs), much like echoing in language and in substance the recommendations from the Northern Powerhouse policy documents.

The Manchester Local Industrial Strategy was jointly published by GMCA, the GM Local Enterprise Partnership (LEP) and the UK Government in June 2019 and represents one of the country's first local industrial strategies in modern times. The Local Industrial Strategy incorporates many of the findings and recommendations from the GMIPR related to graduates, and one passage is emblematic of the view of graduate mobility in the policy literature:

> The city-region's universities have strong and improving graduate retention rates, and it has one of the most linguistically diverse populations in the world, with over 200 languages spoken... This access to skilled labour, cultural diversity and inclusivity is an inherent strength and provides a foundation for future growth, generating new ideas and making the city-region a magnet for new talent and investment. (HM Government, 2019).

'Improving retention rates' implies that current rates are unsatisfactory. The MIER report noted that Manchester had the second-highest graduate retention rate after London, and these rates have stayed stable between 2008 and 2018 (GMIPR, 2019). There is no mention of a target retention rate that would be satisfactory, and there is little evidence in the literature for an optimal graduate retention rate. One could speculate that the drive for graduate retention will continue at the local level until its metric of success is achieved, e.g., closing the NVQ4+ gap with the national average, achieving skills supply-demand equilibrium, or 'levelling up' some other measure with London.

2.3.5 Social mobility and place-based policy

Most of the policy documents reviewed in this section are dominated by economic imperatives for the attraction and retention of graduates to cities, with an emphasis on measurable facts, figures, and flows. However, there is also a smaller body of policy documents that offer alternative perspectives. The 2017 British Academy report *Where We Live Now: Making the Case for Place-Based Policy*' (Hewlett) serves as both a critique of the tendency for policymakers to be 'place- blind' in the formulation and execution of policy and also as an agenda-setting call to reconnect public policy with places and lived experiences. One of the main recommendations of the report is a call for developing new definitions and new metrics that are place-specific, that go beyond economic measures to foster well-being, and policy for skills development, lifelong learning, and overall worker well-being (Hewlett, 2017). This critique is part of a larger debate in the literature about the limitations of objective measures in social policy (Decancq & Schokkaert, 2016; Delle Fave, 2016), particularly as they relate to individual tastes and preferences (Veenhoven, 2002). A novel example of alternative indicators for societal wellbeing is the recent OECD Regional Well-Being Index, which measures global regions according to eleven metrics, – income, jobs, housing, health, access to services, environment, education, safety, civic engagement and governance, community, and life satisfaction, with the life satisfaction metric being a measure of individual preferences (OECD, 2018).

The ongoing work of the SMC for the past decade has been focused on closing gaps in access, participation, and outcomes as it relates to employment, education, health, housing, and social care. A landmark report (SMC, 2017) drew attention to the spatial divide in the fortunes of UK regions in unequivocal language:

> The spatial divide is obvious — London and some of our country's other great cities are moving ahead while other parts of England are falling behind… In London, almost two thirds of the population are graduates, compared to about one third in the North East. The UK now has greater regional disparities in economic performance than any other European country. (p. 4)

A recent report from the Institute for Employment Studies (IES) and SMC, *Moving Out to Move On Understanding the Link Between Migration, Disadvantage and Social Mobility* (Papoutsaki et al., 2020) makes several significant findings, including:

- People from higher socioeconomic backgrounds are the most geographically mobile group
- People from deprived areas tend to move to other deprived areas
- More mobile people ('movers') experience better employment outcomes than less mobile people ('stayers'), but less so for those than more disadvantaged backgrounds

The work of the British Academy, the OECD, and the SMC add credible counternarratives to the prevailing notion that graduate migration is a purely economic matter. They also suggest that there are viable alternatives to measuring success rather than traditional financial metrics, which suggests some interesting possibilities for how we might view the success of graduates as it relates to migration.

2.3.6 Conclusion

This survey of the policy literature over the past twenty years has shown that at the national, regional, and local Greater Manchester levels, the conceptualisations of graduate mobility is primarily economic in nature. Additionally, the perspective taken to graduates by cities and regions is – and paraphrasing the language of CB Macpherson – a possessive form of 'territorialism' in the form of an open-ended demand for graduates by cities and regions. However, despite this general trend, recent developments in place-based policy and social mobility policy present an opportunity for a broader discussion that goes beyond economic concerns.

2.4 Graduate migration and economic growth

2.4.1 Agglomeration Economies and Endogenous Growth: The Theoretical Basis of Policy

The arguments linking the attraction and retention of graduates to the economic growth of cities and regions rests on two main theoretical bases: agglomeration economies and endogenous growth theory. Agglomeration economies can be defined as

> …external economies of scale generated by the spatial concentration of economic agents… [where] individuals and firms may benefit from being concentrated in cities by obtaining higher wages and higher productivity levels, respectively… (Kourtit et al., 2015, p. 35)

This theory emerged in the late nineteenth century when Marshall (1890) made three observations about the relationship between the concentration of firms in a single location and extraordinary economic growth:

1. proximity makes the exchange of knowledge and information possible
2. there are positive benefits (or 'externalities') resulting from labour market pooling
3. firms benefit from being near one another

The arguments for agglomeration economies largely remain the same today, but Marshall's theories eventually influenced Schultz's theory of human capital (1959, 1961), which states that education contributes to economic growth by increasing an individual's economic output (i.e., productivity) and average earnings. The recent literature on the relationship between growth and geographic proximity in cities mention positive externalities like the sharing of key infrastructure, thick labour markets that enable efficient worker-employer matching, and regional learning through knowledge spillovers (Duranton & Puga, 2004). Matching theory underlies much of the policy discourse related to skills equilibria, and efforts to improve inefficiency in the matching process is at the heart of many of the OfS Challenge Competition projects mentioned previously.

What agglomeration economies fail to explain, however, is the direction in the relationship in the relationship between firms and workers, i.e., whether people relocate for jobs or firms relocate for people. Storper (2013) refers to this as an intractable 'chicken-and-egg' problem, where there is still no definitive explanation for whether people move for jobs or jobs move to people. The Dixit-Stiglitz-Krugman model, which is the key model of the 'new economic geography' school, is agnostic as to what sets off the sequence of growth events but uses labour mobility, product variety, and firm-level economies of scale to explain economic growth (ibid.) This thesis is also concerned with the relative importance of perceived labour market conditions and amenities for the migration decisions of graduates, but this thesis does not attempt to solve the intractable *chicken-and-egg* conundrum. However, we can use the following explanation as a tentative settlement of the issue:

> we do not know whether a growing demand for skilled labor in a city results in an increase of college-educated [university-educated] residents, and this in turn gives rise to an increasing supply of local amenities that are highly demanded by college graduates, or whether local amenities—and not primarily labor demand—in fact attract highly educated inhabitants (Buch, Hamann, Niebuhr, & Rossen, 2017, p. 777).

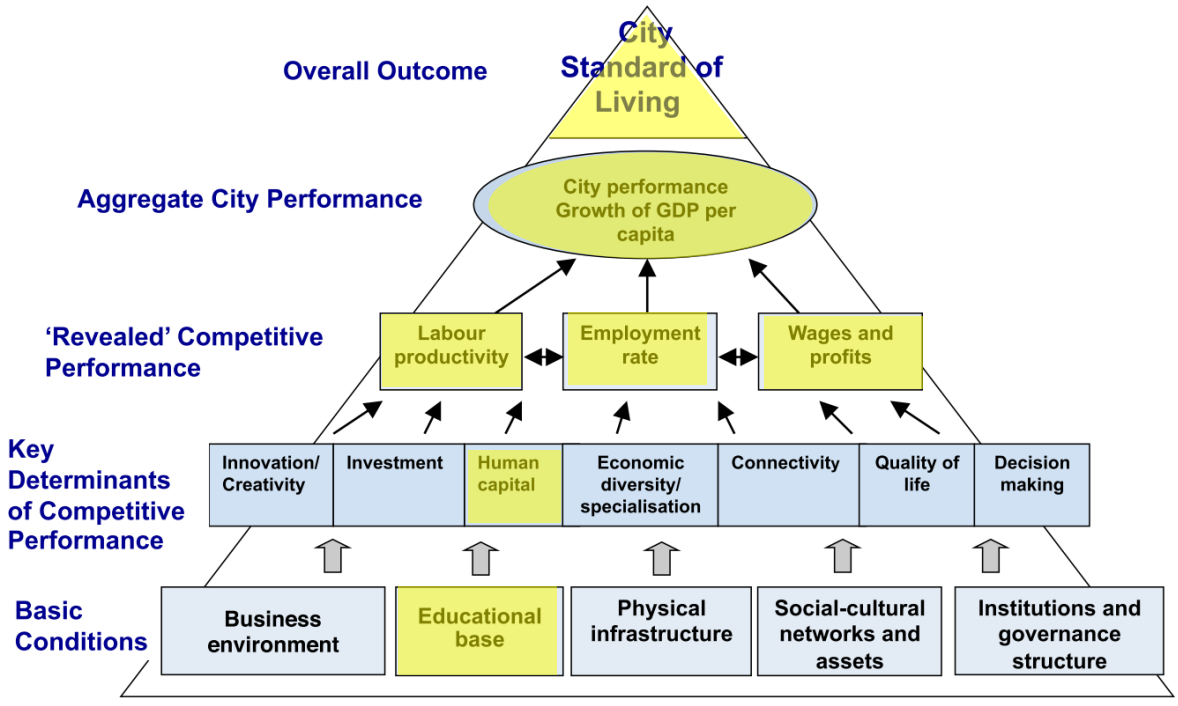
For our purposes, it is enough to say that there are labour market benefits for graduates to be in cities, but it remains to be seen whether these benefits play a role in migration decisions, or if graduates are conscious of these matching benefits that agglomeration economies bring.

Agglomeration economies also play a role in regional learning and knowledge-based economic growth by bringing together human capital, innovation ability, information access and economic performance (Nijkamp & Siedschlag, 2011). This theoretical proposition often translates into the 'smart city' priorities of investments in human capital, social initiatives, infrastructure, sustainable practices, and good local governance (Caragliu et al., 2011; Kourtit et al., 2015). The contribution of human capital to local economic development, however, has not received as much attention in the literature as the other four building blocks have, most notably innovation, R&D activities, and technology transfer between universities and industry performance (Nijkamp & Siedschlag, 2011). On an individual level, the private economic returns to HE are often spoken of in terms of the graduate wage premium (Stiglitz, 1999; Walker & Zhu, 2013), which in the UK is 160 per cent higher for graduates when compared to workers without formal HE qualifications (Holland et al., 2013). However, the empirical evidence for the impact of HE on the economic growth of cities, regions, and nations is also compelling.

In a now seminal study, Moretti (2004) finds that a 1 per cent increase in the share of university graduates in the population leads to a corresponding increase in productivity of roughly half a percentage point. In another study of 1,569 subnational regions covering 97 per cent of global GDP, Gennaioli et al. (2013) found that human capital is the single most important determinants of both regional income and productivity of regional firms. In a UK context, a study on the relationship between graduates and economic growth sponsored by BiS found that of the 34 per cent increase in the average labour productivity in the UK between 1994-2005, at least one-third of the increase can be attributed directly to the increase in graduates (Holland et al., 2013). In other words, there is ample empirical evidence to support the claim that graduates do indeed contribute to the overall economic growth of nations and cities, and whilst this helps to shed light on the motivations for the policies concerned with the attraction and retention of talent in UK cities, it does not shed much light on the drivers of graduate attraction and retention to cities.

At this point, it may be useful to summarise how the role of human capital is conceptualised in the literature. Figure 2.8 below is a theoretical conceptualisation of the factors influencing a city's economic competitiveness developed by Martin et al. (2014) in their report in the *Future of Cities* series for Go-Science. This conceptualisation is adapted from (Kitson et al., 2010), whose own framework is based on the drivers of regional productivity used in a policy document on UK regional competitiveness (HM Treasury, 2004).

Figure 2.8 - City Competitiveness: A Conceptual Map from Foresight Future of Cities



Source: Martin et al. (2014, p. 52)

The elements highlighted in yellow are the most relevant parts of the competitiveness process for our purposes here. The logic of the figure begins with basic conditions of a city like the educational base (including HEIs), which then contribute to human capital stocks, which then, in turn, contribute to the city's competitive performance. Competitive performance can be measured using indicators like labour productivity, employment rates, and wages, and these metrics then contribute to the overall outcome of a city's standard of living. This simple relationship can serve as a useful abstraction in the

understanding of how universities and aggregate human capital stocks impact the competitiveness of cities. This basic relationship will inform the conceptual framework presented at the conclusion of this review.

Agglomeration economies are predicated on basic assumptions about eventual national and regional convergence. The basic argument is that because an economy can be described according to a standard production function and constant returns to scale, then convergence between different geographical regions are expected to take place (Simmie et al., 2008), at least theoretically. In a British context, however, the convergence assumption of neoclassical growth theory does not hold up to empirical scrutiny.

A number of studies looking at the economic performance of UK cities and regions from the 1970s onward have demonstrated that the trend is one of *divergence* and not *convergence* (Gripaios et al., 2000; Massey, [1984] 1995; M. Roberts, 2004; Simmie et al., 2008; Martin et al., 2014). Today, the UK remains one of the most regionally divergent and unequal countries in the OECD group of industrialised nations (McCann, 2020). It is precisely because of the failure of neoclassical economics to explain the persistent spatial inequality that endogenous growth theory has been embraced by the supporters of devolution over the past 30 years (Hildreth, 2009).

2.4.2 Endogenous growth theory and 'levelling up'

Section 2.3.4 of this literature review examined GMCA's policies on graduate retention over the past two decades, and much of that policy is also informed by the tenants of endogenous growth theory. This theory has its beginnings with Solow's (1957) use of human capital in the standard production function (i.e., output is a function of inputs) and has been further developed by major theoretical and empirical contributions from Romer (1990, 1994), Lucas (1989), Grossman and Helpman (1991). There are two different economic models for evaluating the role of human capital in growth. The first model tests the relationship between economic growth and human capital accumulation (e.g., years of schooling), whereas the second is concerned with the role of human capital stocks on the processes of innovation and new technology development (e.g., number of patents) (R. Martin et al., 2014). An assessment of the first model of endogenous growth has led BiS to conclude that "sustained growth relies on the potential for human capital to grow without bound. As such, policy on education should be prioritised when considering the determinants of growth (Holland et al., 2013, p. 16). This dimension of endogenous growth theory that stresses the possibility of limitless growth might explain the open-ended drive for human capital accumulation described earlier.

The case study *par excellence* of local policy in the UK based on endogenous growth theory has been Greater Manchester (Haughton et al., 2016), where endogenous growth theory has been used to justify aspects of devolution concerned with economic policies. For example, the 2014 Devolution Agreement between the Cameron Government and the GMCA gives greater control over budgets and power over policies related to local economic regeneration and development, and this agreement has served as the template for other devolution arrangements throughout England. Some view the economic policies that have accompanied devolution in Greater Manchester as promoting business interests at the expense of inclusive growth, along with a narrow focus on innovation and entrepreneurialism. Tomaney and Pike (2020) argue that this approach has

> fostered inter-urban competition and economic concentration, tolerated—and indeed, even celebrated—high levels of socioeconomic inequality, was comfortable with some groups and places being losers and locked into austerity. (p.46)

Much like how theories of agglomeration economies were useful in understanding why graduates are important to local economic growth, endogenous growth adds more to our understanding of why cities are motivated to attract and retain gradautes. However, this brings us no further in understanding why the highly skilled and educated chose to live where they do. The next section of this chapter will examine two models for understanding the locational choice of highly educated workers that have been very influential with local policymakers, including those in Greater Manchester. These are the theories of Richard Florida and Edward Glaeser.

2.4.3 The Florida Hypothesis: place quality and the attraction and retention of graduates

The basic premise of both agglomeration economies and endogenous growth is that the ability of a city to attract and retain highly educated and qualified workers – like graduates – appears to be essential for continued growth and success (Martin et al., 2014, p. 26). Much of the evidence for the relationship between education and growth at the local level comes from the urban economics literature. In their highly influential work on the skilled city, Glaeser et al. (2004) conclude that human capital is the best predictor of population and productivity growth at the city-regional level, more so than factors like amenities, climate, and innovation. Furthermore, their findings suggest that skills actually increase amenities at the local level, which suggests that increases in local human capital might drive redevelopment. The implications of this study are that attracting the highly skilled may require a bundle of features like infrastructure, social services, amenities, among others. Glaeser's considerable body of work has been very influential in the academic field of urban economies, and his advice has been sought by numerous mayors and local governments throughout the world. Glaeser has served on both the 2009/9 MEIR and the 2019/9 GMIPR reviews in GM.

Although Peck (2016) is critical of what he calls the "Glaeser effect" of "celebrity urbanology" that often advocates market-friendly policy reforms, Glaeser's preeminence in the study of human capital and skills in economic development has shaped the understanding of the need to retain graduates in GM. Glaser's work shows the relationship between HC and the growth and success of cities, but he does not provide a detailed explanation as to how or why amenities, services, and infrastructure may attract the highly skilled. The regression analyses simply suggest a statistically significant relationship, or what Martin et al. (2014) refer to as a 'strong degree of two-way causation' where the presence of the highly educated and skills is associated with increasing growth and productivity, and growing cities tend to attract more of the highly skilled and educated workers. Once again, we have returned to the chicken-and-the-egg conundrum of jobs and people mentioned previously. However, Richard Florida offers another possible explanation.

Florida argues in *The Rise of the Creative Class* ([2002] 2014) that cities with high densities of innovative people – what he terms "creative centres"— are uniquely poised to succeed in the new knowledge economy of the 21st century. At the core of Florida's thesis is that in the so-called "new economy", there has emerged a new class of knowledge workers made up of a "super creative core" of opinion makers like university professors, writers, actors, cultural figures, as well as other creative professionals working in technology, business, and the traditional professions of medicine and law. Florida credits the work of Jane Jacobs (1969, 1985) in shaping his ideas that the success of cities is ultimately dependent upon the creative activities of knowledge workers in the new economy.

If we revisit the 'chicken-or-the-egg' problem of 'jobs or people' from before, Florida claims that his hypothesis circumvents the conundrum because 'creative centres' create a virtuous cycle of creativity – where people and firms both want to be co-located. Florida claims creative centres must possess three key attributes to have real innovation and sustained economic growth, the "3T's of economic development": technology, talent, and tolerance. The 3Ts is not a novel thesis, and in an article titled *Must we all live in Southeast England?* from 1964, Chisholm speculates that London and the South

East are attract workers because of amenities and offering a better quality of life than Scotland and the North of England.

Florida has also developed several indices to rank different metro areas of the US according to the 3Ts. The 'technology index' is a composite of the number of high-tech firms located in a place plus patents per capita and an average annual patent growth rate. The original 2002 Talent Index was the number of university graduates in a given area, but the revised 2014 index only includes those in creative professions. An areas tolerance index is a composite of three sub-indices: the 'foreign-born index', 'the gay index', and the 'bohemian factor' made up of residents who are artists, writers, designers, and performers. Although ranking metro areas and regression analyses can reveal much about where creative and highly educated people cluster in the USA, they cannot reveal what drives the decisions about where to live.

In an examination of the 'creative class' in the UK, Clifton (2008, 2013) concludes that the creative class in England and Wales displays similar tendencies to Florida's creative class in the USA. Clifton's league table splits Greater Manchester into two NUTS3 regions, with Greater Manchester South and Greater Manchester North. South Manchester has a 'creative class rank' of 35, and North Manchester is ranked 75. This difference in fortunes between North and South Manchester is also evident in the local skills marketplace, where South Manchester is facing a skills deficit (high demand, low supply) and North Manchester is facing a low-skills equilibrium (low supply, low demand) (F. Froy et al., 2012). The OECD (ibid.) attributes the different skills landscape to structural economic differences between the South that includes the universities and economically diverse city centre with the former industrial centres of Bury, Oldham, and Rochdale in the North.

Florida's central thesis is that the creative class drives the economic and population growth of cities, but he does also touch on the drivers of locational choice for the creative class as well. Florida maintains that specific non-employment attributes attract creative people to cities: lifestyle, social interaction, dating (or what he refers to as the "mating market"), diversity, authenticity, and scenes that appeal to the varied and eclectic tastes of different groups and subcultures. Florida argues that "where we choose to live as opposed to what we do has become our main element of identity" (Florida, 2014, p. 299), and that migration decisions are primarily driven by places that offer "high-quality amenities and experiences, an openness to diversity of all kinds, and above all else the opportunity to validate their identities as creative people." (ibid.) Along these lines, Florida formalises three theoretical dimensions that determine the 'quality of place' that makes it attractive to the creative class:

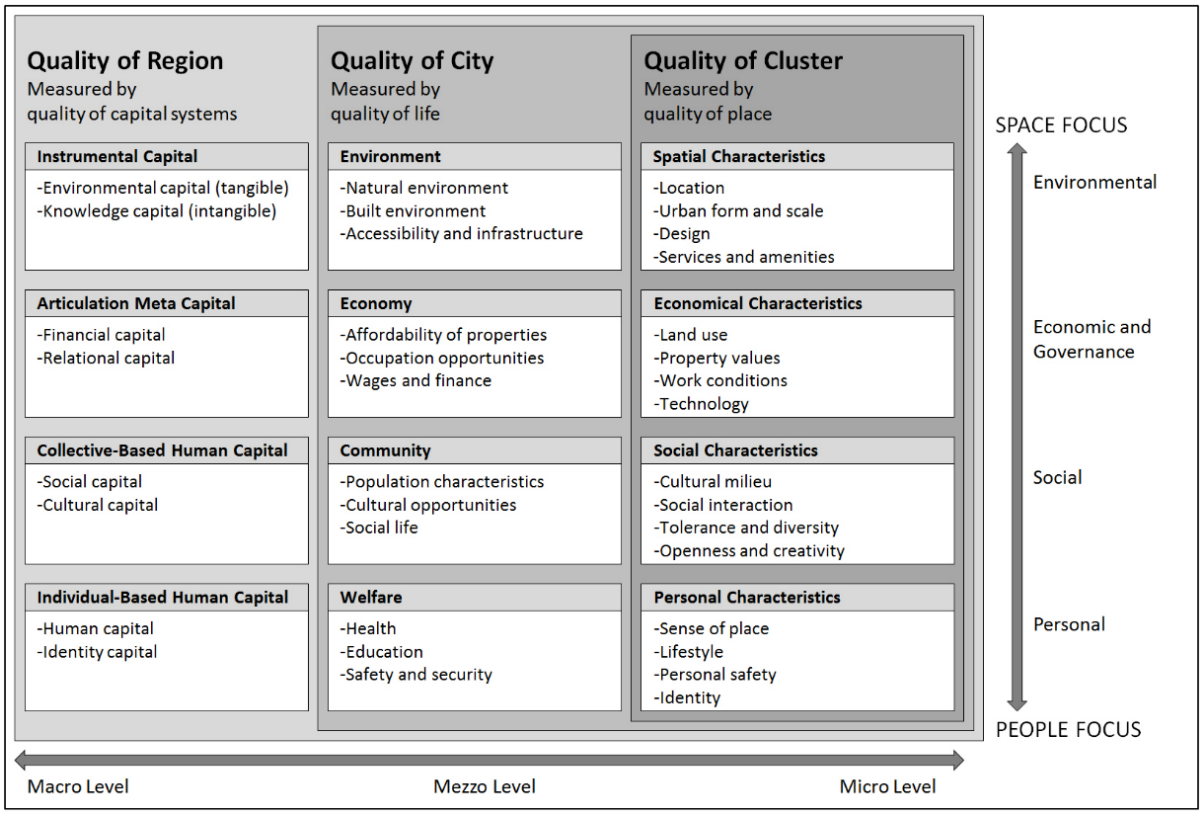
- What's there: the combination of the built environment and the natural environment; a proper setting for pursuit of creative lives.
- Who's there: the diverse kinds of people, interacting and providing cues that anyone can make a life in that community.
- What's going on: the vibrancy of street life, café culture, arts, music, and people engaging in outdoor activities— altogether a lot of active, exciting, creative endeavors. (Florida, 2014, p. 281)

Florida specifies that these three dimensions should be understood as an "interrelated set of experiences" (ibid., p. 281), which leads to a possible theoretical explanation for the attraction and retention of graduates to cities that includes individual tastes, preferences, and other subjective measures. A study co-authored by Florida (Mellander et al., 2011) tested the place quality thesis by surveying 28,000 people in the US. The results suggest factors associated with community satisfaction (i.e., place quality) are more important to locational choice than economic conditions of a location, individual economic circumstances, or demographic factors like gender and ethnicity. In a subsequent paper based on the same survey from Mellander et al., Florida et al. (2011) found that beauty and aesthetics are significantly associated with community satisfaction, as well as factors related to

economic security, school quality, and the quality of social interaction. It is important to note that this paper is concerned with the economic value of beauty rather than the perception of beauty.

These three dimensions of place quality are operationalised in a well-researched and conceptualised framework for place quality by Esmaeilpoorarabi et al. (2016), a graphic of which is provided in Figure 2.9.

Figure 2.9 – Esmaeilpoorarabi et al.'s conceptual urban quality evaluation framework



Source: Esmaeilpoorarabi et al. (2016, p. 12)

Esmaeilpoorarabi et al. develop on Florida's theoretical dimensions by creating a framework for measuring urban quality with the order to attract and retain a broader class of talent to cities. This framework also attempts to depict quality markers according to different geographical scales (macro-region, meso-city, and micro-cluster) and different spatial focus (from environmental to the individual).

Esmaeilpoorarabi et al.'s framework along with thirteen attributes of city attractiveness from Insch & Sun (2013) were used in an empirical study of almost 2,300 students in the German university city of Osnabrück and to analyse the influence of these factors on students' location choices (Wesselmann, 2018). The key findings were that, in contrast to Florida, the key qualities that students were looking for in a city were accessibility, safety, cleanliness, and affordable housing. Cultural amenities, exciting nightlife and a multicultural population were not found to be important factors among the survey participants, which problematises the universality of Florida's 'creative class' thesis. Insch & Sun's (2013) attributes of city attractiveness, which informed Wesselmann's study, are is based on a meta-analysis of the literature, the findings of which were then empirically tested to determine the drivers of students' overall satisfaction with their university host city. Both the Esmaeilpoorarabi et al. framework and Insch and Sun's thirteen attributes will be revisited in the at the end of this chapter a discussion about the development of a conceptual framework.

In their study of the attraction and retention of students in Canada, Darchen and Tremblay (2010) found mixed results when testing the place quality thesis. This study makes a distinction between quality of place linked to the external environment and quality of life factors related to social networks, family ties, or cultural preferences.

Overall, Darchen and Tremblay found *quality of place* to be not as important a factor as career opportunities, but *quality of life* was more important in Ottawa than Montreal. This suggests that quality of life and employability as a driver for attraction and retention may be location-dependent to a degree. Darchen and Tremblay's distinction between quality of place and quality of life will be revisited at the end of this literature review as well. It is important to note that Darchen and Tremblay also use the *future intentions* of current students in this and a subsequent study (2014) rather than actual mobility decisions of graduates. This is a finer point that will be returned to later in the discussion of this study's conceptual framework.

There is also a debate about whether graduates should be classed as 'creatives' given the graduate transition to the workplace is often marked by precarity and uncertainty (Finn & Holton, 2019). In addition, Florida's conception of creative workers seems to be more appropriate for those at the top end of the labour market rather than recent graduates just starting out (Peck, 2005; Perry, 2011; Wesselmann, 2018). In a quantitative study of interregional migration patterns of UK graduates based on HESA data, Faggian et al. (2014) found that graduates from creative disciplines were less mobile and earned less than graduates who studied non-creative subjects, but this study does not address the drivers of migration. However, Wesselmann (2018) concedes that the empirical evidence is inconclusive as to whether students deserve to be included in Florida's creative class. In studies that examine trends other than students or graduates, there are also mixed results in supporting Florida's thesis that place quality attracts the creative class in Germany (Vossen et al., 2019) and Canada (Lepawsky et al., 2010).

Aside from mixed results of his 'quality of place' notion, Florida's theories are contested on a number of other grounds. Glaeser (2005) maintains that Florida's 'creative capital' theory of urban growth does not offer anything new from the traditional human capital understanding of growth, whereby city growth is driven by high skilled people in high skilled industries who come up with innovative ideas (Glaeser, 2003). Glaeser's view is supported by a 2008 study that found human capital and local industrial factors do as well or better than talent, tolerance, and technology in explaining job and income growth at a city level (Donegan et al., 2008). When the 'creative class' thesis was compared against both human capital and social capital as an explanation for growth in the US, Hoyman and Faricy (2009) found that human capital is a better predictor of economic growth and social capital predicts wage growth. Whereas the measure for human capital endowment (educational attainment) is uncontroversial, the authors measure social capital by combining the density of voluntary organizations per capita along with a religious conservatism-religious pluralism measure. It is unlikely that the social capital measures will be reliable in regions like Western Europe that have low rates of religiosity. The authors do, however, warn policymakers against the use of 'creative' strategies for urban economic development. Rodríguez-Pose and Lee (2020) examine whether innovation in 290 US cities is a product of either scientific activity by 'geeks' (as measured by the number of STEM workers) or creative work done by 'hipsters' (as measured by the number of creative workers). The findings are that STEM workers are the more important driver of innovation, but the most innovative cities contain both "hipsters" and "geeks". Therefore, the authors recommend policy target at both creative and STEM workers, rather than prioritising one over the other.

Another strain of criticism levelled at Florida is based on the negative impacts of gentrification and critiques about the so-called 'neoliberal' system in general. Peck, for instance, takes umbrage at "cosmopolitan elitism"' and "pop universalism" that celebrates "neoliberal development agendas, framed around interurban competition, gentrification, middle-class consumption and place-marketing" (2005, p. 740-741) while seemingly not being concerned by the negative externalities of

gentrification like rising housing costs. As an example, Peck cites the use of promotional campaigns by cities that are targeted at young workers, initiatives which Peck views as low-cost alternatives to more expensive and long-term urban-regeneration policies. Likewise, in his review of the Florida's book, Marcuse (son of the famed critical theorist) sees Florida's ideas as little more than an account of the "lifestyle preferences of yuppies" (2003) and forms of self-actualization gained through consumerism. It is very much in the spirit of Peck and Marcuse that Christophers (2008) criticises the BBC's move to Salford as an example of the reproduction of an "entrenched neoliberal urban development agenda" in the form of a new creative quarter (p. 2313). Other theoretical explanations for indigenous local economic development include the concept of institutional thickness introduced by Amin and Thrift (1995), Sassen's New Logic of Agglomeration (1999), and Markusen's (1996) concepts of 'slippery' versus 'sticky' places.

Storper and Scott (2009) also claim that young up-and-comers flock to cities because they provide the freedom that allows for self-actualisation, with undertones of earlier theories from Ferdinand Tönnies in the nineteenth century and Jane Jacobs in the mid-twentieth century. Citing Tönnies's (1887) *Gemeinschaft* and *Gesellschaft* idea, Storper and Scott (2009) posit there is "something about a climate of openness in cities that frees individuals from the chains of tradition or anxieties about being judged, and that encourages people to be more imaginative and inventive" (p. 150). However, Storper and Scott see self-actualisation along positive humanistic lines and not as a virtue associated with the so-called neolibral agenda *à la* Peck. Storper and Scott (2009) also prefer structural explanations like local forms of economic specialisation for economic success, seeing policy interventions based on individual tastes and other 'demand-led' activities like developing amenities to be ineffective or even counterproductive in the long term. Storper (2013) calls the 'Florida-Glaeser' hypothesis of preference-driven human capital migration as being a theoretical misadventure, claiming that consumption theories can explain why recent graduates might prefer urban areas rather than rural ones, but they are unable to explain why they would want to live in one metropolitan area over another.

Storper is correct in saying that the type of analyses performed by Glaeser and Florida do not establish causality, but he appears to fall prey to the classic ecological fallacy that aggregate patterns and associations could possibly explain individual decision making. Essentially, in both Florida and Glaeser's work, "the arguments are founded on correlation, not causality, *explanation* resting on a restrictive array of supply-side variables" (Peck, 2016, p. 6, emphasis in the original). In his study of the creative class in the UK, Clifton (2008) qualifies his own quantitative findings by saying

> It should also be noted here that although our quantitative results provide evidence of consistency with the Creative Class theory through numerous correlations and associations, it is much more difficult to draw inferences relating to actual causality. This will be an issue that the qualitative part of the research addresses, with qualitative interviews and case studies designed to uncover the motivations and thought processes behind locational choices (i.e. designed to probe the *causations* that underpin the observed *correlations*). (p. 79, emphasis in the original)

Clifton is making the case for the ability of mixed methods research to bring a balanced understanding to locational choices by linking what can be called *quantitative context* with *qualitative understanding*. What is being discussed here is essentially the limitations of regression analyses and aggregate data, and to get a fuller picture of the attraction and retention of the highly skilled and educated, the focus of inquiry ought to consider individual-level data and phenomena as well.

2.4.5 Conclusion

Many development and labour market economists see regional economic growth and performance as a function of regional-specific specialisation underpinned by human capital (i.e., selection, skilling and education) and local institutions like universities that are favourable to attraction and retention activities (Storper, 2013).

The formula for 'winning', however, for many cities has taken the form of embracing initiatives coming out of the new neoclassical economics movement of the 1990s and 2000s, most notably the 'creative class', 'creative economies' ideas made famous by Richard Florida and the 'celebrity urbanology' of Edward Glaeser (Haughton et al., 2016; Peck, 2016). The fundamental argument of the Florida-Glaeser hypothesis is that urban resurgence is demand (and preference) driven. The theory of agglomeration economies associated with the 'new urban economics' and 'new regional economic geography' provide the intellectual rationale for how 'world-class' cities envision creating sustained economic growth (Haughton et al., 2016).

As we conclude this discussion, it should be noted that along with Richard Florida's theory of place quality is, thus far, the only theory that offers an explanation of migration behaviour at the individual level. This is a key observation since this thesis focuses both on econometric modelling of graduate flows as well as the subjective understanding of place quality and its role in locational choice.

While agglomeration economies and endogenous growth theory provide compelling evidence for the importance of graduates to the economic growth of cities, they too were never intended to be explanatory models of human behaviour, decision making, or aesthetic judgements about place. Therefore, the next section of this literature review will examine human capital theory as it relates to migration.

2.5 Human Capital Theory and Graduate Migration

Human Capital Theory has been highly influential in the study of interregional migration of graduates in the UK in large part due to work done by Alessandra Faggian and colleagues over the past 20 years. A human capital interpretation of migration owes much to the legacy of the Ravenstein mentioned at the outset of this literature review, which was later expanded and updated by Hicks's in his *The Theory of Wages* (1932)

The modern understanding of HCT and migration, however, began with the pioneering work of two academics at the University of Chicago, Gary S. Becker (1962, 1964) and Larry A. Sjaastad (1962). Both Becker and Sjaastad relied on Schultz's earlier theory of Human Capital (1959, 1961), and like Shultz, Becker defines human capital to be investments in the form of education and on-the-job training that influence the "future monetary and psychic income" (1993). The key argument that Becker makes is that rational actors carefully weigh the costs and the benefits of migration in their decision-making processes and that, ultimately, wage differentials between areas determine migration. Becker's broader mission, however, was to create a unified theoretical framework that could give economics the ability to explain human behaviour based on "the basic assumptions of maximising behaviour, market equilibrium, and stable preferences" (Teixeira, 2014, p. 15).

A close collaborator of Becker's at the University of Chicago, Sjaastad, applied the former's theories directly to individual migration decisions based on the basic assumptions of wage maximisation and stable preferences (1962). Sjaastad also takes the view that individuals are "rational and perfectly informed regarding how to invest in education and acquire skills to maximise future lifetime utility (in the form of income and job satisfaction) and whether and how to migrate based on this initial investment" (Biagi & Dotzel, 2018, p. 27).

Commenting on the rational choice arguments that underpin the neoclassical models of Becker and Sjaastad, Coleman argues that the core assumptions "in the face of empirical reality: persons' actions are shaped, redirected, constrained by the social context; norms, interpersonal trust, social networks, and social organization" (1988, p. 96). At a conceptual level, there is also disagreement about the definition of rationality: one dominant view sees rationality as consistency of behaviour, whereas another sees rationality in more restrictive terms as the maximization of rewards, which are usually pecuniary (Hodgson, 2012). The latter definition has largely been abandoned by many economists in view of mounting empirical evidence, and many of the critics of rational choice are some of the most famous names in economics: Friedrich Hayek, Gunnar Myrdal, Herbert Simon, Ronald Coase, Amartya Sen and Daniel Kahneman (Hodgson, 2012). But as economists have begun to problematise rational choice theory and seek other explanations of human behaviour, its popularity in the other social sciences endures despite its failure to "focus on the historically and geographically specific features of the socio-economic systems that we wish to study and understand." (ibid., 2012, p. 104).

While Becker and Sjaastad's theories of migration relied on the analysis of aggregate data, the availability of detailed household panel data in the US in the 1970s prompted the next big contributions to migration studies by Jacob Mincer. Mincer's study of short-distance (intercounty) and long-distance migration (interstate) of families headed by working-aged adults in the US between 1965 and 1970 found that singles are mobile than those who are married or have children, and gender differences that reflect gender and family roles of mid-20th century America e.g., migration tends to reduce the unemployment of men and to increase the unemployment of women, since many are 'tied' to male head-of-household movers (Mincer, 1978).

DaVanzo made several early contributions that are central to our understanding since her work continues to be cited in studies of UK graduate migration. In her early studies of migration that used regression analysis of US Census data, a key finding is that previous migration history is highly correlated with subsequent migration (DaVanzo, 1976). In other words, if a person has a history of moving for work or education, he or she will be more inclined to migrate in the future. This finding has important implications for this study's examination of graduate emigration since there are generally students entering higher education can be thought of as either 'local' or 'non-local', where the non-locals have moved to attend university and may be subsequently more mobile than their local counterparts.

DaVanzo's 1983 study has been the most influential in the understanding of migration of the highly skilled and educated, particularly her evaluation of the role of "location-specific capital and information costs" (p. 552) in migration. Location-specific capital refers to both tangible assets (e.g., a home) and intangible assets such as "job seniority or close friendships whose value would be lost, costly to replace, or steadily diminished if he lived somewhere else" (p. 553). Whereas Becker and Sjaastad assume that 'psychic costs' are embedded in their models, DaVanzo's concept of location-specific capital is a novel contribution that expands non-wage related explanations. DaVanzo's 1983 study has now entered the canon of migration studies, and her studies are have contributed to subsequent works concerning regional migration (Borjas et al., 1992), international migration (Borjas & Bratsberg, 1994), and human capital's role in regional development (Faggian et al., 2019).

Studies focused on the UK (Faggian et al., 2007a; Faggian & McCann, 2009) demonstrate that British students who move away for university are more likely to move after graduation. The tendency for mobile students (i.e., those who move to a city for university) to move on from their university city after graduation has also been confirmed in empirical studies in Finland (Haapanen & Tervo, 2012), Germany (von Proff et al., 2017). The understanding of graduate mobility in the United States suffers from the availability of rich microdata. This is partly due to the decentralisation of data collection and dissemination among the 50 different states. At the national level, for example, the Department of Education tends to use cohort studies with representative national samples, e.g., the Beginning Postsecondary Students Longitudinal Study and the Baccalaureate and Beyond Longitudinal Study

(National Center for Education Statistics, n.d.). Relying on a more comprehensive dataset from the National Science Foundation, Gottlieb & Joseph (2006) show that technology graduates have a strong tendency to stay in the location where their most recent degree was taken. The tendency of American graduates to remain at the location of university of study is also corroborated by earlier findings of Groen (2004) and Groen an White (2004). If we view the economic understanding of migration as a cumulative process, than the literature review has demonstrated the continuity and development of theories from Friedman, Becker, Sjaastad, to the addition of family concerns of Mincer and location-specific capital of DaVanzo.

Faggian et al. (2007) for the UK found that individuals studying away from home are more likely to move after graduation, which is linked to the escalator phenomenon that was mentioned previously. The escalator effect is where young people migrate to London for work where they are able to build a career and accumulate capital, only to then 'cash out' later and move to the regions with lower costs of living (A. J. Fielding, 1992; A. Findlay et al., 2009). Increasingly, there is evidence that this escalator effect may operate in other UK cities and regions (Gordon et al., 2015; van Ham et al., 2012), including Manchester (Champion et al., 2014). It is important to recall that the theories of Mincer (1978) and DaVanzo are predicated on HCT, i.e., a person migrates because she expects the benefits to outweigh the costs. What DaVanzo's contribution indicates, however, is an acknowledgement in the field of economics that migration decisions include more than information about wages in different locations. The role of family and location-specific capital will feature prominently in other sections of this literature review, but the next section will examine non-pecuniary drivers of migration in more detail.

2.5.1 Push-Pull Models of Migration

Neoclassical economic models of migration still place wages and other pecuniary concerns at the heart of the process (Brettell & Hollifield, 2014; Greenwood, 1975, 1997, 2019), but push-pull models that originated in the field of international migration have been used to understand some of the non-economic drivers of human migration. These push-pull models of migration suggest that migrants are 'pushed' by low income, poor employment prospects, instability, or unsafe conditions in their home countries or regions and then 'pulled' by better prospects in more affluent, stable, or safer locations (Harris & Todaro, 1970; Lee, 1966). Some of the key non-employment related push-pull factors include the housing market, health, safety, social provision, transportation, and education (Green, 2017). Although there are numerous criticisms of the push-pull model (see Van Hear et al., 2018, for a recent discussion of criticisms), one of the main points of contention are that push-pull factors differ depending on the whether the movement is international (i.e. immigration/emigration), interregional, or even shorter distances like the daily commute. Therefore, the specific push-pull dynamics depend on the spatial scale as well as place-specific contexts.

Social housing tenants in the UK, for example, face restrictions moving between local authorities, which may impact rates of mobility for those at the bottom of the socio-economic ladder (Hughes & McCormick, 2000). The is also evidence for spatial consequences of the housing affordably 'crisis' in England, reducing household migration and constraining labour supplies (Szumilo, 2019). The 'Generation Rent' phenomenon has been used to describe the recent trend of young people who are increasingly living in the private rental market for longer periods due to the inability to get on the proverbial property ladder. However, this trend is not uniform throughout England, and the English experience cannot be applied wholesale to the rest of the U.K. For example, there is evidence in Scotland that the 'Generation Rent' phenomenon is particularly acute in both expensive cities and rural areas (Hoolachan et al., 2017). Mckee et al. (2017) argue that staying in the private rental market can be described in terms of a 'fallacy of choice' since young people have no option other than renting given homeownership is viewed as being unachievable. Sage et al. (2013) explore the complexity of

return migration to the parental home for graduate migrants and their families, arguing that the parental home represents a safety net in a period of prolonged instability.

Some commentators argue that young people in contemporary Western industrialised societies are members of a 'boomerang age' where they experience "less permanency and more movement in and out of a variety of family-related roles, statuses and living arrangements" (Mitchell, 2017, p. 1). Recent work from the OECD (McGowan & Andrews, 2015b) connects issues related to skills shortages (or surpluses) in local labour markets to housing as well, noting that policies that promote mobility like lower costs on buying property are often associated with lower skill mismatches. The estimated impact of transaction costs is particularly strong: reducing transaction costs from the highest level in Belgium to the median level in Finland reduces the probability of job mismatch of around seven percentage points. (Mcgowan & Andrews, 2015)

In other words, policy interventions in the housing market can influence residential mobility, which then has knock-on effects on skills supply/demand and local economic development. In an exhaustive literature review of the drivers of internal migration in developed nations, Green (2017) summarises the impact economic and non-economic factors have on three types of spatial mobility: long-distance migration, short-distance migration, and 'circulation' (i.e., the term for daily short distance activities like commuting). The push-pull drivers are organised into five categories: demography, macroeconomic and labour market factors; technological change; societal and non-economic considerations; other markets, and regulatory and institutional structures.

For example, the massification of higher education increases the rate of long-term, short-term, and 'circulation' migration. These findings need to be contextualised within national contexts, however. As Green points out, increased participation in higher education has led to a rise in long-distance migration in Sweden, but the trend in the UK has been for students to attend local HEIs rather than institutions in other regions. This highlights the importance of evaluating UK-specific empirical evidence of student-graduate migration. The next section of this chapter will provide an overview of the key economic studies related to graduate migration in the UK.

2.5.2 Empirical Studies of Graduate Migration and Human Capital

In an analysis of national graduate migration trends published by the ONS, the findings of Mosca and Wright (2010) provide a succinct summary of what the economic modelling of graduate migration can tell us, "migration is a selective process with graduates with certain characteristics having considerably higher probabilities of migrating… [including] class of degree, subject studied, type of institution attended and age at graduation." (p. 17) Economic modelling of flows can determine who has a greater probability of migration, but the explanatory power of econometrics for the study of graduate migration ends there. Like the other empirical works reviewed in this section, Mosca and Wright relied on econometric analysis of secondary HESA data, which is also a feature of this research design. Although they analyse both international and interregional flows, the main interregional findings are that

- Males have a higher probability of migrating than females
- Non-white graduates have a lower probability of migrating than white graduates
- Graduates with science qualifications are more mobile than those with an arts or humanities qualifications
- Graduates from Russell Group universities have a higher probability of migrating than those from Post-92 universities.

One of the most significant empirical works in the study of UK graduate migration over the past decade is Hoare and Corver's (2010) paper on the regional geography of graduate migration. Hoare and Corver model the flow of UK graduates using HESA data as well, and their typology of graduate migration is based on three physical addresses: their home residence, university address, and the location of first employment. In naming 'winner' and 'loser 'regions based on graduate in-flows and out-flows, the North West is characterised as a 'losing region' based on its negative gain rates between 1998/99 - 2001/02. London is the only region with a positive gain rate over the four years and London is the clear 'winner' of their analysis. Another key finding is that London tends to attract more graduate migrants with first- or upper second-class degrees. A more recent CfC report on graduate 'brain drain' from Manchester (McDonald, 2019) confirms that the distribution of degree classes for graduates working in Manchester is representative of the wider UK graduate population, but London still attracts a disproportionate amount of graduates with the best degrees. Hoare and Corver's analysis can be critiqued for taking a celebratory view of London as being a human capital magnet, tending to 'blame the regions' to borrow a term from Doreen Massey, by which is meant "regional problems are conceptualized, not as problems experienced by regions, but as problems for which, somehow, those regions are to blame" (D. Massey, 2013, p. 63). There is a growing body of literature that links social mobility with spatial mobility (Donnelly & Gamsu, 2018b; Gamsu et al., 2018; A. Miles & Leguina, 2018) Cunningham and Savage (2015) see London and the South East as a

> vortex for economic accumulation but it is also much more than that; it is a space where the coming together of intense economic, social and cultural resources enables the crystallisation of particular and nuanced forms of elite social class formations (p. 321).

In a study of inter-regional graduate migration and ethnicity, Faggian et al. (2006) used HESA data to analyse the employment–migration behaviour of 13,753 UK university graduates. Similar to Mosca and Wright (2010), Faggian et al. also find that ethnic minority graduates are less mobile than their white peers, also stressing a claim from HCT that reduced mobility may adversely impact future earnings potential. Faggian et al. (2007b) have also investigated the role of gender in UK graduate migration and found that there is evidence that women are *more* mobile than men. Their econometric analysis of the inter-regional migration of 308,00 graduates using HESA datasets cannot offer an explanation for the migration patterns, but the authors suggest that the higher mobility among females may act as "partial compensation mechanism for gender bias in the labor market" (p. 517). Their findings need to be examined closely since females in their study are found to be more likely to be repeat migrants (the most mobile), as well late migrants, and non-migrants (i.e., immobile). In contrast, male graduates are more likely to be return migrants or stayers[1].

This study must be contextualised within the larger corpus of migration research where there is broad agreement that migration and mobility is a gendered experience (Bélanger & Silvey, 2019; W. A. V Clark & Maas, 2015; D. Massey, 2013), and that there is constantly reliable evidence that women face unequal treatment in pay and employability (Laurison & Friedman, 2016). Fielding (1992) suggests that migration rates for men and women are the same, but it is only with the 'escalator effect' of migration to large and diverse labour markets with a lot of high-status jobs enabling women to improve their status. Curiously, the *Great British Brain Drain* series from the Centre for Cities does examine gender differences in graduate migration patterns.

[1] Faggian et al. use the following terminology: "*Repeat migrants* leave their domicile region for higher education and then find first employment in a region that is separated both from their original domicile and also the location of the educational institution; *return migrants* return to find first employment near their original domicile after having acquired higher education in a different region; *university stayers* who move away from their domicile for higher education but then find first employment in the same community where they received their education; *late migrants* attend higher education near their domicile and then search and find first employment in a region away from both their original domicile and educational institution; *non-migrants* both acquire higher education and also find first employment within 15 km of their original domicile." (Faggian et al., 2007b, p. 521-522, emphasis in the orignal)

Using Welsh and Scottish HESA records, Faggian et al. (2007a) empirically tested DaVanzo's theory that subsequent migration is related to previous migration and the Sjaastad–Becker hypothesis of mobility being linked with higher rates of human capital. Although they noted regional variance between the two populations, the authors confirm that previous migration history and the level of human capital is associated with post-university migration. In a more recent study of Welsh graduate migration, Bristow et al. (2011) find that regional graduate migration patterns are also liked to a history of moving to study, as well as employment opportunities, quality-of-life factors, amenities, and social aspects. In a longitudinal study of graduate retention and migration of a cohort of University of Edinburgh students, Bond et al. (2008) found that graduate migration is influenced by social connections and embeddedness, employment opportunities, and hopes and expectations for the future.

This literature review has highlighted the importance of the rhetoric of agglomeration economies to graduate attraction and retention efforts, particularly related to the role of human capital in economic development (Duranton & Puga, 2004; E. L. Glaeser et al., 2001; Schultz, 1959, 1961). In another analysis of HESA data, Faggian and McCann (2008) find that only modern universities (e.g., post-92 universities) play a significant employment role in their local economies since graduates from elite universities (e.g., Russell Group universities) are less likely to stay after graduation. In essence, modern universities are thought to be more locally oriented and elite universities, like the Russell Group, are thought to serve more national and global constituencies. Faggian and McCann also highlight two distinct types of human capital effects on local development:

> One effect is via an aggregate productivity impact associated with location-specific local knowledge spillovers and human capital externalities, while the second effect is a labour-migration impact on the allocation of factors. In circumstances where these two impacts coincide, regions will flourish, whereas in situations where they do not coincide, regions will struggle. (p. 212)

What the authors are describing is a tension between cities and regions that have an interest in retaining talent locally and individuals who may have an incentive to be mobile as HCT would suggest. In an evaluation of graduates, migration trends, and Richard Florida's 'creative class' thesis, Faggian et al. (2014) find that bohemian graduates (i.e., those with qualifications in the arts and creative fields) are less mobile than their non- bohemian peers. In a study on the impact of mobility and early career earning, Kidd et al. (2017) find that more mobile students do earn more than those who are less mobile, and the earnings advantage is largely a function extending the job search beyond a student's local area. Given that there is a financial incentive to be mobile, they also note an important tension between individual and regions regarding mobility:

> There is an inevitable tension between prosperity for regions from which students originate (but potentially leave) and the individual financial returns available for students. (ibid., p. 102)

Whereas cities and regions may be driven by what has previously been termed 'possessive territorialism', individuals are incentivised to be mobile because this means higher wages. Therefore, what is 'good' for cities and regions, may not necessarily be 'good' for individuals when mobility is concerned.

2.5.3 Conclusion

We have traced the cumulative development of the economic understanding of migration from late 19th century through to the concepts that largely still govern the understanding of the migration of graduates and the highly educated: the human capital theories of Schultz, Becker, Sjaastad, Mincer,

and DaVanzo. Stigler and Becker (1977) see a natural terminus of the neoclassical economic explanations for social phenomena being reached when the question hinges on a difference in tastes and preferences between people, referring to the Latin maximum, *de gustibus non est disputandum* ['there is no accounting for taste'] (p. 76). With the addition of the push-pull framework, the universe of possible explanations has been expanded to include non-economic drivers of migration as well.

Even as economists seek to build more and more sophisticated economic models of migration, a new debate in migration studies has begun to question the limits of the wage differentials to explain human migratory behaviour. Representatives of the 'new economics of migration' in the 1980s and 1990s claimed that economic theory, with different socio-spatial units of analysis, need to consider sociological and anthropological questions as well (Brettell & Hollifield, 2014).

Conversely, there is a growing debate in the literature that says it is increasingly difficult to explain contemporary migration flows in neoclassical terms of earnings differentials (Javorcik et al., 2011). In their highly influential review of high skilled migration and agglomeration in the *Annual Review of Economics*, Kerr et a.l. (2017) come to the conclusion that traditional neo-classical migration theories are only able to explain parts of high-skilled migration as it relates to wages, with the authors also conceding that there are important explanations also to be found in other domains in life.

Morrison and Clark (2011) suggest that large surveys in the UK (The British Household Panel Survey), the USA (The Panel Study of Income Dynamics, and the Current Population Survey), and Australia (The Household, Income and Labour Dynamics in Australia) all demonstrate that less than one-third of all internal migrants are motivated by employment reasons. As has been argued in previous sections, there are alternative explanations for migration. Florida sees migration driven by 'place quality'; Glaser considers migration as being a function of amenities and consumption, and Green (2017) suggests that migration should be thought of a 'social and consumption activity.' We can, therefore, conclude that HCT provides some useful concepts and insights, but a narrow employment-focused understanding graduate migration is unduly limiting. As Clark and Maas say, "Clearly, jobs matter but it may be that they are the context within which migration occurs rather than simply an adjustment mechanism in the labour market." (2015, p. 54)

Even Storper (2013) claims that new economic geographers like Krugman have

> Come full circle…to what geographers and economic sociologists have claimed for a long time about the nature of spatial clusters. It's the human relationships and the 'untraded interdependencies' in them…that are the high-cost glue holding them to places and one another (p. 41).

Thus far, this literature review has presented a picture of graduates as *Homo œconomicus*, eminently rational beings whose embodied human capital is the fuel that powers the engine of growth and prosperity, at the national and local level. Speaking of this conception of *Homo œconomicus,* Foucault says

> Migration is an investment; the migrant is an investor. He is an entrepreneur of himself who incurs expenses by investing to obtain improvement. The mobility of a population and its ability to make choices of mobility as investment choices for improving income enable the phenomena of migration to be brought back into economic analysis, not as pure and simple effects of economic mechanisms which extend beyond individuals and which, as it were, bind them to an immense machine which they do not control, but as behavior in terms of individual enterprise, of enterprise of oneself with investments and incomes. (Foucault et al., 2008, p. 230)

Foucault was speaking admiringly of human capital theory and neoclassical economics because he viewed the ideas of the Chicago School theorists as alternatives to statist tendencies of control and domination (Vatter, 2017). What Foucault forgets, however, is that entrepreneurship requires capital

– economic and symbolic – for an enterprise to succeed. Thus, can Foucault's *Homo œconomicus* be contrasted with Bourdieu's *Homo academicus*, which reminds us that human capital formation is a process sometimes characterised by unequal access to economic and social capital, as well as unequal access to elite institutions of higher education (Bourdieu, 1988; 1998). The constructs of *Homo œconomicus* and *Homo academicus* can also be contrasted with Dahrendorf's (1964) description of *Homo sociologicus* — the sociological being — who fulfils her social role above all else. All three of these concepts of human beings are caricatures, but they do offer crude ways of understanding the interplay of agency, structural forces, and institutions in this thesis. The next section of this review will examine some of the sociological explanations of graduate migration, and many of these ideas are connected with the so-called 'mobility paradigm' that seeks to understand the motivations, experiences, and thought processes behind locational choice. The argument advanced here is that the extensive literature examined so far is primarily connected with understanding the outer world of modelling migration, but the mobilities literature may help us to understand the inner lives of students as they face decisions about where to live and work.

2.6 Higher Education Mobilities

The 'mobility turn' (also referred to as the 'mobilities paradigm') is one of the latest series of 'turns' in the social sciences, following such others as the 'linguistic turn', the 'cultural turn' and the 'spatial turn'. The 'mobility turn' emerged from the work of a number of social theorists working in the 1980s and 1990s, foremost among them was John Urry (Lash & Urry, 2002; Sheller & Urry, 2004, 2006; Urry, 1995, 2000, 2012), and the journal *Mobilities* was founded in 2006 to reflect this interdisciplinary interest in movement, flows, linkages, and networks (Brooks & Waters, 2018). The introduction to this thesis provided definitions to distinguish between 'migration' and 'mobility', but it may be worthwhile to revisit these two topics in brief since these concepts are inextricably linked to one another (Adey et al., 2013). Whereas migration can be thought of in terms that might be familiar to the demographer, mobility can be conceptualised as those "connections across scales, and envisions a distributed agency that is both human and non-human and that circulates amongst people, objects, and environments" (ibid., p. 59). It is important to emphasise here that the mobilities paradigm seeks to go beyond an understanding of movement between two fixed points on a map to arrive at understanding mobile subjects – 'bodies in motion'– with an emphasis on meanings, subjectivities, and the spaces of movement, from walking and dancing, to travel and emigration (T. Cresswell & Merriman, 2011). It seeks to understand the nuances between people and places, space and time, motion and stasis.

'Migration' and 'mobility' can also be crudely differentiated along methodological and philosophical grounds. 'Migration' is often associated with positivistic and rationalist domains like economics, demography, and traditional geography using quantitative methods (Brettell and Hollifield 2014), while 'mobility' is a more fluid area of scholarly inquiry that cuts across the disciplines of geography, transport, sociology, psychology, anthropology, tourist studies, and incorporates both structuralist and non-structuralist perspectives as well as fields like feminist and queer studies. In short, migration and its investigation is concerned with the 'outer' worlds in the language of Tolstoy and Berlin, and mobility is concerned with the 'inner lives' of mobile subjects. The broad church of mobilities studies uses an eclectic set of methodological tools that includes innovative techniques like mappings, photography, video, and mobile semiotics, as well as the more familiar qualitative and quantitative methods like interviews, case studies, personal histories, and survey questionnaires.

The tendency within the mobilities literature to embrace such varied concepts and methodologies poses a risk to the paradigm as a coherent analytical tool. In the inaugural issue of *Mobilities,* Adey addresses this issue by saying that "if mobility is everything then it is nothing" (2006, p. 75). Adey

argues that coherence to the paradigm can be brought by employing Urry's (2003) 'mobility/moorings dialectic', which reveals what Adey refers to as 'relational politics of (im)mobilities'. The dialectic can be summarised by saying social life in all of its richness and mobility requires "moorings that are solid, static, and immobile" (Adey, 2006b). Moorings can be physical objects or places that serve as a reference point for mobile experiences. Adey speaks of the process of 'becoming' or "how things come into *being* rather than how things *be*" (p. 79, emphasis in original), whether these 'becomings' are of people, places, or experiences. Citing Doreen Massey's *A Global Sense of Place* ([1994] 2013), Adey makes the point that unequal levels of mobility are a product of existing hierarchies in society, which then go on to reinforce differing rates of mobility/immobility.

This thesis is concerned with graduate mobility in the sense that students are confronted with locational choice as they transition from university to graduate employment. In even narrower terms, the focus is on post-university residential location choice, which is to say that it is not focused on the 'daily mobilities', the corporeal aspects of 'bodies in motion', or the various objects, implements, and vehicles that enable mobility. When these concepts are discussed in the, they are discussed within the larger context of students facing decision about where to live and work after university.

This section will be split into two strands of thought. The first will attempt to situate graduate migration in the mobilities literature. This will be done by drawing on literature related to geography, psychology, international student mobilities, and the everyday experiences of UK higher education students. The second part of this section starts from the premise that some aspects of mobility reflect existing hierarchies and structures related to class, gender, ethnicity, and other forms of identity (T. Cresswell, 2010). The discussion in this section will largely draw upon empirical works related to mobility and spatial inequality in the UK and studies done specifically on higher education students and graduates.

2.6.1 Situating Student Migration in the Mobilities Paradigm

In the *Routledge Handbook of Mobilities,* Fortier asks, "what can migration scholarship tell us about 'mobile worlds'? (p. 65) Part of the answer, she argues, lies in the accessibility and desirability of the mobile worlds, or, in other words, the view that mobility is often a product of existing power structures and inequalities previously expressed by Adey and Massey. Faist's (2013) discussion of mobility and migration is primarily concerned with cross-border movements – issues related to immigration and transnationality - but his arguments that the 'mobility turn' offers of a new paradigm for the social sciences does offer some useful perspectives. First, he makes a distinction between 'highly skilled mobiles' and less skilled 'labour migrants'. He links the discussion of the highly skilled to 'economic competitiveness in global markets' and the competition for 'brains' in the knowledge society, whereby this underlying logic of this competition is revealed by the international race to capture the best and the brightest international students. In the' global north', the 'highly skilled mobiles' are viewed in positively, a view which contrasts with the mass 'labour migrants' who are seen as threats that need to be controlled through borders and immigration policies. The most mobile group of students, the transnational in Faist's terms, often take up elite employment, which "secure them a social position at the upper end of the social ladder." (p. 1643).

Findlay (2010) offers some theoretical propositions to explain international student mobility, many of which are concerned with structural factors. He acknowledges the explanatory power of the Bourdieusian concepts of social and capital on the demand-side of the equation, i.e., in compelling middle-class families (mainly in the global south) to send their children to countries like the UK for higher education. Like Faist, Findlay views the initial push for international students as being driven by HEIs competing for the extra fee income from international students, but this initial position has

evolved to active encouragement for foreign graduates to stay in the UK and contribute to the 'knowledge economy'' (Findlay, 2010, p. 185). Although Findlay is discussing the 'knowledge migration' of international students, the same argument can be made for the retention of locally produced graduates to cities and regions of the UK. This is particularly true because Findlay does not view knowledge migration as a neutral process. Rather, student migration may bring benefits to some people and places, but it also has to potential the disempower others.

In a study of UK students studying abroad in mainly rich nations like the US and Australia, Findlay et al. (2012) argue that social class reproduces itself through international study in elite locations. They develop a conceptualisation of student flows in relation to vertical differentiation in the HE marketplace and a stratification of the global labour market. This conceptualisation is based on King et al.'s (2010) literature review on international student migration commissioned by the then Higher Education Funding Council for England (HEFCE) and Marginson's (2006) conception of vertical and horizontal globalisation of higher education. Findlay et al. argue that social class reproduction is present through the entire education to employment journey, or what the authors refer to as "'the elite private secondary-elite university-elite professions pipeline" of the "transnational capitalist class". The framework developed by Findlay et al. will serve as the inspiration for the first conceptual framework presented at the end of this literature review. Within the UK, the pipeline from the elite-university (i.e., Russell Group universities) to elite graduate employment mainly in London is evident in works on national and interregional graduate migration in the UK (Faggian & McCann, 2008; A. Findlay et al., 2009; Gordon et al., 2015; Hoare & Corver, 2010).

Brooks and Waters (2018) maintain that most educational research has been, and continues to be, conducted with the underlying assumption of the 'spatial embeddedness' of institutions, which serve almost as hermetically sealed "containers of social action" divorced from the wider world and local communities. It is largely in response to these assumptions that they conceived their edited book on *Materialities and Mobilities in Education* (2018), which also takes a dialectical view of the relationship between mobility and fixity, arguing that there is a mutually constitutive relationship between 'materiality' and 'mobility', what they term 'convergence'. 'Materiality' can be analysed at different scales, from landscapes and buildings, to objects and technology, and bodies and the concept of 'embodiment'. Although they are mostly concerned with the material spaces and objects associated with learning and education, they do use the city as an example of the 'convergence' of materiality and mobility. The editors do concede, however, that the study of international student mobility has predominated in the literature, much to the detriment to understanding mobility in a national or subnational context. Drawing upon recent empirical work, they argue that higher education institutions are not merely stopover points in the lives of students. Instead, the university experience often provides meaningful anchorage in time and space that allow students to make sense of the past, present, and future.

2.6.2 Place Attachment

Much of the mobility literature also references the psychological concept of place attachment, which first emerged with Altman and Low's landmark book *Place Attachment* in 1992. They define the concept as being - quite simply - the ''bonding of people to places'' (Low & Altman, 1992, p. 2). Place attachment is a useful way to understand the sometimes-sticky relationship between people and places, much like the concept of embeddedness mentioned earlier. There is an important distinction made in the literature between 'place' and 'space' (for a recent review of the debate, see Campbell, 2018), Massey makes a distinction between the more cartographic notion of space and a 'sense of place' that is a "particular constellation of social relations, meeting and weaving together at a

particular locus . . . imagined as articulated moments in networks of social relations, experiences and understandings…" (Massey, [1991] 2013, p. 154). As the field has developed, the concept of place attachment has moved from the theoretical to the applied and has broadened to include concepts such as place identity, sense of place, place dependence, and place meaning (Manzo & Devine-Wright, 2013). Gustafson (2001; 2009) uses the concept of 'roots' and 'routes' to explain the relationship between place attachment and mobility in a Swedish context. Roots are similar to the traditional concept of place attachment based on long-time residence, a strong sense of community, and local knowledge built up over time. The embedded nature of roots is complemented by the mobility of routes, which represent the personal development, issues related to identity, and choice.

Place attachment is often linked to the concept of embeddedness, which can be defined as being "firmly or deeply ingrained in a place or context" (Parkinson et al., 2020, p. 4). Granovetter (1983; 1977) viewed any economic behaviour like job or locational choice as embedded in social networks, and some empirical work argues that regional embeddedness is an important factor explaining the tendency of graduates to stay in a known locality (Krabel & Flöther, 2014). In their study of young people's attitudes toward enterprise in the North of England, Parkinson et al. (2020) find that those who have higher social embeddedness are more likely to express the constraints of place in their decision making. It should come as no surprise that those who are firmly tied to a place may be less mobile than those who are less encumbered. In their study of mobility and place attachment in rural American, Barcus and Brunn (2010) identify three types of mobility-place attachment relationships:

1. **tied to place**: long- term residents who would prefer to live elsewhere but cannot because of financial or family obligations
2. **rooted in place:** long- term residents who willingly and enthusiastically remain in place
3. **mobile but attached:** non- residents or highly mobile residents who wish to maintain strong connections to place

Barcus and Brunn's study is focused on the positive aspects of place attachment and stasis rather than on mobility, however. Similar to the concepts of place attachment and embeddedness is what Tuan (1990) refers to as 'topophilia', or 'love of place'. Although empirical evidence does show that place attachment is associated with higher life satisfaction, better social capital, and higher adjustment in people (Manzo & Devine-Wright, 2013), but *predicting* the mobility behaviour of student-graduates based on place attachment or embeddedness is problematic because recent research shows people can form an attachment to multiple places (ibid). There is a question as to whether university students are 'typical residents' of a place or if they are more akin to tourists who are 'just passing through'. There is an argument to be made that university students occupy a liminal space between 'typical residents' of a place and a mobile tourist. If we take the example of voting, which is one of the most symbolically important rights with a residency requirement, the current UK government guidance for students is that they may register at both their university and home address, but they may only vote once. Here we see an acknowledgement by the state that students occupy a half-way residency between the site of their home and the site of their university, and they presumably exercise that right based on factors related to convenience, identity, attachment, or any other factor or combination of factors. Holton (2015) refers to the 'non-linearity' of non-local students' associations with their term-time location and ambivalence to place.

Parkinson et al. (2020) argue that mixed attachment and embeddedness are especially relevant for place-specific analysis since they draw attention to the demand-side aspects of the phenomenon, "considering subjective experiences of need, chance and opportunity against structures such as available forms of capital, market demand and even discrimination" (p. 4). In the case of graduate migration, mixed attachment and embeddedness mean examining the nuanced perceptions of multiple places, subjective contexts, the influence of social ties, and how these multiplicities shape

attitudes to 'staying put' or 'moving on'. In a qualitative study of graduate mobility in the North West, Cunningham and Christie (2019) find evidence that place attachment and a sense of regional "loyalty" is a factor in local graduate retention.

2.6.3 Elective belonging and lifestyle-consumption mobilities

It has been nearly 15 years since Savage et al. (2005) explored identity and belonging in a globalising Manchester. They use the concept of 'elective belonging' to describe how identity influences place attachment. This is a form of belonging that recognises mixed attachment. For them, elective belonging

> articulates senses of spatial attachment, social position, and forms of connectivity to other places. Belonging is not to a fixed community, with the implication of closed boundaries, but is more fluid, seeing places as sites for performing identities. Individuals attach their own biography to their 'chosen' residential location. (p.29)

Savage et al. use the concept of elective belonging to challenge the preconceived notions of 'born and bred locals' 'trapped in the past' and 'transients', including students, who are "here today and gone tomorrow" (p. 52). Their conclusions are that the Greater Manchester communities of Cheadle, Chorlton, Ramsbottom, and Wilmslow are new sites of globalisation where relationships are negotiated and relational, which is a powerful counterpoint to the 'networked society' that local attachments are an unfortunate historical residue in a now globalised world (Castells, 2004).

Goodhart (2017) makes a similar case to Savage et al.'s 'born and bred locals' and 'transients' binary in his discussion of what he views as two archetypal world views in contemporary British politics: 'somewheres' and 'anywheres'. According to Goodhart, 'somewheres' represent what Talcott Parsons referred to as 'achieved' identities whose self-worth comes from educational and career success. Describing these elite 'anywheres', Goodhart says,

> They tend to do well at school…then usually move from home to a residential university in their late teens and on to a career in the professions that might take them to London or even abroad for a year or two…which makes them generally comfortable and confident with new places and people. (p. 3)

'Somewheres', on the other hand, have Parsonsian 'ascribed' identities that are shaped by both social and place attachment, and have a distinctly more parochial world view with less mobile horizons. This view of the privileged middle class in motion, crossing borders, and with a view to the world beyond the local, and this a view that positions others, in the words of Taylor "as lacking; as un-reflexive, immobile, static and out of place" (2012, p. 2). She goes on

> Herein lies the emergence and consolidation of classed forms of placed personhood, the 'optimising self', who is future-oriented and self-regulating, that 'fit' into contemporary economic and social formations... Individuals are increasingly expected to take responsibility for their trajectories, assembling a range of networks and capitals in order to envisage and pursue a fulfilling and productive future: to 'come forward' and claim space as theirs (ibid).

Taylor is writing about gender and identity and perception of place in the context of de-industrialisation in the North East of England and the transition to a post-industrial economy. Here too we find the *Homo economicus* lauded by Foucault and reified by the Chicago School of economists. What this view neglects, however, is that the resources needed for a journey of self-actualisation for the highly mobile – Foucault's vision of the entrepreneur of self- are often associated with power and existing social hierarchies (Gustafson in Manzo & Devine-Wright, 2013; Taylor, 2012). The central

argument here is that the "way people are enabled or constrained in terms of their mobile practices differs markedly according to their position in social hierarchies'' (Cresswell, 2006, p. 199), which needs to temper the evolving conceptual framework based on individual tastes and subjectivities.

Cohen et al. (2015) remind us that the mobilities paradigm emerged out of Urry's interest in tourism studies, and they offer a vision of mobility – which they term 'lifestyle mobilities - that recognises the fluidity between travel, leisure and migration. Their line of argumentation is that lifestyles are associated with Giddens' (1991) conception of post-Fordism and late modernity where identity is no longer based on class but on aesthetic consumption practices. Lifestyle consumption becomes about "decisions not only about how to act but who to be" (Giddens, 1991, p. 81). Although freedom of choice is still constrained by issues of class and social exclusion according to Cohen et al., lifestyle mobilities blur the separation between 'home' and 'away', which contributes to multiple moorings tied to identity and aesthetic consumption practices. They argue that Giddens' 'project of the self' (1991) implies that lifestyle choices affect one's sense of self and that sense of self affects mobility-consumption choices. Richard Florida arrived at a very similar conclusion when he says "where we choose to live as opposed to what we do has become our main element of identity" (Florida, 2014, p. 300) before he goes on to explain his ''quality of place' criteria the creative class use in their locational choice decision making. It is these subjective notions of truth and beauty – in short, aesthetic judgements – that will add another dimension to the conceptual framework underpinning this study. King (2018) decries the "implied elitism of the argument that confines lifestyle-induced migration to a cultural aesthetic of the middle and affluent classes… (p. 8). When challenging this perceived elitism, King argues that young working-class migrants might also aspire for a "better lifestyle". Synthesizing various migration studies focusing on the alure of London, King claims that the capital offers "a place where a highly desirable young-adult lifestyle can be experienced at a particular life-stage of being young, single, individualistic, ambitious, and open to new challenges" (p. 9), whist also offering young people advance their careers and enjoy the

> features such as openness, cosmopolitanism, multiculturalism, "high" and "popular" cultural attractions, and the way that these place-embedded features enable young migrants to realise their potential before moving on to the next stage of life. (p. 9)

Although King is focused on London, it plausible that these assertions might apply to migrants to other UK 'escalator' cities like Manchester. However, King makes another valuable contribution by decupling tastes from class, which is a departure from Marxist and structuralist understandings of aesthetics. Pierre Bourdieu's *Distinction: A social critique of the judgement of taste* ([1979] 1984) offers a structuralist theory of tastes and has been particularly influential in the social sciences (see Fairclough, 2003; Gee, 2014; Kress & Van Leeuwen, 1996; Lukes, 2004; Wenger, 1999). Grenfell (2014) concisely summaries the overall thrust of Bourdieu' view of aesthetics by saying that "whereas taste would seem to be a personal quality, it is actually social" (p. 187), which leaves little room for the individualist characteristics of young migrants described by King. In the words of Bourdieu himself, "Taste classifies, and it classifies the classifier." ([1979] 1984, p. 5) King's supposition that working-class young people may share the same tastes in cities as older affluent migrants fundamentally disagrees with a Bourdieusian explanation.

2.6.4 Higher education student mobilities

Constraints to mobility is also a theme taken up by Finn and Holton in *Everyday Mobile Belonging: Theorising Higher Education Student Mobilities* (2019). Their work largely challenges the prevailing ideal of the model 'graduate citizen' developed by Ahier et al. (2005) whose linear onward and upward journey of self-sufficiency and independence begins with leaving home to attending university, never to return again. They describe this as the notion that

> university-related mobility ought to signal the end of ties with home (and when it does not, this is problematic). Indeed, the discourse that links home-leaving with particular (and symbolically valuable) characteristics of a responsible/sustainable/ethical graduate self (p. 177).

Alternatives to this ideal type include the so-called 'boomerang' or 'yo-yo' effects where students leave home only to return, and for students who remain or return to their home regions, the authors argue this can impact their confidence and sense of belonging to a "graduate class of knowledge workers and indeed the return on their investment" (Finn & Holton, 2019, p. 49). In the literature of international student migration, there is a growing focus on the multiple meanings of home and how it relates to migration plans (Geddie, 2013; G. Tan & Hugo, 2017; Wu & Wilkes, 2017). In their interviews with over 200 international students from over 50 countries studying at an elite Canadian university, Wu and Wilkes (2017) developed a framework that links four 'home conceptualisations' with migration plans. The organisation of the framework around 'home' acknowledges that graduates view 'home' as not only the geographic location of their previous residence, whether the parental home or another form, but 'home' also represents "set of feelings, social relations, or cultural meanings, an idea or an imaginary…it is a complex, multidimensional, and moveable concept" (Wu & Wilkes, 2017, p. 125).

Finn and Holton also develop an analytical framework for understanding student mobility in counterparty UK higher education that is centred on three dimensions: the every day, (im)mobilities, and belongingness. Embeddedness and attachment for parts of the everyday experiences of their subjects, while contributing to feelings of belonging (or not) and impacting attitudes and experiences of mobility and immobility. Their findings also confirm Finney's (2011) early work that UK ethnic minorities are less mobile than their white peers and that these reduced rates of mobility often have a negative impact on employment outcomes. Rates are even lower for female ethnic minorities, and Finney et al. attribute this to the possibility that family influence on higher education and mobility decisions might be greater for one-white women. Nearly thirty years ago, Massey noted that "survey after survey has shown how women's mobility…is restricted in a thousand different ways" ([2001] 2013, p. 148) by social strictures and social relations. Referring to the concentration of graduate jobs in London and the South East, Finney et al. see "complexities and economic penalties" (p. 179) for graduates remaining in the North West after completing university. What is less clear from their study, however, is if their study participants are aware of these penalties.

2.6.5 Recent Empirical Contributions

This discussion of the latest empirical findings will largely centre on two parts of the process: home-university mobility and university-employment mobility. In general, recent empirical works have shown that regional inequalities in the UK are reflected in migration patterns and experiences. In their evaluation of socio-spatial mobilities and class identity in the UK, Miles and Leguina (2018) find that the South of England's role as an 'escalator' region for upward mobility has continued since Fielding (1992) first coined the term nearly thirty years ago. Moreover, they find that the relationship between social and spatial mobility both confirms London and the South East's role in generating inequalities. They argue that migration from the North to the South for 'moving up the ladder' and continued social mobility is a "powerful demonstration of the capital's 'vortex' effect in draining other parts of the country of talent. Their interviews also suggest that Northerners who relocate to the South stand out by their use of 'class talk', which they authors argue reveals a form of social disorientation and a broader tendency of regional cultural divisions.

In a study of the 'escalator effect' in England's second-order cities (Birmingham, Manchester, Leeds, Newcastle, Bristol, Sheffield, Liverpool, Nottingham, and Leicester), Champion et al. (2014) found that

Manchester's rate of upward social mobility for non-migrants is second only to London when measuring transitions from White Collar Non-core occupations (other non-manual workers) to White Collar Core (managers and professional workers). This is relevant for graduates in Manchester who may start out in non-professional graduate employment and work their way into professional roles over time. Secondly, this study found that those moving to second-order cities, including Manchester, experienced much stronger upward mobility than non-migrants, which suggests that the 'migrant premium' is similar to London. These results, however, need to be contextualised within the debates of spatial inequality endemic to contemporary Britain.

In discussing their analysis of the BBC's Great British Class Survey, Savage et al. (2013) characterise the "relatively small, socially and spatially exclusive group at the apex of British society, whose economic wealth sets them apart from the great majority of the population" (p. 234) located mainly in London and the South East who are mostly graduates mainly of Oxbridge and the elite Russel Group universities. The 'escalator effect' is not without its detractors as well. Friedman and Laurison (2017) argue that the 'escalator effect' masks important spatial dimensions of the 'class ceiling' faced by workers from working-class backgrounds while also pointing out that that Central London still has considerable over-representation of elite jobs. Allen and Hollingworth (2013) use the Bourdieusian concept of 'place-based habitus' to explore how social class and place shape young people's perception of opportunities for social and geographical mobility in disadvantaged areas of East London, Nottingham, and Stoke on Trent.

The geographic mobility of students entering university has also been discussed in the sociology of education literature recently. Holdsworth (2009) argues that 'going away to uni' is an elite practice embedded in the culture of English HE, which represents the ideal of higher education cultivated since the 19th-century reforms onward. Christie (2007) has found the motivations for non-traditional students' decisions to stay at home during their studies is a combination of economic necessity and emotional and psychological attachments to their locally based social networks of family and friends.

In an analysis of 2014 HESA data, Donnelly and Gamsu (2018) found that socioeconomic status is linked to geographic mobility, where mobility is measured as a function of the distance between home domicile and university location. Secondly, a student's home region is the most significant determinant of mobility, even when other factors like educational factors, ethnicity, and social background are taken into account. Significantly, they find that those students in the North East and North West have some of the highest rates of immobility in the UK. Another notable finding is that students from a Bangladeshi and Pakistani background are much more likely to be immobile than their white peers: 78.1 per cent of Bangladeshi students and 71.1 per cent of Pakistani students are geographically immobile in regional terms. Donnelly and Gamsu speculate that the family obligations and objections identified by Bhobal (2011) that can be found in Pakistani and Bangladeshi households may contribute to these rates of immobility.

In a later study, Donnelly, Gamsu and Harris (2018) evaluate the spatial dynamics of race and ethnicity in the transition to university. The key finds are that the most diverse universities in the UK are in the large multicultural cities of London and Manchester. Table 2.3 is an adaptation of the authors "diversity score "league table for every U.K. university showing only those universities in Greater Manchester. The entropy value is a measure of homogeneity (i.e., where a single ethnic group predominates), and Gamsu et al.'s score varies between 0 (totally homogeneous) and 1 (totally heterogeneous). The authors argue that the concentration of BME and ethnic minority students in "underfunded, less prestigious universities" in large cities and the concentration of white students in "more provincial universities in small towns and elite institutions" reflect structural inequalities that impact both university life and graduate employment outcomes. The authors conclude by saying that "the student migration literature ultimately cannot avoid examining the structural inequalities of the uneven geography of race" (p. 10).

Immobility at the stage of entering university has knock-on effects where they are less likely to migrate after university, which has a negative impact on employment outcomes (Finney, 2011). Finally, Gamsu et al. speculate that student immobility in North of England may reflect 'structures of feeling' whereby working-class students may view HE institutional choice lenses of "accumulated and contemporary, inter-generational experience" (p. 13) of post-industrial transition and culture, which is wholly different than the working-class experience in London and the South East (A. J. Bailey, 2009). In their study of the drivers of international student mobility, Prazeres et al. (2017) find that the experiential qualities of study places are more important than institutional reputation, at least among the transnational elite. The study also found that lifestyle factors and high-status places (e.g., London) are used as markers of alternative forms of distinction. They also find that 'mobility capital' may serve as a form of symbolic capital, much like the concept of 'going away to uni' mentioned earlier.

Table 2.3 - Ethnic composition of Greater Manchester universities (for the cohort entering university in 2014–2015)

University name	Entropy value of university	Entropy value (local authority area of university)	University (% White)	Local authority area of university (% White)
The University of Bolton	0.58	0.33	60.45	81.81
The Manchester Metropolitan University	0.45	0.55	73.84	66.50
The University of Manchester	0.44	0.55	74.69	66.50
The University of Salford	0.52	0.22	68.77	90.06

Source: adapted from (2018, p. 13-15)

In a longitudinal study of Scottish graduate migration and retention, Bond et al. (2008) mention that the study of graduate migration is problematic because it overlaps with the topic of highly skilled migration, which makes for drawing distinctions between the two phenomena difficult. Their findings suggest that graduate migration immediately after leaving university is influenced primarily by social relationships and employment. However, later in life, factors like family, friends, and romantic partners become more important. This suggests that the life course may matter. In an examination of the migration histories of a cohort of from the University of Southampton, Sage et al. (2013) found that that post-graduation migration patterns are complex and precarious across the five years following leaving university. They find that the transition from higher education to employment is a period of instability and that the parental home (and parental support in general) provides a crucial safety net. Their findings are in linked with the 'boomerang' and 'yo-yo' trajectories of graduates returning to the parental home discussed by Finn and Holton (2019), the importance of the 'bank of mum and dad' in early adulthood (Hill et al., 2017), and the importance of intergenerational wealth and privileged for entry into elite professions (Friedman & Laurison, 2020). Similar to Bond et al. (2008), Sage et al. also find that graduate migration is linked to changing priorities along with the life course changes, where recent graduates may migrate to maximise earnings potential in line with human capital theory but reprioritise quality of life aspects as key junctures, i.e., as they partner, start families, or retire (A. J. Bailey, 2009; A. J. Fielding, 1992; Gordon et al., 2015; Whisler et al., 2008)

In a study examining the experiences of higher education students from Orkney and Shetland, Alexander (2016) found that her interview subjects explanations for migration decisions went beyond rational decisions about employment options but also took into account cultural and social factors. Alexander develops on this theme later in a Bourdieusian analysis of place-based habitus, identity,

and careers: where “Places and their labor markets may offer certain structures for career pathways, but of even more importance, places may offer certain physical, social, cultural, and familial attractions.” (Alexander & Hooley, 2018, p. 127). What Alexander reminds us that place and graduate migration is a complex topic reflecting multiple place attachments, paths of leaving and return, and questions relating to identity, culture, and social networks. If employment, social structures, and individual tastes and preferences are all parts of the explanation, then any conceptualisation of graduate migration needs to be flexible enough to incorporate these multiplicities.

This section provided an overview of the literature from the tradition of the mobilities paradigm and sought to highlight those theories and empirical studies that are most relevant to the study of graduate migration in a Greater Manchester context. The next section will draw conclusions from the different sections of this review before then turning attention to the conceptual framework that will be used in guiding the conduct of the data analysis and discussion of the findings.

2.6.6 Conclusion

This review has sought to contextualise UK graduate migration within larger debates in both the scholarly literature and the domains of policy and practice. Policy discourses speak of graduate migration in terms of solving the persistent ‘productivity crisis’ in the UK, while also driving the economic growth of UK cities and regions. There is compelling empirical evidence that human capital drives growth and productivity both at the national level (Gennaioli et al., 2013; Holland et al., 2013; Moretti, 2004) and at the city level (Glaeser, 2003; 2001), but neither agglomeration economic nor endogenous growth are models of individual decision making. However, Richard Florida’s theory that place quality attracts has been used in empirical studies of graduate retention and onward migration (Sebastien Darchen & Tremblay, 2010; Wesselmann, 2018), but Florida’s thesis has not been tested with UK graduates. Both agglomeration economies and endogenous growth rely on human capital, and HCT has long been the bedrock of neoclassical migration theory as well. The central tenant of HCT is that migrants are rational economic actors who are driven primary wage maximisation (G. S. Becker, 1962a, 1964b; DaVanzo, 1976, 1983; Sjaastad, 1962). This view is increasingly being called into question by behavioural theories (e.g., Kahneman, 1994) and findings from large scale social surveys (W. A. V Clark & Maas, 2015; Morrison & Clark, 2011).

The ‘mobilities turn’ in the social sciences represents what Findlay et al. (2015) view as “a change in research praxis from positioning migrants as ‘out there’…to be analysed, to a contemporary emphasis on understanding migrants being produced as ‘subject’.” (p. 391) Migration has become, in the words of Gilmartin (2008), “more interested in the subjective experiences of individual migrants, and how those experiences are shaped by and in turn shape migrant identities.” (p. 1893). Although Gilmartin is referring to international migrants, the same argument holds for graduate migration to and from UK cities. The literature from the mobilities emphasise concepts like place attachment, elective belonging, and lifestyle consumption. This body of literature view students, graduates, and migrants as subjects who are vague, ephemeral, and fluid, and whose subjectivities cannot be adequately understood with methods that require statistical precision and robustness. In essence, the mobilities literature allows us a glimpse into the inner lives of the students and graduates.

2.7 Conceptual Framework

Maxwell (2005) defines a conceptual framework as the “system of concepts, assumptions, expectations, beliefs, and theories” (p. 33) that supports the conduct of the entire research enterprise.

This thesis is an attempt to see graduate migration in all of its multiplicity, as a phenomenon that can be understood according to separate, competing, sometimes contradictory theories. Recalling Berlin's parable of the fox and hedgehog, this is the dissertation of a committed fox *who knows many things*. Our friends, the hedgehogs who are of a single mind, will deny that such divergent intellectual traditions can be brought together in some discordant pastiche. This is a reasonable concern, and much of the remainder of this dissertation will be spent reconciling problems of epistemology, methods, and theory as we seek a fuller explanation of graduate migration.

However, as the preceding literature demonstrated, our understanding of graduate mobility is partial and seriously compromised by theoretical, ideological, and methodological divides. The introduction to this thesis provided working definitions for the key concepts related to graduate migration, but the next step in this continuing conceptualisation is the two frameworks offered here. The diversity of worldviews, disciplines, theories, forces, and perspectives that make up the phenomenon of graduate migration, however, can be classified into two broad categories: the outer world and the inner lives.

Returning to the leitmotif drawn from Berlin's (1994) analysis of Tolstoy, we can say that the 'outer world' of the phenomenon is represented by the physical movements of graduates that can be statistically modelled. Furthermore, the 'inner life' of graduates constitutes what Berlin refers to as "the ultimate data of subjective experience". (p. 451) Now we will turn our attention to providing two interrelated frameworks for both the outer world and the inner lives of our graduates, where the first framework conceptualises flows and the second framework conceptualises possible reasons for the flows.

2.7.1 The 'outer world': modelling graduate migration

Representing the 'outer world' of graduate migration in the form of a framework must consider that the observable behaviour of migration is little more than a person moving from Point *A* to Point *B.* In other words, this framework needs to represent graphically the substance of our definition of graduate migration flows, i.e., *a dynamic measure of the number of graduate migrants arriving in or departing from a geographic unit over the course of a specific period.*

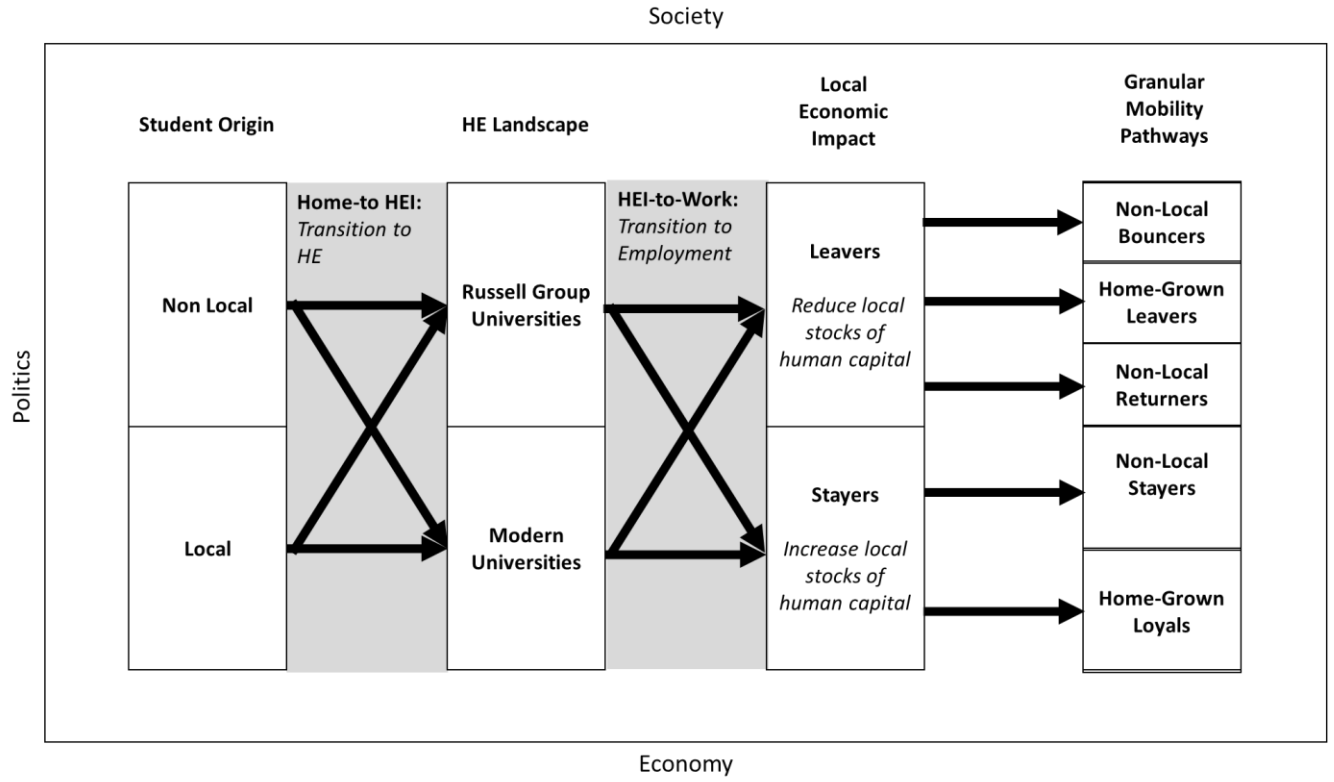
After reviewing existing conceptual frameworks for migration available in the literature, Findlay et al.'s (2012) framework was found to be a suitable template for this study because it intuitive, and it makes critical conceptual linkages between institutional hierarchies in higher education, mobility, and labour market outcomes. This framework is also situated within a wider frame that recognises the importance of cultural, social, economic and political processes.

Figure 2.10 is the first of two frameworks developed for this thesis, and it is titled 'graduate migration flows and their impact on local economic development'. There are two flows represented in this framework:

1. **Student Transitions to Higher Education (the 'home-to-HEI' flow):** There are two types of students entering a differentiated local university landscape ('Russell Group' versus 'Modern' universities): local students from Greater Manchester and non-local students coming from elsewhere in the United Kingdom. The Higher education hierarchies (Russell Group versus 'Modern' universities) is borrowed from Faggian and McCann (2008).
2. **Graduate Transitions to the Labour Market (the 'HEI-to-work' flows):** At the conclusion of their studies, graduates are either employed in Greater Manchester (i.e., stayers) or they are employed elsewhere in the UK (i.e., leavers). Leavers decrease local stocks of human capital, thereby endangering economic growth and productivity. Stayers increase stocks of human capital, thereby adding to economic growth and productivity. A subsequent framework,

(Figure 2.10) offers a possible explanation for these flows based on perceptions of place quality, personal characteristics, and subjective views. This measures 'graduate retention'.

Figure 2.10 - Graduate migration flows and their impact on local economic development



A noticeable limitation of the framework at this stage is that our understanding of the graduates' movements ends at Greater Manchester's borders with Cheshire, Derbyshire, West Yorkshire, Lancashire, and Merseyside. To broaden the analysis beyond Manchester and to the UK at-large, movements can be extended to 'pathways' that take into consideration the ultimate destination of the graduate: 'home grown loyals', 'home grown leavers', 'stayers', 'home returners', and 'bouncers'. The method for creating these pathways, as well as their justification and descriptions is provided in the methods chapter, but these pathways measure graduate 'onward migration'.

By tracking movements beyond Greater Manchester, however, we also radically alter the focus of the analysis from a place-based orientation to an individual-based one. This is not to diminish the importance of the place-based metrics since the Manchester-based analysis may yield valuable findings about the impact of graduate retention on local stocks of human capital. By changing the emphasis to individuals, however, we are now following our attention on the graduates' individual journeys wherever they take us, whether they be staying in Manchester, returning home, or moving farther afield. Section 6.1 of this thesis will present this framework once again to frame the discussion of the findings, but the version in Section 6.1 will be 'filled in' with the actual top-line figures resulting from the HESA data analysis.

A focus on purely on flows, however, may give the misleading impression that graduate mobility is nothing more than the comparison Redford (1926) makes between human movement and the seasonal migration of "the birds of passage, beating northwards in the springtime" (p. 1) in his study of migration in Industrial Revolution England. Even at this stage, however, we are making implicit causal assumptions about migration behaviour, i.e., that students are migrating for either university or work. However, we can qualify these implicit assumptions by thinking of these flows as in terms of

Weber's (1949) concept of the ideal-type. In other words, by saying that these flows are simply "concrete individual phenomena … arranged into a unified analytical construct" (p. 90), whilst also being careful to avoid the reification of these categories and accepting them "as not as an end but as means" (p.92) to an end in our journey of understanding. We are, therefore, still conforming to the narrow instrumentalist explanations of graduate migration that we have criticised throughout these pages, and any possible motivations based on the 'inner lives' of our graduates are still obscured from view.

Counting flows and drawing statistical inferences about the characteristics of the graduates will, no doubt, lead to important findings, but such an analysis will not allow us to reach any direct conclusions about the individual motivations of our graduates. To do this, we must gain and understand graduate tastes, intentions, and subjectivities. To quote Gary Becker, the pioneering economic theorist of Human Capital Theory who featured prominently at the beginning of this literature review,

> On the traditional view, an explanation of economic phenomena that reaches a difference in tastes between people or times is the terminus of the argument: the problem is abandoned at this point to whoever studies and explains tastes (psychologists? anthropologists? phrenologists? sociobiologists?). (Stigler & Becker, 1977, p. 76)

In other words, we have reached the end of what HCT and wages can tell us about migration, and, more importantly, we have reached the end of the road for the implicit and explicit assumptions that underlie our first framework. It is, therefore, time for us to take the road "less travelled by" in the words of Robert Frost (2012) on our onward journey for explaining why graduates exhibit the outer behaviour that they do. Rather than frame this knowing along the institutionalised lines mentioned by Becker and Stigler, the next section will argue that aesthetics – matters of taste - can be used to explain locational choice. The broadly philosophical approach taken below draws inspiration from Yi-Fu Tuan's (1971, 1976, 2010) vision of humanistic geography that is centred on the subjective experience of place, while also giving prominence to the role of philosophy in the research process, which Tuan refers to as the "human activity par excellence for its basic character is reflection." (1976, p. 267)

2.7.2 The 'inner lives' of graduates: place quality, tastes, and subjectivities

We now depart the outer world and the counting of our students and turn our attention to the inner lives of the individual graduates, which ultimately promise what Berlin describes as the "ultimate data of subjective experience," (1994, p. 451). Producing this 'ultimate data' is a two-step process relying primarily on two distinct, but interrelated, concepts of aesthetic judgement as it relates to place quality and *verstehen,* or 'understanding', as it relates to subjective meaning. The first principle holds that decisions about where to live and work are 'aesthetic judgements' of place quality in a neo-Kantian understanding of the term. In our usage, aesthetics is not restricted to the domains of art and 'beauty'. Rather, aesthetics is understood as "difference in tastes between people" as mentioned by Stigler and Becker in the previous quotation. This understanding is neo-Kantian in the sense that it takes inspiration from original ideas contained in Kant's *Critique of Judgment* (Kant, [1790] 1914), but some of the more problematic aspects of Kant's thinking are dropped as advocated by theorists like Weber. The main departures from Kant's original thinking are related to *a priori* knowledge and interest in ideographic ways of knowing like phenomenology (Heis, 2018), both of which issues will be addressed subsequently. However, we can use Kant's definition of an aesthetic judgement:

> The judgement of taste is therefore not a judgement of cognition, and is consequently not logical but aesthetical, by which we understand that whose determining ground can be *no other than subjective.* (Kant, [1790] 1914, p. 45-46, emphasis in the original)

From this definition, we can take the idea that aesthetic judgements are decisions that are both related to *tastes* and that these tastes are *subjective*. Windelband (1883), a neo-Kantian of the late nineteenth century, makes a distinction between ways of knowing that are 'nomothetic', such as the

natural sciences whose goals are to produce general laws, and the 'ideographic' ways of knowing that are concerned with the unique and non-generalisable (Heis, 2018).

Hence, an aesthetic judgment can be thought of in the ideographic domain, and Kant's argument can be summed up by quoting a line from Virgil, *trahit sua quemque voluptas,* which loosely translates as *'we are each led by our own pleasure'* (Bernard in Kant, [1790] 1914, p. xix). It is important to mention that aesthetic judgements are used here as a loose philosophical principle and not as an empirically verifiable theory in the positivist sense. By a philosophical principle, it is meant that Kant, like Hume before him, opens the door to different ways of knowing phenomena and making determinations about them (e.g., understanding, judgement, and reason). For example, Hume's *is-ought* problem still influences how economists make judgments on issues in terms of 'positive statements' based on empirical evidence and 'normative statements' based on moral, ethical, ideological, or political values. Hume and Kant ultimately reject the Aristotelian worldview that maintains that all phenomena — whether human or physical — must be understood teleologically, and following this logic, this thesis view tastes in places as *a way* to understand how students might approach locational choice and not *the only way* to understand this phenomenon.

Casting perception of place as an aesthetic judgement agrees with Karl Popper's notion that human behaviour must be understood in the context of the "logic of the situation" (2006, p. 107), or the universe of factors – psychological, environmental, economic, etc. - that are relevant to a specific decision making context. Drawing upon Weber's social action theory, Popper argues that any one factor or disciplinary frame of reference is often partial, saying that "the 'psychological' part of the explanation is often very trivial, as compared to the detailed determination of his action by what we may call the *logic of the situation."* (ibid., emphasis in the original). When speaking of 'locational choice' in this thesis, it should be understood in this contingent and situational manner. Therefore, we arrive at the final stage of our on-going conceptualisation of the attraction and retention of graduates that was begun in the introduction of this thesis by saying that perception of place quality is an aesthetic judgement that ultimately influences graduate locational choice.

However, these matters of tastes may be related to both place-based or non-place-based characteristics that are subjectively understood and subjectively used in decisions about where to live and work. There are finer philosophical discrepancies that need to be clarified. Kant's claims of *a priori* knowledge are problematic, which is to say that any notions that beauty or tastes have *a priori* foundations are dismissed as untenable and, pragmatically, unnecessary for this analysis. A similar stance on *a priori* knowledge is taken by Husserl ([1936] 1970) in his phenomenological approach and Weber's theory of social action ([1917] 1949). Secondly, as will be argued in the methodology chapter, this work takes a broad postpositivist position that dismisses realist claims about what Kant describes as "the real in an empirical representation" (Kant, [1790] 1914, p. 45). One of the most enduring critiques of Kant's positions comes from Foucault's 1984 essay *What is Enlightenment?* where he rejects the universalism of Kant in favour of his brand of nominalism. Foucault also argues in this same work that humanism in its various guises from Ancient Greece to the Enlightenment is "too inconsistent to serve as an axis for reflection." (ibid., p. 47) However, if humanism can be used as an interpretive scheme in the social sciences, then its axis of reflection is quite simple and enduring: the explanation of social phenomenon lies in humans themselves, and not in gods, monsters, or the prophets of teleological utopianism. Therefore, the byword of humanisms in the social sciences can be said to be Kant's exclamation of *Aude sapere* [dare to know].

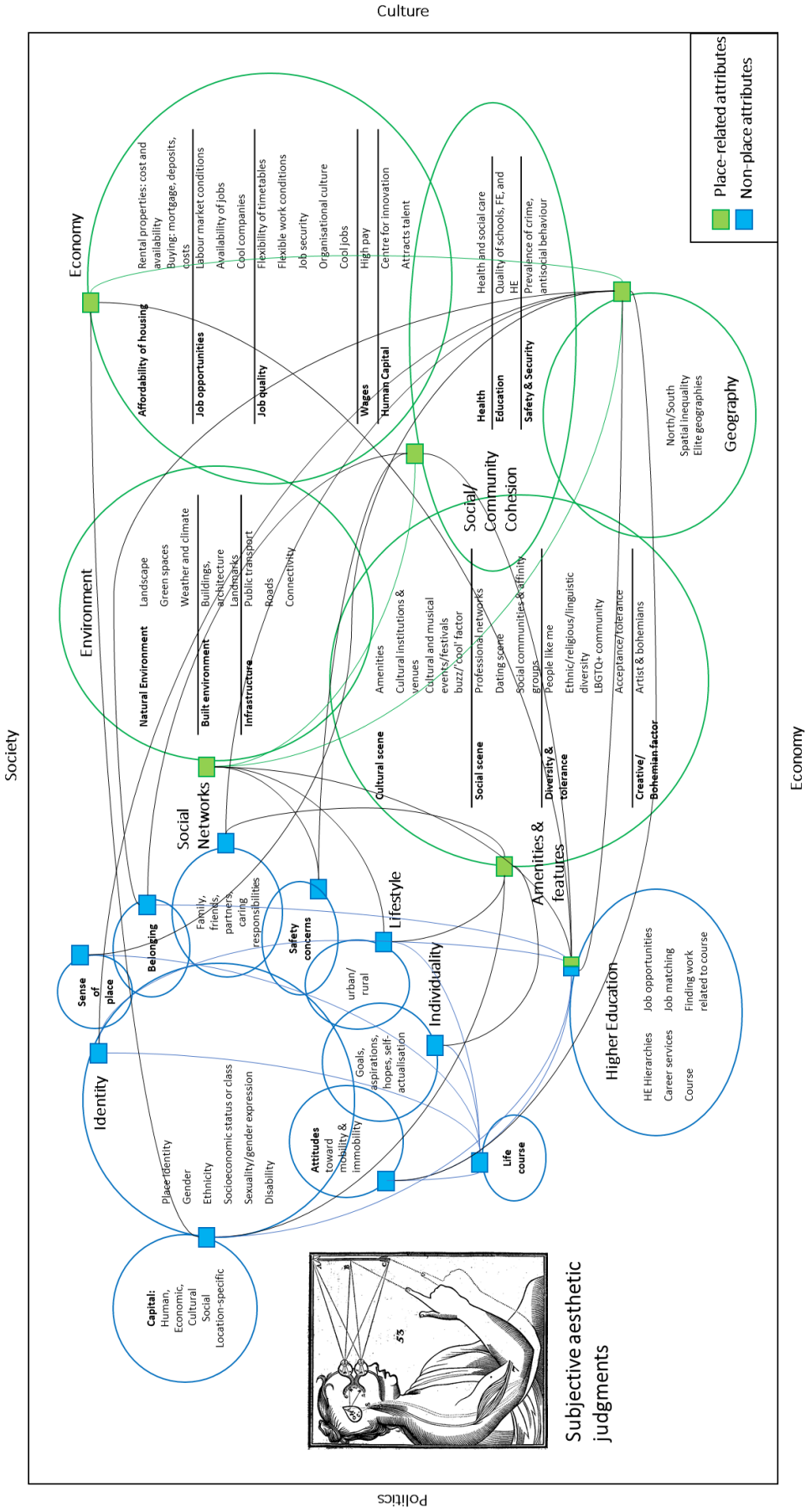
If we accept the premise that graduates decide where to live and work as a matter of tastes, then we can say that the concept of place quality represents the criteria used in decision making. Place quality here is understood in terms of Florida's (2014) conception of *what's there*; *who's there*, and *what's going on*, a conception which has been expanded, operationalised, and empirically tested by Sebastien Darchen and Tremblay (2010); Esmaeilpoorarabi et al. (2016); Insch & Sun (2013); Wesselmann (2018). To these place-quality characteristics, we can add additional non-place-based characteristics related

to preferences, identity, embodied attributes, and attitudes that are drawn from the mobilities and migration literature (see Appendix 1 for a list and corresponding literature). Florida sees place quality as "an interrelated set of experiences" (2013, p. 281), which is amenable to a taste-based understanding of the perception of place. As was mentioned earlier, Florida et al. (2011) also have also done an empirical study of aesthetics and place satisfaction. The approach taken to aesthetics here is a clear departure from Florida et al.'s understanding, however. Florida et a. (2011) are concerned with the *economic value* of aesthetics and conducts estimations by ordinary least-squares, ordered logit, and multinomial logit. The approach taken here is to view aesthetics as entirely subjective, which is also an acceptance of Berlin's caution "not to pretend to calculate the incalculable" ([1953] 1994, p. 495). Figure 2.11 presents a framework of perception of place as an aesthetic judgment, with place-based attributes shown in green and non-place-based aspects shown in blue. Since higher education has both individual and place-based aspects, this dimension has both blue and green markers.

In line with the first framework presented in Figure 2.10, this second framework is also set within the same cultural, social, economic and political frame in recognition that structural factors both enable and constrain choice. There are conceptual linkages between the various attributes as indicated by the curvilinear connector lines between the different concepts. However, it should be noted that these linkages are theoretical and drawn from the literature, and we must hold fast to the denial of any *a priori* knowledge from the standpoint of the perceiving subject. To elaborate on this point, we can say that Florida (2014) draws linkages between the economy, amenities, and social cohesion or that Gustafson (2001, 2009) makes connections between identity, sense of place, and mobility, but the perceiving subject may not make these linkages. Hence, the rejection of Kant's claim of *a priori* knowledge by the neo-Idealist theorists and our own rejection here. What these linkages do demonstrate, however, is how interrelated and multidimensional these concepts truly are. For example, 'belonging' is a multidimensional concept that cuts across identity, the life course, social networks, geography, work, amenities, among others. With this view in mind, taking a purely place-based (e.g.., amenities), psychological (e.g., 'belonging'), or socioeconomic (e.g., 'class') view would provide only woefully partial explanations. As Tuan says, a "humanistic does not deny the scientific perspectives on man; he builds on them" (1976, p. 267). Therefore, we do not deny these possible explanations; we can build on them to provide a more complete picture of the phenomenon. The process of navigating the multiplicities of place and personal dimensions centres on the subjective judgements of the perceiving subject represented graphically by a figure drawn by René Descartes in 1677, *De Homine Figuris* (Descartes, [1677] 1722). *De Homine Figuris* is included in this figure because it embodies the still contested interpretations of the *cogito* and, ultimately, as an acknowledgement of the intractable mind-body problem of perception and action. In the past twenty years, Casey (1993) and Malpas (2018) have developed on the metaphysical issues of perception of place, and they argue that place represents an ontological structure that includes both the inner human experience and the outer physical world.

The inner life and the outer world form a unified whole in what Seamon and Lundberg (2017) refer to as 'human-beings-experiencing-place', 'lived emplacement', and 'embodied place'. This same idea can be applied more broadly and will be referred to in this work according to the phenomenological concept of the subjective experience of place, or the subjective experience of university expertise, of employment, of home, and of family. Put simply – the subjective experience of 'reality' and life itself. By taking this orientation, we also see the conceptions of place quality and quality of life to be inextricably linked and difficult to decouple. Since the metaphysical issues raised by Descartes have not been solved, and nor are they likely ever to be, phenomenology offers a coherent philosophical way to carry on with this work.

Figure 2.11 – Subjective perception of place quality



In *The Phenomenology of Aesthetic Experience,* Dufrenne (1973) describes a process of perception that involves an 'aesthetic object' and the 'perceiving subject', where perception is a three-phased process of

1. *Presence*: a global, prereflective, experience that is one with the body
2. *Representation* and *imagination*: the inchoate dimensions of *presence* are given distinguishable characteristics
3. *Reflection* and *feeling*: "sympathetic" reflection results in an expressible feeling about an object, which is a *subjective* feeling

The result is that "the aesthetic object contains the subjectivity of the subject who has created it, who expresses himself in it, and whom in turn in manifests." (p. 196) In our usage, the aesthetic object – *the matter of tastes* - is the place itself (Greater Manchester) in all its multiplicity. If we use Dufrenne's process for perception, we are concerned with collecting data about the *reflections* and *feelings* of the subjects in this study. These reflections and feelings, then, impact choices about where to live and work. However, the primary data collection of this study ends at the 'reflection and feeling' stage, which will be addressed in the subsequent chapter.

Appendix 1 provides a list of the various place-based and non-place-based attributes that were used to create Figure 2.11. These attributes can be thought of an *à la carte* menu of dimensions that can be used in a survey of graduate locational choice tastes or to code narrative data. However, this should not be seen as an exhaustive or definitive list of attributes or sources, and any interview technique must make room for subjectivities.

Kant's typology of purposeful judgements in *Critique of Pure Judgement* made a resurgence in the late 19th century in the various strands of neo-idealist thought, and its enduring influence can be found in the many choice theories based methodological individualism, including Weber's theory of social action and the rational choice theory of neoclassical economics. The Marxist tradition of social theory was also influenced by Kantian aesthetics, and Marx himself says that "animals only produce according to the standards and needs of their species… [but] man also produces with the laws of beauty" (Marx in Seidman, 1983, p. 133). Siedman (1983) goes on to argue that it is through aesthetics – subjective tastes – that the "instrumentalism inherent in the mastery of external nature and the expressiveness of our naturalistic aspect are integrated and form a harmonious unity" (p. 133), which is an argument that complements the view taken here about the instrumentality of 'outer worlds' and the subjective expressiveness of 'inner lives'. In describing general Marxist views toward aesthetics, Seidman argues that when our "distinctive life-activity" - which he takes to be labour in a Marxist context – assumes an aesthetic character, the "sphere of production is transformed from a realm of domination into a sphere of freedom" (ibid.) For our purposes, we can say that when the distinctive activity of our analysis – which is locational choice - assumes an aesthetic character, the choice is transformed from the realm of instrumentality into a sphere that includes all of life's multiplicities: work, play, love, beauty, food, shelter, and innumerable others aspects that are not included in Figure 2.5.

Husserl developed phenomenology in order to investigate these multiplicities in a form he came to describe as the 'lifeworld' [*Lebenswelt*], or the "grand theatre" (Husserl, [1920] 1970) of the invariant structures of existence like spatiality, temporality, embodiment, intentionality, and aesthetics that - in their fullness and interrelationship – can be understood as they appear to perceiving humans (Simms, 2005). Husserl's phenomenology and other functionalist social theories like that of Weber in his *Methodology of Social Sciences* (Weber, [1917] 1949) and Schütz's *The Phenomenology of the Social World* ([1932] 1972) drew on Dilthey's neo-Kantian inspired method of *verstehen* [understanding] that draws a distinction between the ways of knowing in the natural sciences and ways of knowing in the cultural and sciences. As Burrell and Morgan say, " the natural sciences investigated external processes in the material world, the cultural sciences with the internal processes of the human minds." (2017, p. 229) The next chapter on methodology will provide the econometric

methods for modelling the external world of graduate migration, the methods for assessing the aesthetic tastes and attitudes using survey research, and the phenomenological method for coming to know the inner lives of our graduates.

2.7.3 The conceptual problem of intentionality

This following section touches on both conceptual and methodological issues, but it included at this point in the thesis because the conceptual issues presuppose the resulting methodological issues. Therefore, many of the methodological concepts anticipate discussions that will be revisited in the next chapter. It is important at this stage to note that there is a material difference between the research subjects in the two phases of this study. The subjects of the HESA analysis in Phase 1 are *graduates*, whilst the subjects of the primary data collection in Phase 2 are *students*. This difference presents conceptual challenges about whether plans (i.e., intentions about where to live and work) should be treated as materially different than historical events (i.e., observed migration patterns). This question can be answered along practical, theoretical, and methodological lines.

Along theoretical lines, there is broad agreement among social scientists that actual behaviour is driven in varying degrees by intentions. Ajzen's (1985) theory of planned behaviour has become very influential with social psychologists. Novemsky and Kahneman's (2005b, 2005a) work on intentions has contributed to the field of behaviour economics, and the role of intentionality in modern rational choice theory has a been recognised the importance of intentionality since its inception (Sugden, 1991). Despite this broad agreement, it is obvious that not all intentions are eventually carried out. Many of the drivers and constraints of migration-mobility were discussed in the literature review and are included in the two conceptual frameworks (figures 2.9 and 2.10) that underpin the research project discussed in this thesis.

For example, Darchen and Tremblay (2014) use the intentions of students in their study of the drivers of the attraction and retention of graduates to Canadian cities. In explaining the suitability of using current students' intentions to measure future behaviour, the authors acknowledge that "aspirations may be different from the actual behaviours of these students in the future." (p. 153) Practically speaking, this study recognises that the intentions of the students understood from survey and interview data may be different than their future behaviour. However, combining multiple data sources that includes both attitudes of students and actual migration patterns may lead to powerful insights about the phenomenon of graduate mobility.

Although the link between intentions and subsequent actions may be accepted in other fields, this thesis does not purport to be a work of behavioural economics or psychology. As this thesis draws upon phenomenology to analyse the interview data, a phenomenological justification is, therefore, necessary. This interpretation of the narrative data in this thesis relies on the phenomenological tradition of Alfred Schütz, which is largely an effort at operationalising Max Weber's theory of social action (Dreher, 2011). Schütz discusses intentions and past events in the context of motive and actions in *The Phenomenology of the Social World* ([1932] 1972), but there is scant guidance on future or planned actions. Therefore, it is necessary to consider Weber's original idea of *eklarendes verstehen* (or 'empathetic understanding'), which he meant that social scientists must try to understand the meanings of actions in terms of the motives and intentions that give rise to the actions (Turner, 2000). Weber maintains that explanations of social phenomena – like students deciding about where to live and work – have to take into account the subjective meaning that people attach to their motivations and actions (Burrell & Morgan, 2017). Since Weber's social action theory was developed for use in the study of history, he is ultimately concerned with the causal analysis of past events, and Turner (2000) argues that any causal explanation of a past action

> should be both adequate with respect to meaning, which is to say it should make the action intelligible to the relevant audience, and adequate with respect to cause, which is to say it should reach a minimum standard of probability. (p. 13)

Weber's concepts of causality and rational action have had a profound effect on the social sciences, particularly in economic theories of rational choice of neoclassical economics and methodological individualism more broadly (Turner, 2000). Elser in Turner (2000) makes the argument that although Weber is strongly associated with rational choice and the economic principle of self-interest, this is a common misnomer. He argues that Weber's strand of methodological individualism (i.e., the notion that all social phenomenon can be explained by individuals and their actions) uses the term 'reason' in the sense that actions are *purposeful* and not to "imply that behaviour is self-interested, but is consistent with any motivational assumption, including those of altruism or envy" (p. 25). It should also be mentioned that this thesis also rejects any atomistic view of social phenomenon, which is often a criticism often levelled at advocates of methodological individualism, which is to say, that structure is fundamental to the understanding of graduate mobility.

Although Weber's conception of causality as arising from understanding the intentionality and meaning of historical events may be clear, he does not appear to address attaching interpretive meaning to future, planned events. Since the student interviews are about mobility intentions, any phenomenological analysis needs to reconcile this discontinuity between method and temporality. Since Weber is silent on the matter, an answer was found in Ludwig M. Lachmann's work on subjective economics, which has been influential in the Austrian School of Economics. In *The Legacy of Max Weber* (1971), Lachmann wrestles with the problem of applying Weber's historical methods to the social sciences, where he views the Weberian historian as being interested in understanding the motivations of individual historical actors (e.g., Frederick the Great) and the social scientist as being interested in the institutions of society (Parsons, 1998). Regarding future actions, Lachmann has this to say:

> To understand an action means to understand the plan which is being carried out here and now. A phenomenon of human action is an observable event; so, in principle, is the making of plans.… Plans, strategic, economic or otherwise, are observable events. (p. 55)

Therefore, a student's plan about where to live and work can be treated as an observable event imbued with meaning and intentions. As such, a student's plans are suitable candidates for meaningful interpretation through Weberian social action theory, and phenomenological analysis more broadly. It is an important point to note that Weber's understanding of causality is limited to the "interpretation of an individual's meanings and intentions" and not "an empirical-statistical demonstration of the strictest sort" (Huff, 2017, p. 128).

2.7.4 Conclusion

A taste-based approach to understanding graduate locational choice bears similarities to two other theories from different scholarly traditions, and this point ought to be addressed before moving on to the next chapter on methodology. First, this approach shares similarities with Hirschman and Holbrook's influential theory of hedonistic consumption from the marketing literature, which seeks to explain the "multisensory, fantasy and emotive aspects of product usage experience", (1982, p. 92). Hedonistic consumption draws upon psychological approaches to understanding consumer behaviour (Holbrook, 2018), which often do not account for the structural and subjective factors in social interactions, particularly as it relates to the theory's use in place marketing and tourism studies (e.g., Jackson et al., 2009; V. W. S. Tung & Ritchie, 2011). As Peck's (2005) critique of Florida's creative class argues, the reduction of a place to a 'product' is also not without controversy. Far removed from this

theory is the structuralist tradition of sociology, where Pierre Bourdieu's *Distinction: A Social Critique of the Judgement of Taste* ([1979] 1984) seeks to correct and apply Kant's *Critique of Judgement* to understand the tastes and preferences of late 20th century French middle class. Bourdieu claims that "Taste classifies, and it classifies the classifier…" ([1979] 1984, p. 5) and this classification is made according to socioeconomic status. Much like how a Marxist bases her analyses on the assumption that the bourgeoise uphold the economic system to further their class interests, a Bourdieusain asserts that class reproduction is a function of forms of capital: economic, social, and cultural. If hedonistic consumption can be criticised as being blind to structural factors, then Bourdieu's theories can be criticised for being overly deterministic based on social structures.

The humanistic interpretation offered here suggests that some dimensions of individual tastes can be explained by utility maximisation or even forms of economic, social, or cultural capital; however, one can also judge the quality of city – or the quality of a painting, or even the quality of breakfast – on subjective criteria that may or may not be motivated in the reproduction of social hierarchies. This chapter has also advanced a conceptualisation of graduate migration that allows for both the statistical modelling of employment-related graduate flows and a framework for the subjective understanding of place quality and other factors related to locational choice. The framework for understanding graduate migration patterns makes important conceptual linkages between flows of graduates and the impact of these flows on local economic development. Similarly, linkages with higher education institutions, economic development, and relative rates of mobility are also made. A second framework interprets Florida's theory of place quality as a subjective aesthetic judgement along neo-Kantian lines that can be measured using survey research. Phenomenology is offered a way to understand the additional subjective dimensions of graduate locational choice.

De gustibus non est disputandum [There is no accounting for taste]. *The venerable admonition not to quarrel over tastes is commonly interpreted as advice to terminate a dispute when it has been resolved into a difference of tastes, presumably because there is no further room for rational persuasion. Tastes are the unchallengeable axioms of a man's behavior: he may properly (usefully) be criticized for inefficiency in satisfying his desires, but the desires themselves are data.*

George J. Stigler and Gary S. Becker, *De Gustibus Non Est Disputandum* (1977, p. 76)

3. Methods and Methodology

3.1 Introduction and study design

This mixed-methods study addresses graduate migration in the context of Greater Manchester. A modified explanatory research design has been used, which combines secondary data analysis with a second phase comprised of a survey questionnaire and interviews. In the first phase of the study, secondary quantitative data provided by HESA has been analysed to understand the broad trends and context of graduate migration in Greater Manchester. In the second phase, quantitative survey questionnaire data has been collected from current undergraduate students at GM's four local universities to understand how the perception of place quality relates to decisions about where to live and work after leaving university. Qualitative semi-structured interviews have been conducted on a sub-section of the questionnaire respondents to explore the experiences of mobility and locational choice among students. The reason for using qualitative follow-up data is to better understand the results from both the HESA data in phase one and the primary survey questionnaire data in phase two.

This chapter will first provide an overview of the suitability of mixed methods for answering the three research questions. It will then discuss some of the nuanced philosophical concerns of mixed methods research, before turning its attention to some common criticisms of mixed methods research. Then, the research design will be discussed, which can be described as a modified explanatory approach that combines a 'standalone' secondary data analysis phase with another phase containing quantitative and qualitative stages.

In the preface to an English edition of Max Weber's *The Methodology of the Social Sciences,* Shils remarks that all methodological works should be written "in the closest intimacy with actual research and against a background of constant and intensive meditation on the substantive problems of the theory and strategy of the social sciences" (Shils in Weber, 1949, p. iii). The approach taken to method and methodology in this thesis heeds these words, and this chapter is a product of intimate wrestling with the rich data sources used in the study and how to properly come to know the phenomenon of graduate migration. It should be noted at this point that all discussion of methods for the secondary data analysis will be 'carved out' and relocated to a self-contained chapter on the secondary data phase of the project (see Chapter 4). This self-contained chapter will include the relevant information on data collection, quality, analysis, and the results from the secondary HESA data.

Once these preliminary concerns are covered, the methods chapter will then be organised according to the main stages of the data collection and analysis procedures for mixed methods studies outlined by Creswell and Clark (2007). The phases of the data collection are organised according to sampling procedures, permissions needed, information to be collected, recording the data, and administering the data. In each of these sections, the quantitative data collection stage will be discussed before the

qualitative data collection phase. The procedures for data analysis are organised according to preparing the data for analysis, exploring the data, analysing the data, representing the data analysis and validating the data. However, before the substantive discussion begins in earnest, there are a number of conceptual issues that should be addressed.

3.1.1 Mixed method research: a case of form following function

Creswell and Clark (2007) define mixed methods research as

> A research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases in the research process. As a method, it focuses on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone (p. 5).

This comprehensive definition of mixed methods research needs to be discussed as it relates to the study at hand. The quantitative data used in this study includes the analysis of secondary data provided by HESA and the collection of primary quantitative data via a survey questionnaire. The primary qualitative data collected in this study is in the form of open-ended information which allows participants to answer questions about mobility in their own words. Mixing the data allows the researcher to provide a better understanding of the problem than either dataset can provide alone (Creswell & Clark, 2007), and the approach taken to mixing data in this study will be explained when the 'explanatory' research design is discussed at length.

There is a strong case to be made that the study of graduate mobility suffers from a methodological divide, where research from more positivist traditions like economics and regional studies often do not incorporate developments in more sociological traditions like higher education studies, human geography, and mobility studies. Recent empirical works on the broader topic of socio-spatial mobility use mixed-method approaches to both generalise findings based on rigorous quantitative analysis while also using qualitative methods to understand individual and subjective perceptions and experiences of (e.g., Favell & Recchi, 2011; Miles & Leguina, 2018).

In their study of graduate migration in Italy, Crescenzi et al. (2016) claim that mixed-methods research overcomes the weaknesses of a 'pure' mono-method approach by combining the distinct capacities of either approach to gain a fuller understanding of the complex issue of graduate migration. Since quantitative methods are "good at generalising and identifying the relative strengths of different factors in determining the locational decision "and qualatative methods are better at providing a "'thick' description of how the decision-making occurs by drawing from individual experiences and narratives" (Crescenzi et al., 2016, p. 607). Essentially, Crescenzi et al. (2016) are making a case for mixed-methods research as being able to answer two important questions related to graduate migration, the "*why* locational decisions are made (i.e. what factors determine them)" and the "*how* the underlying decision-making process occurs" (Crescenzi et al., 2016, p. 607, emphasis in original).

In the context of this study, the *who* of graduate migration is also relevant since the literature review has demonstrated what little is known about the characteristics of GM's graduates and their migration patterns. This study will first analyse secondary data provided by HESA to get a better understanding of the characteristics of graduates and their migration in GM. In his work on student migration, Findlay (2010) claims that using secondary data can shape "what is knowable" about the topic of student migration since it can provide "a more extensive representation of some aspects of…student mobility than can ever be achieved by a sole researcher engaging in some interviews" (p. 166).

The research questions provided in the introduction to this thesis can also be understood as in terms of the *outer worlds of* migration and *inner lives* of the graduates, where the former corresponds to the secondary data analysis, and the latter corresponds to the primary data collection and analysis:

The outer world	***The inner lives***
1. Who stays in GM after their studies?	2. What factors influence the retention of locally produced graduates beyond the obvious reasons of work and why? 3. How is Manchester viewed by students studying there and what impact do these perceptions have on decisions about where to live and work?

It seems appropriate to mention at this juncture that the choice of using mixed methods research is also bound up in a spirit of ecumenicalism and the need to build bridges along the methodological divide that limits our understanding of graduate migration. Teddlie and Tashakkori (2010) go to great care to place the genesis of mixed methods research in the 20th century within the context of the paradigm wars and the persistent division between Anglo-American and continental traditions. Savage and Burrows (2007) claim that a mixed methods approach offer a way through the impending crisis of empirical sociology by embracing an interest in description and classification by linking narrative, numbers, and images. As Creswell and Clark say, "we are social, behavioural, and human sciences researchers first, and dividing between quantitative and qualitative only serves to narrow the approaches and collaborations to inquiry" (2007, p. 9-10). This dissertation represents a humble attempt at examining the rich social phenomenon of graduate migration through different lenses.

3.1.2 Philosophical considerations and critiques of mixed methods research

The philosophical underpinnings of any research project, or what Lincoln and Guba (1994) refer to as the 'worldview' taken by the researcher, represent the basic set of beliefs or assumptions that guide the entire research enterprise. These philosophical foundations make a commitment to view on the nature of reality (ontology), how that reality is knowable (epistemology), the role of values in research (axiology), the research process itself (methodology), and the language of research (rhetoric) (Creswell & Clark, 2007). As a piece of mixed methods research, this thesis should be contextualised within larger debates about the use of mixed methods. Bryman (2012) summarises these debates into two main themes: an 'epistemological version' and a 'technical version' of critiques. The epistemological version encompasses diverse views that express in some form the opinion that quantitative and qualitative research are grounded in incompatible epistemological principles and, therefore, the mixing of these incommensurate world views is impermissible. In response to this, Bryman (ibid.) maintains that there has never been "perfect correspondence" (ibid., p. 630) between any method and matters of epistemology and ontology. Likewise, he also claims that it is "by no means clear that quantitative and qualitative research are in fact paradigms" (ibid.) in the Kuhnian sense of the term. In other words, many of the philosophical criticism levelled at mixed methods research can also be made for 'pure' monomethod research. Bryman's argument can be paraphrased as 'those who live in glass paradigms shouldn't throw stones'. The technical position, on the other hand, recognises the differing philosophical traditions and assumptions of the different methods and modes of analysis but maintain that quantitative and qualitative methods can be used in the same study since each method is, in fact, autonomous. Teddlie and Tashakkori (2010) refer to a researcher who embraces this

technical position as being “connoisseur of method” engaged in “methodological eclecticism” (p.8), and this is the view taken here.

This thesis takes direction from Creswell and Clark’s (2007) by using pragmatism as the ‘umbrella’ philosophical tradition for mixed methods research, which is a tradition drawn from theorists such as Peirce, James, Dewey and later contributors. Dewey is also often frequently cited by advocates of the (epistemological) pluralist tradition of science (Bohman, 1999; M. J. Brown, 2020), who argue that no single disciplinary approach can provide a full account of phenomena and that metascientific and epistemic concepts related to method, theory, explanation, and evidence should resist reductionist and monist ends (Keller et al., 2006). In a pluralist stance, Dewey also sees a moral dimension when he suggests the “problem of the unity of science constitutes a fundamentally important social problem” (1938, p. 32-33) since the variety of research interests, theories, and ideological orientations within and across disciplines resists the very totalitarian impulses he was witnessing in the society of the 1930s. This spirit of scientific diversity and ecumenism that has been embraced by contemporary advocates of pluralism in fields as diverse as physics, pure mathematics, biology, and economics (see Keller et al., 2006). Pragmatism is one in a series of philosophical traditions that seeks to bridge the divide between the natural sciences and cultural sciences that can be traced back to Hume, Kant, and neo-Kantian thinkers like Dilthey, Weber, Husserl and Schütz. The pluralist tradition, however, must be contrasted with those that advocate the unity of the sciences, which seeks a “single, complete, and comprehensive account” (Keller et al., 2006, p. 3) of the social or physical world. Scientific pluralism is not reductivist, unlike advocates for the unity of the sciences.

In *The William E. Massey Sr. Lectures* at Harvard University, Roraty (1997) suggests that Dewey’s inclusive stance is better suited to the task of social reform than the purely critical and reflective orientations of the post-structuralist and post-Marxists theories that predominate in many of the social sciences. As such, the pluralist stance taken this thesis — as well as pluralism’s fellow traveller, mixed methods — can be said to have explanatory, ethical, and impact-oriented dimensions. In essence, any single theory like class conflict could be used to explain graduate migration, and a singular theoretical orientation would no doubt yield valuable insights, but the reliance on a single explanation is unduly limiting in this instance.

Research questions are, ultimately, at the heart of mixed methods since it is research questions that guide choices about methods (e.g., quantitative, qualitative, or mixed) and methodologies (e.g., survey versus interviews) on the pragmatic basis of ‘what works’ best for answering the questions (Creswell & Clark, 2007). Regarding epistemology, the pragmatic tradition is rather broad church since it accommodates conceptions of reality that range from realism to subjective constructivism (Clark & Ivankova, 2015). Under this ‘umbrella’ pragmatic position, this thesis relies on two strands of postpositivist thought: realism which is often associated with quantitative methods, and constructivism which is often associated with qualitative methods. The postpositivist epistemological position is also the most common position taken by quantitative-dominated mixed methods designs (Creswell & Clark, 2007; Giddings & Grant, 2006; Teddlie & Tashakkori, 2010). Although postpositivism is most often associated with the realism of Karl Popper (Popper, [1934] 2005, [1963] 2002), contemporary postpositivism also has a constructivist-interpretivist variant that is amenable to portions of this work that rely on phenomenology (Fox, 2012). Popper was notoriously hostile to the social science disciplines like psychology that depend on subjective meanings, but his position is more nuanced than is generally appreciated. Of the ten theses that make up the epistemological basis of Popper’s postpositivism, the first reads, “There are no ultimate sources of knowledge. Every source, every suggestion is welcome; and every source; every suggestion is open to critical examination.” (Popper, 2002, p. 36) This chapter intends to just that, i.e., provide a rigorous and critical examination of multiple data sources.

If the quantitative stages of this research can be described as being postpositivist-realist, then the qualitative stage can be characterised as being postpositivist-constructivist. Section 3.2.3 will describe

the approach taken to attitudinal data and psychometrics in the questionnaire design, but the interpretation of the narrative data relies on the phenomenological tradition of Edmund Husserl and Alfred Schütz. Maurice Natanson, a student of Schütz and one of the foremost theorists of this school of phenomenology in the second half of the 20th century, proves a comprehensive definition of this tradition:

> Phenomenology is a presuppositionless philosophy which holds consciousness to be the matrix of all phenomena, considers phenomena to be objects of intentional acts and treats them as essences, demands its own methods, concerns itself with prepredicative experiences… (Natanson, [1966] 2012, p. 19)

In other words, phenomenology is a philosophical tradition related to epistemology rather than a method or a methodology, and the particulars of the phenomenological methodology (interviews) and phenomenological analysis (thematic coding) will be discussed separately in this chapter. Both forms of postpositivism – realist and constructivist – are ultimately a critique and rejection of positivist claims about the objective nature of reality (i.e., ontology) and the ability of science to discern that objective reality (i.e., epistemology) (Fox, 2012). Within the realist tradition of postpositivism, there is a view that knowledge of an objective social reality is impossible because human understanding is "value laden, theory laden and context dependent" (Fox, 2012, p. 663), which is largely in agreement with the fallibilism of Karl Popper discussed previously (2005, 2006, 2014). However, this thesis does accept Popper's principle of falsification as a necessary or even desirable measure of the value of social science research.

The postpositivist-realist dimension of this dissertation involves two different quantitative stages of research – secondary data analysis and a survey questionnaire. The secondary data analysis intends to understand the broad trends of graduate migration in Greater Manchester by exploring differences between groups and relationships with migration pathways using multivariate statistical analysis. The survey questionnaire explores the attitudes toward mobility, place quality, and Greater Manchester. Both quantitative stages are exercises in deductive reasoning since the secondary analysis is concerned with statistical hypothesis testing, and the survey questionnaire is concerned with exploring the role of place quality in graduate migration.

The constructivist variety of postpositivism is associated with the phenomenological concept of *verstehen,* whereby social realities are constructed and need to be understood from the perspective of the subject rather than that of the researcher (ibid.) The position and influence of the researcher are crucial in the postpositivist tradition since the design and conduct of the study require, in the words of Fox, "a degree of empathy with the actors that a researcher is trying to understand and as a result, an element of reflexivity about the processes by which constructs are generated and deployed in the constitution of social reality" (ibid., p. 661). Consequently, the role of the researcher and the researcher's culture, norms and values in constructing knowledge about a research setting must also be acknowledged and discussed. Constructivism comes into play in this research design because interviews are part of the research design. Rather than using an analytical technique that is tied a particular theoretical or epistemological position, this project uses Braun and Clarke's (2006) thematic coding in its analysis of the interview data. Braun and Clark (ibid.) argue that thematic analysis is independent of theory and epistemology, which lends itself nicely to this particular mixed methods design. Also, thematic analysis allows for both inductive and deductive coding, where codes can be derived either from the literature or codes can emerge from the data itself as is generally the case in phenomenological research (Groenewald, 2004). Braun and Clarke also suggest that researchers make explicit whether they are operating within a realist or constructivist paradigm (or both) since epistemological concerns impact knowledge claims and meaning derived from the qualitative stage of the research.

The common criticisms of the pragmatic 'umbrella' approach are that it fails to address the philosophical divide between quantitative and qualitative methods adequately, and there is also the question of who gets to decide "what works" (ibid) or the "anything goes" critique of qualitative research (Braun & Clarke, 2006). Hopefully, the previous discussion of the conceptual framework and this discussion here has adequately addressed the philosophical issues. What follows next will, hopefully, address concerns related to the rigour of the research design.

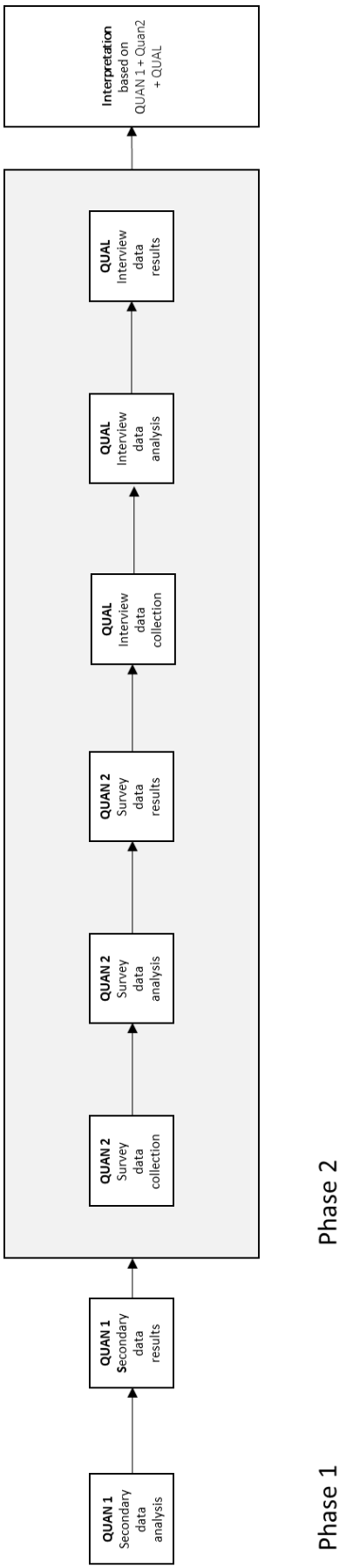
3.1.3 Research Design

This dissertation uses what Creswell and Clark (2007) refer to as an 'explanatory design', whereby qualitative data helps to explain or build upon initial quantitative data. The design used in this study can be termed a 'modified' explanatory design since it combines an initial secondary data analysis phase with a separate 'standalone' explanatory design phase comprising of a survey questionnaire and semi-structured interviews. This design was chosen because in 2017, which was before the publication of the Centre for Cities report on Manchester graduate migration, not much was known about the characteristics of the graduates themselves or their various migration pathways. Therefore, secondary data analysis would clarify what is knowable about the phenomenon of graduate migration.

The design starts with the collection and analysis of quantitative data via an online survey of undergraduate students at local universities, which is then analysed before moving onto the qualitative phase. This qualitative phase follows from the results of the quantitative phase, and the interview participants are, in fact, recruited from survey respondents in this study. Creswell and Clark (2007) refer to this as a 'follow-up explanations' variant of the explanatory design model. In this variant, the researcher is interested in collecting additional qualitative data from survey participants who can best explain the findings from the quantitative data. In the notion system used in mixed methods study designs, this is a 'QUAN + [QUAN -> QUAL]' study, a diagram of which is provided in Figure 3.1 – Modified Explanatory Design: follow-up explanation model (QUAN emphasised). Appendix 2 provides a detailed description of each of these phases and a timeline. It should also be mentioned at this stage that the survey questionnaire also collected qualitative data via open-ended questions, but this data was not included in the analysis because of a limited number of responses and the prioritisation of the analysis of the other data sources. This notation also illustrates the sequence and weighting of the study. Sequence, or what Creswell and Clark refer to as 'timing', refers to whether one method precedes another or whether they are done concurrently. The initial quantitative phase of this study analyses secondary data, which although a separate and self-contained study, will inform the second phase of the study.

The second phase includes a quantitative phase (questionnaire) that is connected to a subsequent qualitative phase (semi-structured interviews), and since the qualitative study participants are drawn from the quantitative survey respondents. A questionnaire is a highly-structured form of surveying (De Vaus, 2002), which is to say, a structured way of asking people questions. Since respondents took the questionnaires on their own, the form used in this design is a 'self-completion questionnaire'. A semi-structured interview is, according to Bryman (2012), a form of a qualitative interview where the researcher has a list of fairly specific questions to be asked, but the interviewee has broad latitude about how to answer. The topic to be covered in a semi-structured interview are usually contained in an 'interview guide', the format of which is covered in the subsequent section on research instruments.

Figure 3.1 – Modified Explanatory Design: follow-up explanation model (QUAN emphasised)



The weighting of the study, or the degree to which quantitative or qualitative methods predominates in the study design (Creswell & Clark, 2007), is predominately quantitative. The weighting of the study was chosen for both practical and theoretical reasons. Practical because the HESA data provides rich context to the phenomenon of graduate migration for two main reasons. First, questionnaire data can allow a researcher to make inferences about migration decisions and a subject's geographic, demographic, higher education, and employment characteristics. Secondly, the mobilities literature embraces both constructivist and subjectivist traditions and draws heavily upon *qualitative* data to understand and make inferences about graduate experiences of migration.

The strengths of the explanatory design are that the phases approach makes the design straightforward to implement, and it often appeals to quantitative researchers because it often has a stronger quantitative orientation. One of the most significant challenges of this design, however, is that the multiphase approach has a longer time horizon than other mixed method deigns since the qualitative phase is dependent upon the preceding quantitative phase. Another challenge comes from articulating a coherent philosophical framework for the study design.

Crescenzi et al.'s (2016) study of non-economic drivers of graduate return migration in Italy uses a sequential explanatory design. In the initial quantitative phase, the authors collected quantitative survey data to identify push and pull factors related to graduate return migration. In the second phase, they use qualitative interviews to both further explain and interpret the quantitative results, which also allows the subject to explain their experiences with higher education and migration. Although the explanatory may seem like a linear process, Crescenzi et al. interweave the two phases at two important junctures: sampling and discussion of the results.

This interweaving of the data is what Creswell and Clark refer to as the 'mixing decision', or how the various datasets will be related to one another. The interweaving of the data also has implications for the subsequent structure of the thesis, which deserves some explanation. The findings from the self-contained HESA study ('Phase 1') and the findings from the survey and interviews ('Phase 2') will be reported separately. In other words, the presentation of statistical data from Phase 1 will be done separately from the presentation of the statistical and narrative data from Phase 2. However, these two separate findings will then be related to one another in the discussion section of Chapter 6. A typology of graduate migration pathways that was developed in Phase 1, however, did inform the purposeful sampling strategy for the interviews in Phase 2, and this feature will be discussed later in this chapter. Secondly, mixing occurs in Phase 2 in several phases: the design, data collection, data analysis, and reporting of the findings. This mixing at several stages is largely a function of the qualitative interview participants being recruited from the quantitative survey questionnaire. Because of this mixing throughout the process, the decision was taken to interweave the discussion of the statistical and narrative results, much like Crescenzi et al. (2016) did in their study of graduate return migration in Italy. A full explanation of the data mixing strategy is available in Appendix 2.

3.2 Data Collection

This section is organised according to stages of the data collection process outlined by Creswell and Clark (2007): negotiating access, sampling procedures, information to be collected, recoding the data, and administering the data. It may be useful to remind the reader that the qualitative stage of data collection is linked to and follows the quantitative stage since the interview participants were recruited from the survey respondents. Therefore, in each of these sections, the quantitative data collection stage will be discussed before the qualitative data collection phase.

3.2.1 Negotiating Access

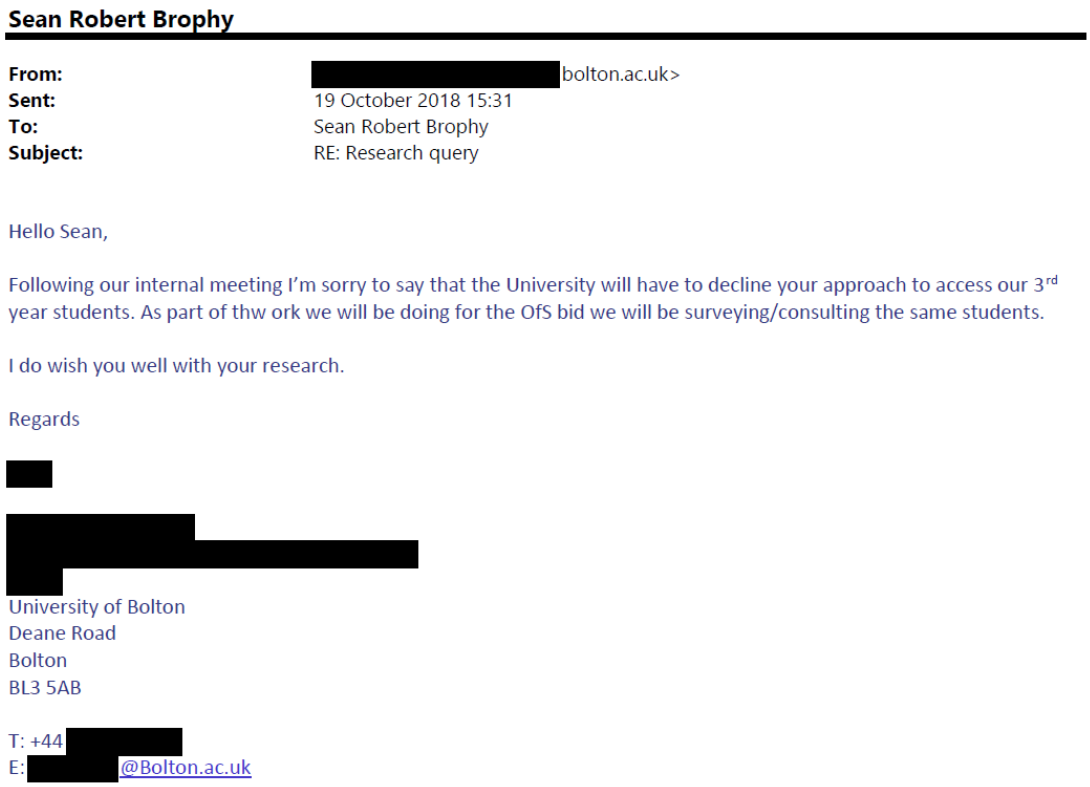
Permissions to collect data from individuals and sites can be obtained at three different levels: from 'gatekeepers' who are in charge of research sites; from the individuals providing the data (e.g., study participants); and from university ethics review boards (Creswell & Clark, 2007). This section discusses the first category, negotiating site access from institutional gatekeepers, and the other two types of permissions will be addressed in subsequent sections of this chapter. The initial study design envisioned using GM's four local universities as research sites. These universities are The University of Bolton, MMU, The University of Manchester, and The University of Salford. RNCM was excluded from this study since it is a specialist conservatoire rather than an HEI with a general curriculum. As such, classically trained graduates from music conservatories are often thought of as chasing a limited number of global employment opportunities with elite symphonies and ensembles (J. Miller & Baker, 2007). Excluding the RNCM from analysis of graduate retention is an approach also taken by the GMIPR (GMIPR, 2019) and by the GMCA in their recent *Skills Review* (GMCA, 2018). The hope at this early stage of the project was that the institutions would grant sufficient access and cooperation that would enable a probability sampling technique to be used in a survey questionnaire, the results of which would be generalisable to the larger Greater Manchester undergraduate student population.

Outreach to institutional gatekeepers at the four research sites began in September 2018 and was attempted through a combination of personal contacts and contacts listed on public university websites. Responses to the institutional access requests were received from Bolton, MMU, and Salford, all of which declined to participate in an official capacity. No response from the University of Manchester was ever obtained despite multiple attempts through both personal contacts and the publicly listed contacts referenced earlier. MMU and Salford declined for the same reason, which can be described as concerns related to safeguarding their National Student Survey (NSS) response rate from the risk posed by 'survey fatigue'. 'Survey fatigue' is a primary concern for researchers who are interested in studying higher education students, and survey fatigue is a form of nonresponse characterised by rising rates of refusal due to "overexposure to the survey process" (Porter et al., 2004, p. 63). Higher education students are arguably one of the most over-surveyed populations world-wide (Klemenčič & Chirikov, 2015), and there is evidence that survey fatigue has been a factor in declining response rates of the NSS (Nair et al., 2008). Because the NSS feeds into the Teaching Excellence and Student Outcomes Framework (TEF), which also factors into whether HEIs are awarded a Gold, Silver or Bronze award, the stakes for institutions are high. Therefore, there was little hope in gaining access to these institutions that would allow for a probabilistic sampling approach.

Bolton declined to participate for an entirely different reason, a reason which is coincidentally related to the OfS 2018 challenge competition, which is the portfolio of 16 projects across England aimed at the retention of local graduates that was described in the literature review (see Section 2.3). The OfS request for proposals (RFPs) was released on 5 October 2018 (OfS reference number 2018.38), with the deadline of bid submissions set for 14 December 2018, and funding decisions announced in March 2019, a timeframe which overlapped with my site access requests and data collection activities. In declining, Bolton's gatekeeper indicated that they planned to tender a bid on the OfS project and would be consulting with the very same students on the topic of locational choice and retention.

Since the decision was taken at the most senior levels for Bolton not to participate, no further attempt was made to approach Bolton staff for access. The impact this decision had on the sample population will be revisited in the results chapter of this dissertation. One can only speculate as to whether the OfS challenge competition impacted the decisions taken by any of the other three HEIs as well. With Bolton declining to participate for the duration of a critical time period for the study, and alternative access route was sought, which would also have an impact on the sampling technique, and the generalisability of any findings.

Figure 3.2 – Email from Bolton declining to participate due to OfS Challenge Competition



Sean Robert Brophy

From: [redacted]bolton.ac.uk>
Sent: 19 October 2018 15:31
To: Sean Robert Brophy
Subject: RE: Research query

Hello Sean,

Following our internal meeting I'm sorry to say that the University will have to decline your approach to access our 3rd year students. As part of thw ork we will be doing for the OfS bid we will be surveying/consulting the same students.

I do wish you well with your research.

Regards

[redacted]

[redacted]
University of Bolton
Deane Road
Bolton
BL3 5AB

T: +44[redacted]
E: [redacted]@Bolton.ac.uk

'Hard-to-reach' populations in survey research are traditionally thought of vulnerable or marginalized groups like homeless people, drug users, sex workers, and institutionalised or cognitively impaired individuals (Abrams, 2010). However, given the uniform importance placed on TEF by HEIs and the desire of gatekeepers to safeguard students from 'survey fatigue', university students can also be thought of as a hard-to-reach population for studies that wish to use probabilistic sampling techniques across multiple institutions. Therefore, what follows in the rest of this chapter is a description of the data collection process for a 'Plan B', which included a purposeful sampling technique for the survey questionnaire and interviews (i.e., a non-probability sampling technique). If the sampling technique used in this study is viewed as a response to a growing trend of HEIs refusing to participate in research studies because of either the NSS or competition for a limited number of funded research opportunities, then this study makes a contribution to the methodology of higher education research, particularly in a UK context concerns about the TEF and the Research Excellence Framework (REF) are increasingly impacting decision making at institutions.

3.2.2 Sampling Procedures

Different sampling procedures and techniques were used for the quantitative and qualitative stages of the research. Sampling procedures for the quantitative stage will be discussed before turning our attention to the qualitative stage.

Sampling procedures: Quantitative survey questionnaire

Because of the issues recounted earlier related to access, a non-probability sampling approach was used in this study. De Vaus (2002) mentions that non-probability samples are appropriate when sampling frames are unavailable or if the population is so widely dispersed that cluster sampling would be unpracticable. In this instance, researchers are often not interested in generalising from a sample to a larger population and, consequently, the representativeness of the sample is less important (De Vaus, 2002). A purposeful sampling technique is a type of non-probability sampling where a researcher selects typical cases as representative of the population of interest. As with all non-probability sampling techniques, a purposeful sample is non-representative, and as such, the findings cannot be generalised beyond the sample itself. Although non-probability sampling is most commonly thought of as being used in market research and opinion polling, it has been used by well-regarded quantitative studies of other hard-to-reach populations. For example, Savage et al., (2013) employed a non-probability sampling technique in *The Great British Class Survey* (GBCS) whereby the study's online questionnaire was posted on the BBC's website and garnered 161,400 complete responses. When the researchers analysed the data, it became clear that the data suffered from selection bias where the responses resembled typical BBC audiences rather than the general British population. Response bias of this type is a typical weakness of online survey research (De Vaus, 2002; N. G. Fielding et al., 2017), and Savage et al. later paid a survey firm conduct a small scale survey with a nationally representative sample (N = 1026). Many of the GBCS's very influential findings, however, are based on the larger non-representative sample and not exclusively on the smaller nationally representative sample. Because of time, cost, and practicalities like access puts probabiity samplying beyond the reach of the typical PhD researcher, a non-probabiility sampling strategy is a justifiable way forward. Therefore, Murray's (2014) methodological guidance on conducting non-representative quantitative studies was used to add procedural rigor to the process.

The population of interest for this study is UK-domiciled undergraduate students (i.e., 'home students') studying at MMU and the universities of Bolton, Manchester, and Salford. Current students were selected rather than recent graduates because it was hypothesised that current students concentrated at four physical campuses would be easier to recruit than graduates scattered throughout the country. Most of the quantitative studies on graduate migration that were reviewed in this thesis do not mention whether a probability or a non-probability sampling technique was used. Exclusion criteria for the study are non-UK students, students from universities other than the four local Greater Manchester universities, non-undergraduate students (e.g., postgraduates).

In quantitative research, the required sample size is often discussed according to two key factors: the degree of accuracy of the sample and the extent of heterogeneity in the study population (De Vaus, 2002). Both factors are related to the making generalisations from the sample, but since the purposeful sampling technique used in this study cannot be generalised beyond the sample itself, these two factors are less of a concern here. Therefore, the Cochran's ([1977] 2007) oft-cited sample size formula used in social research is not appropriate for non-representative samples.

Bryman (2012) also recommends that researchers should consider the kind of analysis they intend to undertake when determining their sample size. Since the analysis will use inferential statistics, getting a minimal sample size to allow for inferential statistics is a concern for this study. Statistical power analysis is a common method technique that measures the relationship between four variables used in inferential statistics: sample size (*N*), significance criterion (α), population effect size (ES), and statistical power (J. Cohen, 1992a). Significance criterion (α) (often referred to as 'statistical significance') is the risk of rejecting the null hypothesis (H_0) by mistake and thus committing Type I error, and the standard risk measures used for one-sided and two-sided tests are $\alpha = 0.01$ *or* $\alpha = 0.05$ (ibid). Power refers to the probability of committing a Type II error, i.e., falsely accepting the null hypothesis. Usually, this is 0.80, making the probability of committing a Type II error, the probability of which is referred to as β. Power is $\beta - 1$, which is the probability of rejecting a false H_0. Cohn (1992)

recommends a power specification of 0.80 (so as β = 0.20) for general use. Population effect size (ES) can be classified as small, medium, or large effects, and the effect size varies according to the statistical test used, e.g., *t*-test or chi-square (X^2) goodness of fit test.

In research planning, the researcher needs to know the sample size (*N*) necessary to obtain the desired power for the target α and hypothesized ES, and for statistical tests involving two or more groups, *N* is the necessary sample size for each group (J. Cohen, 1992a).

Table 3.1 – Population size for small, medium, and large ES at Power 80 for α = 0.01, 0.05, and 0.10

	α								
	.01			.05			.10		
Test	Sm	Med	Lg	Sm	Med	Lg	Sm	Med	Lg
1. Mean dif	586	95	38	393	64	26	310	50	20
2. Sig *r*	1,163	125	41	783	85	28	617	68	22
3. *r* dif	2,339	263	96	1,573	177	66	1,240	140	52
4. *P* = .5	1,165	127	44	783	85	30	616	67	23
5. *P* dif	584	93	36	392	63	25	309	49	19
6. χ^2									
1*df*	1,168	130	38	785	87	26	618	69	25
2*df*	1,388	154	56	964	107	39	771	86	31
3*df*	1,546	172	62	1,090	121	44	880	98	35
4*df*	1,675	186	67	1,194	133	48	968	108	39
5*df*	1,787	199	71	1,293	143	51	1,045	116	42
6*df*	1,887	210	75	1,362	151	54	1,113	124	45
7. ANOVA									
2*g*[a]	586	95	38	393	64	26	310	50	20
3*g*[a]	464	76	30	322	52	21	258	41	17
4*g*[a]	388	63	25	274	45	18	221	36	15
5*g*[a]	336	55	22	240	39	16	193	32	13
6*g*[a]	299	49	20	215	35	14	174	28	12
7*g*[a]	271	44	18	195	32	13	159	26	11
8. Mult *R*									
2*k*[b]	698	97	45	481	67	30			
3*k*[b]	780	108	50	547	76	34			
4*k*[b]	841	118	55	599	84	38			
5*k*[b]	901	126	59	645	91	42			
6*k*[b]	953	134	63	686	97	45			
7*k*[b]	998	141	66	726	102	48			
8*k*[b]	1,039	147	69	757	107	50			

Note. ES = population effect size, Sm = small, Med = medium, Lg = large, diff = difference, ANOVA = analysis of variance. Tests numbered as in Table 1.
[a] Number of groups. [b] Number of independent variables.

Source: (Cohen, 1992, p. 158)

To explore differences in survey responses between groups, a chi-squared test for categorical variables or a t-test for continuous variables (or non-parametric equivalents like the Mann-Whitney or Kruskal–Wallis tests). Therefore, Table 3.1 above was consulted to get an approximate *N* needed *to* detect medium-sized effects at a minimum statistical significance of α = 0.05 for both a t-test and chi-square tests. The minimum sample size for a medium-sized effect at the statistical significance of α = 0.05 for the t-test is 87 (with 1 degree of freedom) and 151 for chi-square (with 6 degrees of freedom). Therefore, the target minimum *N* for the survey questionnaire was decided to be 151, although the goal was to recruit as many respondents as possible to improve the representativeness of the (non-representative) sample and to allow for additional statistical tests, which will be described in the data analysis chapter.

To be clear – this is a non-probability sample that cannot be used to make any generalisable claims beyond the sample or make predictions about which graduates will stay or leave Greater Manchester.

The goal of the survey is to explore attitudes toward mobility and Greater Manchester, but if valid and meaningful comparisons of groups can be made, these sorts of statistical tests should be conducted.

Sampling procedures: Qualitative interviews

As with any mixed methods research design, the sampling approach takes on an added dimension since researchers need to consider how the samples from the different phases of the study relate to one another. This study uses an 'identical relationship' sample, which is when "exactly the same members participate in both the qualitative and quantitative phases of the study" (Collins et al., 2007, p. 276). In other words, the participants for the qualitative interviews were recruited from the population of survey respondents from the preceding survey. Of the 204 usable responses, 81 survey respondents (39.7 per cent) indicated they would be interested in participating in a follow-up interview. These email addresses were then added to an email list of potential interview subjects. This list was updated periodically to reflect new additions from recently completed surveys and new subtractions from those who either were successfully scheduled for an interview or dropped out of participation.

A purposeful sampling strategy was used for the qualitative stage of the project, and this strategy can also be described as what Miles and Huberman (1994) refer to as a 'stratified purposeful' sampling strategy that seeks to illustrate subgroups and facilitate comparisons between the groups. This strategy is similar to the 'maximum variation' sampling technique that Guba and Lincoln (1989) that seeks to adequately capture the heterogeneity in the population by defining the dimensions of variation in the study that are most relevant to the study and systematically selecting individuals that represent the most important variations.

The primary subgroups of interest in this study are related to student origin (i.e., locals versus non-locals) and graduate destination (i.e., stayers versus leavers). Therefore, the sampling strategy taken for the interviews was to obtain a purposeful sample of students spread across the different groups according to origin and destination, all of whom were recruited from the population of the survey questionnaire respondents. As Maxwell (2005) states, the trade-off between this approach and a more homogenous sample is that less data about any particular kind of case or individual is collected and the findings will not be able to claim as much about typical instances. Using a stratified sampling approach also has implications for the sample size needed since the more comparisons between the groups in the sample that are required, the more interviews that will need to be carried out (Bryman, 2012).

Since the qualitative methods literature tends to disagree on optimal sample sizes, Corbin and Strauss's (2008) concept of theoretical saturation was used as a general guide to continue to recruit interview participants until a category (e.g., stayers versus leavers) has been saturated with data. Corbin and Strauss (ibid.) define saturation as "'when no new categories or relevant themes are emerging'… It also denotes a development of categories in terms of their properties and dimensions, including variation, and possible relationships to other concepts." (p. 148, emphasis in original). Since theoretical sampling is most often associated with Grounded Theory and other inductive forms of qualitative research, Collins et al.'s (2007) minimum sample size recommendations for mixed methods research was also consulted. As the interviews serve a primarily phenomenological purpose in this study, the minimum sample sizes that Collins et al. recommend is between six interviews based on the recommendations of Morse (1994) and ten interviews based on recommendations from Creswell (1998). Although estimates between six and ten helped approximate minimums, the final number of interviews (21), was ultimately determined by the concept of theoretical saturation described earlier. Table 3.2 below lists the 21 interview participants using pseudonyms along with demographic characteristics. Their geographic origin is only provided on a regional basis to protect anonymity.

Table 3.2 – Interview Participants

	Pseudonym	Regional Origin	Intended migration pathway	Ethnicity	Gender	Parent occupation at age 14	Course	University
1	Adam	North West England	Prospective HG Leaver	Black or Black British	Male	Professional	Business	MMU
2	Anne	North West England	Prospective HG Leaver	White	Female	Professional	Business	Uni of Manchester
3	Billy	North West England	Prospective HG Loyal	White	Male	Professional	Marketing	MMU
4	Cara	Northern Ireland	Prospective Bouncer	White	Female	Unclassified	Nursing	MMU
5	Charlotte	South East England	Prospective Home Returner	White	Female	Non-professional	Law	Uni of Manchester
6	Chelsea	South East England	Prospective Stayer	White	Female	Professional	Biology	Uni of Manchester
7	Emily	South East England	Prospective Bouncer	White	Female	Professional	Geography	Uni of Manchester
8	Emma	Yorkshire and the Humber, England	Prospective Home Returner	White	Female	Unclassified	Marketing	MMU
9	Georgina	South East England	Prospective Bouncer	White	Female	Non-professional	Business	MMU
10	Grace	North West England	Prospective HG Loyal	Black or Black British	Female	Professional	Accounting and Finance	MMU
11	Hanna	Yorkshire and the Humber, England	Prospective Stayer	Asian or Asian British	Female	Unclassified	Marketing	MMU
12	Blake	North West England	Prospective Stayer	White	Male	Non-professional	Marketing	MMU
13	Jessica	South West England	Prospective Stayer	East Asian	Female	Professional	Combined (Bus & Law)	MMU
14	Julia	North West England	Prospective Stayer	White	Female	Professional	Politics	Uni of Manchester
15	Lauren	North Wales	Prospective Bouncer	White	Female	Professional	Business	MMU
16	Lucy	North West England	Prospective HG Loyal	White	Female	Non-professional	Business	MMU
17	Maya	East Midlands, England	Prospective Bouncer	Asian or Asian British	Female	Professional	Business	MMU
18	Mike	West Midlands, England	Prospective Stayer	White	Male	Professional	Combined	MMU
19	Rob	South West England	Prospective Home Returner	White	Male	Non-professional	Japanese	MMU
20	Thomas	West Midlands, England	Prospective Bouncer	White	Male	Professional	Psychology	Uni of Manchester
21	Will	North West England	Prospective Stayer	White	Male	Unclassified	Law	MMU

3.2.3 Research Instruments

The approach taken to data collection involves the systematic design and collection of data and recording it in a reliable and valid way so it can be preserved and analysed by a researcher (Creswell & Clark, 2007). For this study, the process involved the development of a survey questionnaire for the quantitative stage of the study and the creation of an interview protocol used in a series of semi-structured interviews for the qualitative stage of the study. Both survey questionnaires and qualitative interviews are ways of asking questions of people, but they involve different instruments and research design concerns. These procedures and instruments for the two stages will be discussed in turn, beginning with the survey questionnaire.

Quantitative survey questionnaire

De Vaus (2002) suggests a process for construction questionnaires that includes the following dimensions: constructing questions that will answer the research questions, getting the wording right, using a variety of formats, ensuring the questions satisfy the principles of good question design, designing a good survey structure, modifying the question for the mode of survey administration, and piloting.

The process with creating the survey questionnaire began with examining which of the three research questions could be best answered with the instrument. As mentioned earlier, it was hypothesised that the first research question of 'who stays in GM after their studies?' could be answered by the secondary HESA data analysis. This analysis would provide rich detail about the demographic and geographic characteristics of the city-region's graduates, but it could not provide information about individual decision-making. The theoretical framework used in this study (see section 2.7.2) suggests that attitudes and perceptions of GM that influence graduate migration behaviour.

In the language of questionnaire design taken from De Vaus, this instrument must be constructed in a manner that measures *attitudes* (whether certain features and amenities of Greater Manchester are seen as desirable), *behaviour* (what students plan to do: 'stay or leave'), and attributes of the graduates (e.g., demographics like age, gender, ethnicity, and so on). Therefore, the survey questionnaire was designed to help answer the final two research questions:

- What factors influence the retention of locally produced graduates beyond the obvious reasons of work and why?
- How is Manchester viewed by students studying there and what impact do these perceptions have on decisions about where to live and work?

The next step in constructing the questionnaire was to refer to existing survey questionnaires and key studies on graduate mobility to help inform both the structure and question content, a step that Bryman (2012) claims enhances both the reliability and validity of the survey questions, as well as the comparability of the results. The existing surveys that were referenced are discussed below. The survey questionnaire is divided into six sections: post-university plans, mobility attitudes, career and community attitudes, perception of Greater Manchester, mobility decisions, and a final page. Each of these six sections will be discussed in detail, with attention paid to question design (e.g., open or closed questions), valid Likert-response items, and other steps are taken to enhance the validity and reliability of the instrument and the data. The concepts of validity and reliability will also be addressed separately at the conclusion of the discussion of the questionnaire section, but definitions for both concepts will be provided at this stage. Reliability is about the consistency of measurement of a concept and is often judged according to factors related to stability, internal reliability, and inter-observer consistency (Bryman, 2012). Validity, on the other hand, refers to whether an indicator meant to measure a concept is accurate (ibid).

'Section 1: Post-University Plans' asks questions about anticipated career, living, and location plans six months after graduates finish their current course. This section uses primarily close-ended, multiple-choice questions that present survey participants with a set of fixed alternatives from which they have to choose an appropriate answer (Bryman, 2012), e.g., the name of their university or region of anticipated residence after graduation. There are a number of advantages of using closed questions, chief among them is the ease of processing answers, the enhancement of the comparability of answers, easy for the respondents to complete, and the reduction of the possibility of variability in responses (ibid). There are several disadvantages to using closed questions as well, which include a loss of detail and granularity in respondents' answers, the difficulty in making forced-choice answers mutually exclusive or exhaustive, and there may be confusion and variation in the interpretation of forced-choice answers (ibid). When 'other' was provided as an answer option for certain forced-choice questions in section 1, the participants were able to write their own repose using free-form text. Most of the questions in this section are related to demographics (e.g., place of domicile), higher education (e.g., university attended and course of study), or employment-related (e.g., industry and occupation). These questions were adapted from two primary sources: the Labour Force Survey (LFS) and the Destinations of Leavers in Higher Education survey (DLHE). The LFS was used to develop questions related to living arrangements and geography, and the questions are made available through the variable and question bank of the UK Data Service (UKDS, n.d.), which was formally known as the UK Data Archive. The variable and question bank includes questions and variables from major surveys, and the search function allows researchers to view valid and reliable questions, variables, and indicators along with the questionnaire in which they appeared. Questions related to higher education and employment taken from the DLHE definitions and variable descriptions listed on HESA's website (HESA, 2017).

'Section 2: Mobility Attitudes' asks about attitudes towards certain aspects of mobility using Likert-response alternatives, where '1' means they strongly disagree and '5' means they strongly agree, with a middle position of 3 for 'neither agree nor disagree'. This particular Likert response was taken from Brown (2010). First, a distinction needs to be drawn between a 'Likert-type items' and a 'Likert scale'. Following Clason and Dormody (1994), Boone and Boone (2012) and Bishop and Herron, (2015), a 'Likert-type item' is a single question that is non-summated and a 'Likert scale' is composed of a series of Likert-type items that are combined into a single composite score (i.e., a summated scale). Following advice from Bryman (2012) about the construction of Likert-response items, the nine items are statements rather than questions, they all relate to the same object (i.e., mobility) and the items that make up the scale are interrelated to enhance internal reliability of the questionnaire. This general guidance for Likert scale construction was followed in all subsequent section using Likert-items (sections three, four and five), and internal reliability will be discussed again in relation to Cronbach's alpha later in this section. Section two is essentially psychometric in nature, i.e., concerned with the measurement of individual differences in populations, particularly related to individual preferences (e.g., urban living versus suburban living) and attitudes (e.g., place attachment and identity) (Lewis-Beck et al., 2004).

'Section 3: Career and Community Attitudes' asks about how factors related to careers and community impact decisions about where to live after leaving university. As the preceding section, section three also uses Likert-type items and is psychometric in nature. The Likert-response alternatives are also taken from Brown (2010) and ask participants to rate how important the factors are for deciding about where to live after leaving university, where '1' means the factor is not at all important and '5' means the factor is very important in their decision-making. Six of the nine questions are related to the quantity and quality of employment, cost of living, housing, transportation, and proximity to family and friends.

'Section 4: Perception of Greater Manchester' uses Likert response alternatives taken from Brown (2010) and asks participants to what extent they agree with eleven statements about Greater Manchester's reputation, where 1 means they strongly disagree and 5 means they strongly agree. The

eleven factors include dimensions related to the quality of life, amenities, the built and natural environment, infrastructure, and the social and cultural milieu. Similarly, 'Section 5: Your Mobility Decisions' uses Likert-response alternatives to ask participants how important the same eleven aspects of Greater Manchester's reputation are in their decision (or potential decision) to stay or leave. The Likert response alternative is again taken from Brown (2010), and participants are asked to rate each of the eleven factors where '1' means that this factor was not at all important and '5' means the factor was very important in their decision to stay or leave.

Sections two, three, four, and five are all indented to measure indicators associated with Richard Florida's (2014) theoretical dimensions of place quality (i.e., 'what's there', 'who's there', and 'what's going on'), which are discussed in detail in the literature review and in the conceptual framework (see Section 2.7.2). In order to provide a measure of these concepts — or what Bryman refers to as an 'operational definition' — it is necessary to have an indicator that can be employed as though it was a measure of these concepts (Bryman, 2012). Florida, however, does not provide much guidance for how some of these abstract concepts can be measured. For example, Florida claims that the creative class is partly attracted to cities because of 'what's going on', or the "the vibrancy of street life, café culture, arts, music, and people engaging in outdoor activities" (2014, p. 281). So, developing an indicator for such a diffuse concept that also can be understood easily by undergraduates, i.e., an indicator that is both valid and reliable, is of primary importance. Luckily, Esmaeilpoorarabi et al. (2016) have developed a multidimensional urban quality framework based on a thorough review of the literature and best practice studies. Appendix 3 lists the indicators that informed the questionnaire design that are taken from Esmaeilpoorarabi et al.'s indicators of place quality. These concepts are mostly related to the number of jobs available, the quality of jobs available, the natural environment, the built environment, accessibility and infrastructure, housing costs, amenities, social opportunities, diversity, tolerance, and identity. Esmaeilpoorarabi et al.'s (2016) urban quality framework has been used in other studies involving university students, most notably Wesselmann's (2018) empirical study of students' expectations regarding city attractiveness.

The final section, 'Section 6: Demographics', uses questions taken from either the Labour Force Survey (LFS) or the Destinations of Leavers in Higher Education survey (DLHE) to collect information about their age, gender, ethnicity, etc. The one exception, however, is Question 5, which uses parental occupation at age fourteen as an indicator for social class was based on guidance provided by the UK Civil Service's *Measuring Socio-economic Background in your Workforce: recommended measures for use by employers* (2018).

The questionnaire was designed in two different formats: an online version using Online Surveys (formerly Bristol Online Surveys, BOS) and a print version, which is referred to 'mixing survey modes' to improve response rate and by having the most attractive and functional layout for online and print versions of the questionnaire (N. G. Fielding et al., 2017). A copy of the print version is available in Appendix 4 - Survey Questionnaire.

Principles of quantitative research quality: reliability and validity

Both reliability and validity are concerned with the evaluation of measures of concepts, but validity presupposes reliability. As Bryman says, "if your measure is not reliable, it cannot be valid "(2012, p. 173). A pilot of the questionnaire was performed to assess the reliability and validity of the indicators before the study was conducted. A total of ten students took part, and most of the pilot study respondents were postgraduate students. Feedback on the questionnaire and suggestions for improvement were provided via email and text. One undergraduate pilot participant agreed to take the questionnaire in the presence of the researcher, which allowed for feedback and questions to be taken in real-time.

Reliability can be understood to be the consistency of the measure of a concept used in an instrument like a survey questionnaire or individual questions, and Bryman (2012) mentions three main factors involved in considering whether a measure is reliable: stability, internal reliability, and inter-observer consistency. Stability means that that a measure is stable over time, and the stability of a measure can be verified by the 'test-retest' method where a measure is tested and later retested to the same sample at a later date (ibid.) Bryman concedes that there is no clear solution to the stability of measures for most research projects given the practical difficulty of testing for the reliability of measures, and that most discussions of research findings do not report stability tests. De Vaus (2002) mentions that ambiguous or vague question may produce unreliable responses since there is a chance that respondents may interpret questions differently on different occasions. In order to mitigate this risk, certain ambiguous concepts were provided with definitions to enhance reliability, examples of which are illustrated in Figure 3.3 below.

Figure 3.3 – Definitions for select measures to enhance reliability

	1 - Not at all important	2 - Low importance	3 - Neutral	4 - Moderately important	5 - Very important
A place to start your career	☐	☐	☐	☐	☐
A place to start a family	☐	☐	☐	☐	☐
Its social scene (nightlife, place for dating/meeting friends)	☐	☐	☐	☐	☐
Its cultural scene (museums, theatres, music, live performances, etc.)	☐	☐	☐	☐	☐
Its infrastructure like public transport, roads, airport	☐	☐	☐	☐	☐
Its built environment (e.g., landmarks and architecture)	☐	☐	☐	☐	☐
A pleasing natural environment (e.g., weather, climate, green spaces)	☐	☐	☐	☐	☐

Because of the difficulty of testing for reliability within the constraints of a non-longitudinal study, tests for reliability of measures were not carried out, and questions related to the reliability of the measures used should be considered when the results are reported.

Internal reliability measures like Cronbach's alpha generally apply to Likert-scale data, which are multiple-indicator measures that are created by combining multiple Likert-type data to form an overall score (Bryman, 2012). Since multiple-indicator measures were not developed for this study, issues related to internal reliability are generally not a concern for the individual item measures used in this thesis. This study is interested in understanding the drivers of graduate retention (both economic and non-economic), and individual Likert items at this exploratory stage are more useful to answering the research questions. Although developing a scale for graduate retention across multiple dimensions would indeed be useful, it is not the focus of this study. Regarding the last reliability measure mentioned by Bryman, inter-observer consistency is a factor for observational research and is generally not relevant to survey questionnaires.

Validity, as it relates to questionnaires, is concerned with 'measurement validity', or whether indicators accurately measure a concept (Bryman, 2012). Validity is usually established through dimensions like face validity, construct validity, convergent validity, among others (ibid.) Face validity of the questionnaire was established by consultation with the researcher's supervisory team since judgements from experts can help determine whether on the face of it measures reflect the

underlying concept (ibid). Construct validity was maintained by relying on measures of a concept taken from established surveys on place quality (e.g., Esmaeilpoorarabi et al.), higher education (e.g., HESA's DLHE) and demographics and geography (e.g., the LFS*)*. Convergent validity means comparing measures from the questionnaire to measures of the same concept developed through other methods, such and interviews. Convergent validity was addressed through the study design where questionnaire respondents were then interviewed, whereby responses to the questionnaire were discussed in detail. The combined results chapter for Phase 2 that intermingles statistical data from the questionnaire and narrative data from the interviews is a result of this convergent approach. Reliability and validity were also enhanced by following De Vaus's (2002) recommendations for effective wording, e.g., simple language, minimising prestige bias, and avoiding double-barrelled, leading, ambiguous or negative questions and terms.

According to Bryman (2012), quantitative methods are often viewed as being concerned with the positivist preoccupations of causality, generalisation, and replication. Although Phase 1, which is discussed in a stand-alone chapter may make more substantial claims of generalisability, the design of Phase 2 is obliged to make more modest claims of scientific merit. The non-probability sampling technique limits the generalisability of the findings to the sample itself, and the meticulous procedures documented in this methods chapter, along with the detailed appendices, offer an adequate road map for any attempts at replication. The requirements for establishing causality in quantitative research (empirical association, the temporal priority of the independent variable, and non-spuriousness) is a separate question from whether attitudes, beliefs, or perceptions can be – or indeed should be – viewed in terms of *cause and effect.* In line with a postpositivist worldview, the position taken to the quantitative data gathered and analysed is that it is value-laden, theory-laden, and context-dependent. As such, this study does not attempt to use attitudinal data to model cause and effect.

Qualitative interview guide

Whereas highly structured interviews often use a rigid interview schedule to guide the conduct of an interview, semi-structured interviews often use what Bryman (2012) terms an 'interview guide' to serve as a list of brief memory prompts of those areas to be covered. A copy of the interview guide that was used in this study can be found in 'Appendix 5 – Interview Guide'. Although the items in the interview guide read very much like questions, they were used more as conversation prompts rather than a set of verbatim questions that were recounted for each participant, which is in keeping with the phenomenological method (Teddlie & Tashakkori, 2010). As such, the items should be considered as broad 'topics' rather than narrow 'questions'. The interview guide served, therefore, more like an *aide-mémoire* in the actual data collection stage.

When it comes to deciding on the interview topics, the items were formulated first and foremost to help answer the two research questions concerned with why students chose to stay or leave Manchester and how this decision relates to their perceptions of the city-region. As the literature suggests that migration decisions are driven by a range of factors including employment, life-course events, place quality, and personal attributes, the goal of the interviews was to focus on these factors as they relate specifically to their own plans and experiences. Secondly, the topics were kept rather broad because each of the interview participants would have first taken the survey questionnaire. This allowed for the content of each interview to be adjusted based on how they answered the survey. For example, if a participant answered that she only is considering moving to London in the survey, then asking her about this previous response may be the first question asked in the interview. Given that the survey results were consulted before each of the interviews by design, there was no need to create a guide where the specific sequence of items or questions was set in stone.

Despite this lose approach, Kvale's (1996) recommendations for balancing different types of questions (e.g., introducing, follow-up, probing, specifying, direct, indirect, etc.) was consulted to ensure some measure of good practice was built into the interviews. For example, each interview was designed to

begin with an 'introducing' question of 'please tell me about why you choose MMU?' or 'please tell me about why you chose to study in Manchester?'

Principles of qualitative research quality: validity and trustworthiness

The concepts of reliability and validity discussed in relation to the quantitative stage are of little use in the qualitative stage of this project. Therefore, different concepts of research quality need to be discussed to ensure the qualitative stage has a sufficient degree of rigour in the design and conduct of the research. Rather than attempt to adapt quantitative research's metrics of reliability and validity to qualitative research like some authorities suggest (e.g., LeCompte & Goetz, 1982), this discussion will instead focus on the idea of 'trustworthiness' adapted by Bryman (2012) from the work of Guba and Lincoln (1994) and Lincoln and Guba (1985).

According to Bryman (ibid.), trustworthiness has four components that can be thought of as counterparts to quantitative measures of research quality. 'Credibility' in qualitative research is the counterpart of internal validity in quantitative research; 'transferability' is the counterpart of external validity; 'dependability' is the counterpart of reliability, and 'confirmability' is the counterpart of objectivity. Although all four of these components will be discussed, credibility and transferability are the most relevant measures for this study.

Credibility – the parallel of internal validity - can be thought of as a quality measure related to adherence to good research practice and how good the researcher is at understanding and representing the social world being studied. Adherence to good research practice is being demonstrated in this methodology chapter which meticulously details the design, conduct, and analysis of the research project. The credibility of the concepts and explanation of the phenomenon of graduate migration in a local context is through triangulation.

Triangulation means collecting data from a diverse range of individuals and using a variety of methods, which reduces the risk of spurious associations and systematic bias inherent in relying on a single data source or method (Maxwell, 2005). The key to triangulation, according to N. Fielding et al. (1986) is that methods triangulated must not have the same sources of bias and invalidity. Triangulation for this study was accomplished through combining the analysis of a secondary dataset, a custom-designed survey questionnaire, and interviews, the findings of which are interwoven and discussed *in toto,* which diversifies the risk posed by invalidity. Creswell and Clarke remind us that validity in a mixed-methods study is "the ability of the researcher to draw meaningful and accurate conclusions from all of the data in the study' (p. 146), where more meaningful inferences can be made when the qualitative phase builds on statistically significant predictors and relationships. Ultimately, as Maxwell (2005) says, "in the final analysis, validity threats are ruled out by *evidence,* not methods' (p. 112, emphasis in the original).

Transferability – the analogue of external validity - is a question of whether the findings hold in other contexts and situations, and is, ultimately, a concern resulting from the in-depth study of a small sample of individuals or groups (Bryman, 2012). Although providing a 'thick description' of the phenomenon is recommended to enhance transferability by Lincoln and Guba (1985), the findings of this chapter will combine select 'thick descriptions' with qualitative results from the linked survey questionnaire. This linking of the narrative data with the survey data is another way of demonstrating that a quote from a single individual is representative to a wider trend in the survey sample.

Dependability – the counterpart of reliability – is about recordkeeping to allow the research design, data collection, and analysis to be 'audited' by peers. Although this idea has not become popular in qualitative research (Bryman, 2012), the copious appendices in this dissertation is a nod to both this notion of dependability and the broader concern of replicability in quantitative research. Confirmability – the complement to objectivity – means the researcher does not allow personal values or theoretical inclinations to unduly sway the conduct of the research. Aspects related to this notion

of confirmability of the instrument will be addressed more fully in the discussion of reflexivity, and the position of the researcher in this study. Although the quantitative survey limits participant responses to questions that are inherently theory-laden and value-laden, the semi-structured interviews were conceived as a forum for participants to freely share their views, hopes, dreams, aspirations, and experiences of mobility and migration.

2.3.3 Data collection

Data collection procedures vary according to the type of mixed methods design used (Creswell & Clark, 2007), and what follows in this section deals with the data collection process that was followed for this specific sequential mixed methods research design. An important feature of this design is that the participants for the qualitative stage were drawn from the preceding quantitative stage. It is a common practice in mixed methods research to select the same individuals for both the quantitative and qualitative data collection because the data can be easily mixed and compared (ibid.) Indeed, Bryman and Clark suggest that selecting different individuals may introduce confounding personal characteristics into the data. The discussion of the data collection process will begin with the quantitative stage and followed then by the qualitative stage.

Quantitative Survey Questionnaire

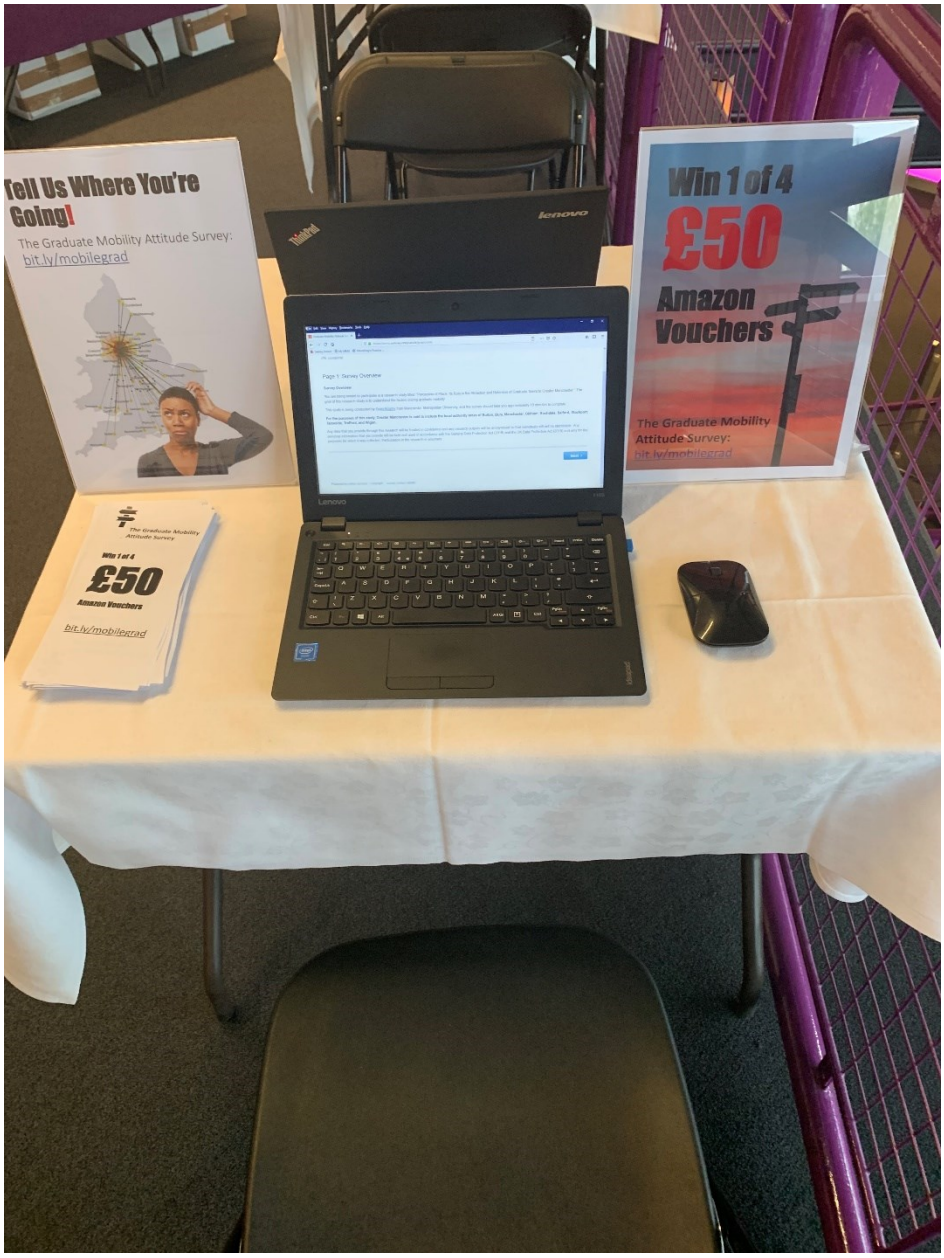
A multi-mode method of questionnaire administration was used, and this involves using a combination of online and print survey administration. One of the risks of this combined approach is problems related to 'mode effects, which are the effects on survey response caused by either online or print administration that then distorts the results (De Vaus, 2002). Although there is arguably some risk to this approach, the decision to use both online and print was taken for pragmatic reasons. The initial online survey administration did not yield the anticipated number of responses in the spring of 2019, and an in-person approach to survey administration was taken in the autumn of 2019 and early 2020. This combined approach of online and in-person will now be discussed in detail.

The online survey questionnaire was launched on 3 Apr 2019 via Online Surveys (https://mmu.onlinesurveys.ac.uk/gradmobile), and a truncated link was created using Bitly for marketing tracking and analytics purposes (http://bit.ly/mobilegrad). The Bitly online survey link was shared via social media (Facebook and Twitter) and email by career services and employability offices at The University of Manchester, The University of Salford, and Manchester Metropolitan University. In addition to the careers and employability online outreach, the survey link was shared on Facebook by Manchester Entrepreneurs, a student group with over 5,000 members across Greater Manchester universities. The survey link was also distributed online via LinkedIn by personal contacts. Although the online survey remained open until February 2020, the online push from university administrators, personal contacts, and students at the local universities ended in June 2019.

In addition to the online marketing of the survey, recruitment flyers for the study were posted at student unions and campus locations at the four Greater Manchester universities. These flyers were replaced regularly from April 2019 through October 2019, and copies of the flyers and social media posts are provided in Appendix 6. Physical promotion of the survey was also done at The University of Manchester's Career Fair on 8 May 2019. In addition to this activity at the University of Manchester, ten days were dedicated to collecting responses at different MMU locations. This entailed sitting at a table with signage promoting the survey and collecting responses. Both at the University of Manchester Career Fair and the MMU 'pop up' events, online survey responses were collected via two laptops. Figure 3.4 below shows the set-up for the University of Manchester Career Fair, which included two laptops, two table-top signs, and flyers. The initial push of the survey in the spring and

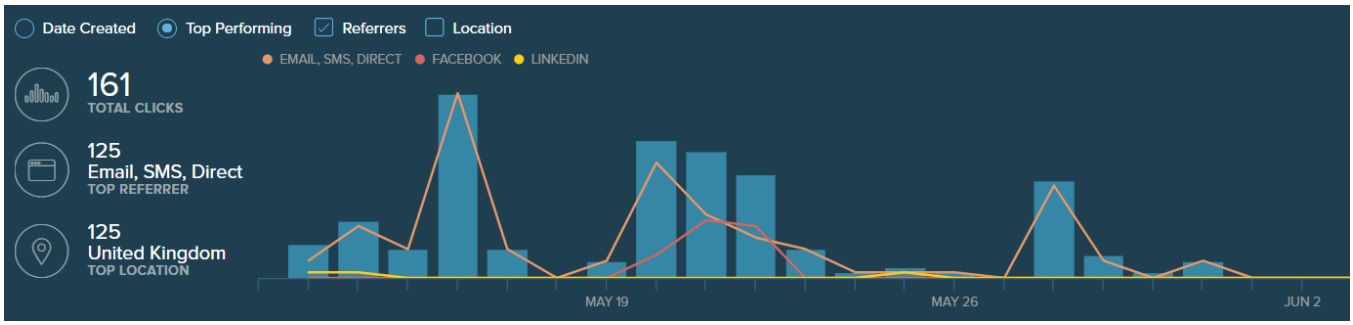
summer of 2019 included an incentive of an Amazon gift voucher, which was a practice that was discontinued by the autumn of 2019. The ethical implications of the use of incentives will be addressed in the ethics section of this chapter. At the ten MMU pop-up events, bags of crisps were given away as a way to increase interest in the survey and to induce participation. The ethical implications of this promotional technique will also be addressed in the ethics section.

Figure 3.4 – Set-up for the University of Manchester Career Fair, 8 May 2019



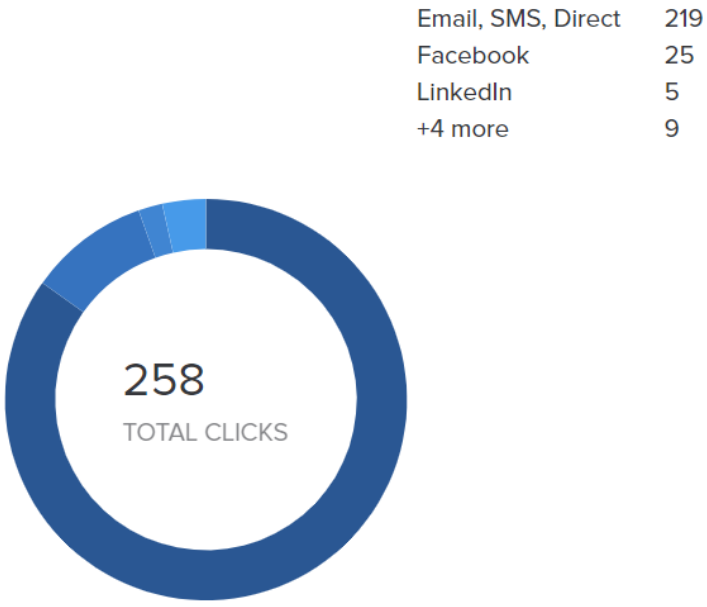
May 2019 represented the last online push for the academic year, and Figure 3.5 below shows the number of clicks on the Bitly link for the month of May. The first peak represents the hits from the University of Manchester Career Fair and a Twitter post by MMU Career Services. The second peak represents a Facebook post by Manchester Entrepreneurs (21 May 2019) and another Twitter post by MMU Career Services via Twitter (22 May 2019). The third peak represents an email by the University of Manchester via the staff social media email Listserv with a request to share the survey.

Figure 3.5 – May 2019 Bitly link clicks



Of the 161 clicks in May 2019, 153 survey responses were completed, not all of which were usable since some were from outside the UK and not from students attending one of the four universities in Greater Manchester. By the time the survey was closed in 2020, there were a total of 258 clicks on the Bitly link, see Figure 3.6 below. Of these 258 clicks, only a total of 39 (15 per cent) came from social media like Twitter, Facebook, or LinkedIn.

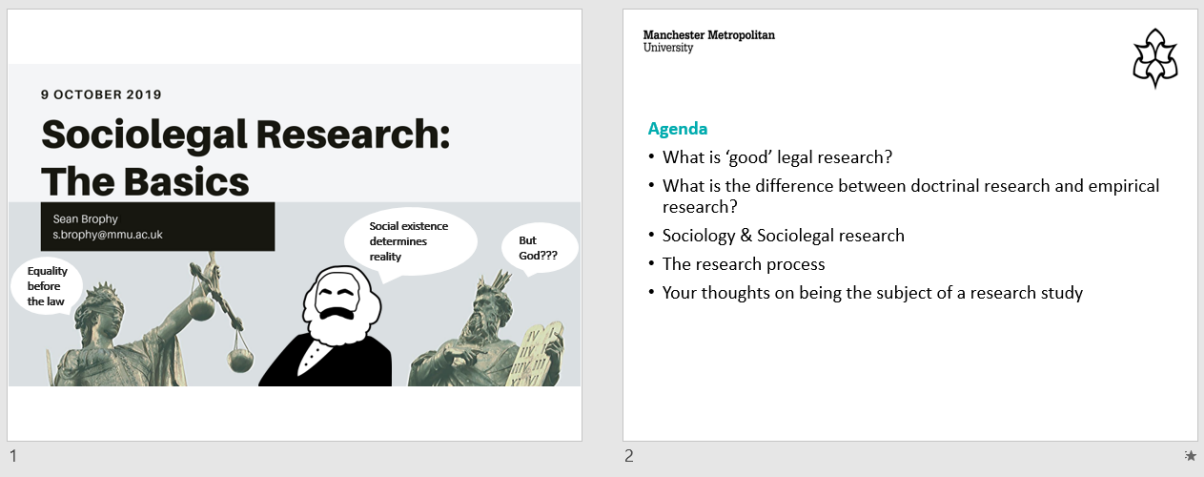
Figure 3.6 – Total number of Bitly clicks



The overwhelming majority of the clicks on the Bitly link were not from social media; so, therefore, the origin of these clicks must be from either email or 'direct' clicks driven by printed flyers, posters, or signage. As the number of online responses dwindled over the summer of 2019, it became apparent that the online administration of the survey needed to be supplemented with alternative approaches. With the start of the new academic year, an attempt was made to contact staff from local universities to gain access to lectures for survey administration using hard copies of the questionnaire. These access requests were made via personal contacts, and the only favourable responses came from the researcher's home university, Manchester Metropolitan University. Staff at all of MMU's five faculties were targeted: Arts and Humanities, Business and Law, Education, Health, Psychology and Social Care, and Science and Engineering. Between 26 September 2019 and 5 February 2020, fifteen different

lectures or seminars were attended to administer the survey. Eight of these sessions were straight forward occasions where surveys were distributed at the beginning of class and collected at the end of the class with the help of the lecturer or tutor. Seven of the sessions, however, required a form of *quid pro quo* where I agreed to teach a session on a given topic in order to gain access to the participants. These sessions included research ethics for tourism students, socio-legal methods for law students, survey research for final year management students, and qualitative data coding for second-year marketing students. Figure 3.7 below shows the first two slides from a lecture given on socio-legal methods in exchange for access, where the last agenda items demonstrate where the survey was administered and then debriefed. *Quid pro quo* in the researcher process is often linked to the notions of reciprocity and research ethics, issues which will be addressed later in this chapter.

Figure 3.7 – An excerpt of a lecture given in exchange for access



It should be noted that lecturers were not coerced in any way to allocate time in their classes for this survey dissemination, and students were not pressured or compelled to complete the questionnaire. As was mentioned previously, MMU never gave official sanction to this study, and any access that was gained was due to goodwill on the part of individual staff members or *quid pro quo* arrangements. Students independently decided whether to participate, and it was explicitly explained that participation was entirely optional and not required or part of their coursework.

Between 26 September 2019 and 5 February 2020, an additional 84 surveys completed surveys were returned from classroom sessions, for a total of 237 completed surveys. A number of these surveys were not usable for reasons that will be described in the data analysis section of this chapter.

Interviews

A total of 21 interviews of current students were conducted between April and December 2019. 19 of the 21 interviews were held at the Business School of MMU, whilst the remaining two were done by phone.

Although this dissertation does not purport to be a piece of feminist research *per se*, the conduct of the interview was approached with recognition of the importance of hierarchies and power relationships in the research process. Following Oakley (1981) and Bryman (2012), an approach for conducting the interviews was taken that attempted to demonstrate (1) a high degree a rapport

between the interviewer and interviewee; (2) a high level of reciprocity by the interviewer, and an attempt to establish a non-hierarchical relationship with the interviewees. Rapport was attempted by keeping the tone of the interviews informal and conversational. Reciprocity was attempted by offering to buy each of the intervenes a cup of coffee or tea prior to beginning the interview. This will also be addressed in the ethics section, but this gesture was done to acknowledge that the interviewees were 'doing a favour'. Attempts at establishing a non-hierarchical relationship were made by choosing neutral settings for the interviews like empty classrooms or cafes per the advice of Elwood and Martin (2000). Also, every attempt was made to follow Kvale's (1996) advice about being 'gentle' by not interrupting and letting people finish, being 'sensitive' by demonstrating empathy in the interview, and being 'open' and flexible to what the interviewee wants to discuss in the moment.

The first step taken in the interview process was providing a copy of the participant information sheet (Appendix 7) and answering any questions or concerns about the study. Participants were also asked to sign a participant consent form at this stage (Appendix 8), and once informed consent was obtained, including consent to be recorded, the interview was recorded using a Sony ICDPX333.CE7 4GB PX Series MP3 Digital Voice IC Recorder. The general conduct of the semi-structured interviews followed Kvale's advice in *Doing Interviews* (2007, p. 79), specifically:

- Balancing the need to cover the themes and questions listed in the interview guide with being open to changes driven by the stories being told by the interviewees
- Paying attention to the 'social interaction' being created since it has a bearing on the quality of the answers provided by the interviewee
- 'Setting the stage' of the interview appropriately by briefing the interviewee beforehand and after the interview
- Allowing for participants to answer in their own terms and in their own time, whilst also asking follow-up, probing, and verifying questions

3.3 Data Analysis

The data analysis procedures for this study are organised according to the stages outlined by Creswell and Clark (2007): preparing the data for analysis, exploring the data, analysing the data, representing the data analysis and validating the data. The quantitative stage of Phase 2 first, which will then be followed by a discussion of the qualitative stage.

3.3.1 Quantitative Data Analysis

The survey questionnaire results were analysed using SPSS, which is chosen instead of STATA because the type of analysis done for the survey is less sophisticated than the secondary analysis using STATA. SPSS also has better graphing functionality than STATA, which will be apparent when the survey findings are presented in the next chapter. The coding process used in the analyses of the questionnaire data uses Braun and Clarke's (2006) thematic coding technique, which is explained in detail in Section 3.3.2.

Preparing the data for analysis

The first step in preparing the data for analysis was exporting the raw data from Online Surveys as a Microsoft Excel file. Online Surveys includes an option to automatically code the data for import into

statistical software, and the codebook for this auto coding is available in Appendix 9. This codebook lists the variables, the variable definitions, and their numbers. This excel data was then uploaded into SPSS and coded. SPSS was used in the analysis of the survey questionnaire instead of STATA because the SPSS is a more 'user friendly' software for basic questionnaire analysis.

Exploring the data

This stage of the data analysis meant visually inspecting the data, determining the number of usable responses, eliminating outliers from the analysis and conducting a descriptive analysis to understand the general trends in the data by calculating the mean, standard deviation, and response variances for each item. Missing data was not included in the analysis for the same reasons enumerated in the methods chapter relating to the HESA data analysis. is to drop any individual record which does not have complete information on every item used in the analysis. This approach is known as full case analysis, case-wise deletion, or listwise deletion (Acock, 2008). After eliminating outliers, responses that did not meet the study inclusion criteria, and incomplete responses, the number of usable responses and the sample sized used in this analysis was 203.

Analysing and representing the data

The first step of the data analysis process entailed generating descriptive statistics that are appropriate for Likert-type items, the results of which are measured on an ordinal scale. The appropriate descriptive statistics for ordinal data include mode or median for central tendency (i.e., the typical value in a distribution), frequencies for variability, and measures of association like chi-square for categorical data (Boone & Boone, 2012). It should be noted that although measures like mean and standard deviation can be used for continuous Likert-scale data, these measures are inappropriate for the ordinal Likert-type items used in this study (Jamieson, 2004). Likert scales were not created because the goal of this study is not to develop a new scale for local graduate retention. Rather, the focus of this study is on understanding the factors that influence retention and how perceptions of Manchester impact graduate decisions about where to live and work. Therefore, the correct analytical strategy is to focus on the statistical treatment of the individual Likert-items.

Much like the presentation of descriptive statistics in the preceding HESA data analysis, frequency and percentages are presented for areas related to geography, demographics, higher education, and employment. Where possible, the descriptive statistics for the questionnaire are compared with corresponding descriptive statistics from the HESA dataset to illustrate the representativeness of the questionnaire sample. Table 3.3 below provides the descriptive statistics for the online survey.

The descriptive statistics are provided here in the methodology chapter rather than in the findings chapter because the finding chapter prioritises the Likert-type data and narrative data.

The second stage of the data analysis involved graphically presenting Likert-item scores as horizontally stacked bar charts with per cents for the following four sections section: 'Mobility Attitudes', 'Career and Community Attitudes', 'Perception of Greater Manchester' and 'Perceptions and Mobility Decisions'. Stacked bar charts allow for the visualisation of response variance and any relationships by comparing the size of the sections within a given bar, and this is the same as comparing column per cents across the columns of a cross-tabulation (De Vaus, 2002).

Table 3.3 - 102 Statistics for Online Survey

		Frequency	Percent
Total (N)		**204**	**100.0**
Local/Non Local	From GM	81	39.7
	Not From GM	123	60.3
	TOTAL	**204**	**100.0**
GEOGRAPHY			
Grad Retention	Actual/Prospective Stay	113	55.4
	Actual/Prospective Leave	91	44.6
		204	**100.0**
Migration Pathway	Actual/Prospective HG Loyal	57	27.9
	Actual/Prospective HG Leaver	5	2.5
	Actual/Prospective Stayer	43	21.1
	Actual/Prospective Home Returner	23	11.3
	Actual/Prospective Bouncer	9	4.4
	Missing	67	32.8
	TOTAL	**204**	**100.0**
DEMOGRAPHICS			
Gender	Male	80	39.2
	Female	119	58.3
	Other	5	2.5
	TOTAL	204	100.0
Ethnicity	White	139	68.1
	Black	24	11.8
	Asian	17	8.3
	Mixed	13	6.4
	Other	4	2.0
	Missing	7	3.4
	TOTAL	**204**	**100.0**
Professional Background	Professional occupations	103	50.5
	Non-professional occupations	70	34.3
	Don't know	21	10.3
	Other	3	1.5
	Missing	7	3.4
	TOTAL	**204**	**100.0**
HIGHER EDUCATION		**Frequency**	**Percent**
University	The University of Bolton	0	0.0
	The Manchester Metropolitan University	175	85.8
	The University of Salford	15	7.4
	The University of Manchester	14	6.9
	TOTAL	**204**	**100.0**
Course Subject	Allied to medicine	5	2.5
	Biological sciences	6	2.9
	Physical sciences	2	1.0
	Engineering	2	1.0
	Computer science	1	0.5
	Architecture, building & planning	1	0.5
	Social studies	5	2.5
	Law	15	7.4
	Business studies	138	67.6
	Mass communications & documentation	2	1.0
	Languages, linguistics, classics & related subjects	1	0.5
	Creative arts & design	6	2.9
	Education	2	1.0
	Combined	7	3.4
	Other	4	2.0
	Missing	7	3.3
	TOTAL	**204**	**100.0**

The next step in the analysis goes beyond this summary understanding to an understanding of the variance in attitudes and perceptions according to those who plan to stay in Greater Manchester and those who plan to leave. Three separate median scores are provided: a total for the overall sample, a median score for 'prospective stayers', and a median score for 'prospective leavers'. 'Prospective stayers' are those who selected GM in Question 7 of the survey, which asks them to select where they anticipate living after leaving university. 'Prospective leavers' are those who selected any other location other than GM. Median scores provide an easily understood snapshot of the central tendency for these three groups of cases. More importantly, by evaluating the median scores (dependent variables) according to the stay-leave dichotomous (independent) variable, there emerge the first possible answers to the last two research questions guiding this study: the factors influencing graduate retention and how the perceptions of GM impact decisions about where to live and work.

There are two families of tests available to analyse Likert data of type used in this questionnaire – parametric and non-parametric – and no shortage of debate in the methods literature for which approach is suitable for ordinal Likert data (see Harpe, 2015; Howe & Moses, 1999; Jamieson, 2004; Norman, 2010). Since many Likert responses appeared not to have a normal distribution upon visual inspection, it was decided to treat the data as non-parametric

Two-sample statistical comparison is one of the most frequently used hypothesis tests in the field of social sciences, and particularly so for quantitative survey analysis (De Vaus, 2002). The *Mann-Whitney U test* (MW) is the non-parametric counterpart to the independent sample *t*-test (Greasley, 2007), and both the MW and the *t*-test are inferential statistical tests that determine whether there is a statistically significant difference between the central tendency of two unrelated groups (Bryman & Cramer, 2012). The main assumptions for conducting a MW are that the two groups must be independent and that the dependent variable is ordinal or numerical (continuous) (J. Gibbons, 1993), both of which conditions are met in this analysis. In this analysis, the MW was used to compare each of the Likert-item outcomes for the independent 'stayers' and 'leavers' groups. The *Kruskal–Wallis test* (KW) is the nonparametric equivalent of the One-Way ANOVA test for parametric data, and it is also known as the '*Kruskal–Wallis H test'* or the 'one-way ANOVA on ranks'. The KW test will be used to determine if there are any statistically significant differences in responses between the five prospective migration pathways. Appendix 10 provides the technical details for the MW equations, calculating the effect size (*r*) for the MW results, the KW equation, and epsilon-squared estimate of effect size.

In conclusion, the process for analysing and displaying the survey questionnaire is

1. Descriptive statistics in tabular form that are then compared to HESA statistics to establish the representativeness of the survey sample
2. Presenting the Likert-item responses as percentages in stacked bar charts
3. Statistical comparison of Likert items for independent groups of 'stayers' and 'leavers' using the MW test, followed by effect size calculation for statistically significant *U* test statistics.
4. Further hypothesis testing of the statistically significant results from Step 3 using MW test and independent groups related to geography, gender, ethnicity, and social class. The effect size will also be calculated for statistically significant *U* test statistics.
5. Presenting the median scores for Likert-items with bar charts for the overall sample and for the five migration pathways.
6. Statistical comparison of Likert items for independent groups of prospective "Home Grown Leavers', 'Home Grown Loyals', 'Stayers', 'Home Returners', and 'Bouncers' using the KW test, followed by calculation of the epsilon-squared estimate of effect size.

Limitations

The six-step analytic process highlighted above comes with some limitations. All nonparametric techniques, including the MW test and the KW test used in this analysis, have limitations that should be discussed, and there are two main areas of concerns related to nonparametric tests in general and small sample sizes. First, all nonparametric methods lack power when compared to their parametric counterparts, which means there is less chance of detecting a true effect where one exists (Whitley & Ball, 2002). In essence, there is a greater likelihood of committing Type II error (i.e., accepting a false null hypothesis) when compared to parametric tests. However, since the data at hand is both ordinal and has a non-normal distribution, as is common with Likert-type data, parametric tests are not appropriate. Therefore, nonparametric testing is the most justified statistical technique (Harpe, 2015; Howe & Moses, 1999; Jamieson, 2004; Norman, 2010). Secondly, there are issues related to small sample sizes and the reliability and validity of the *Mann-Whitney U* and the *Kruskal–Wallis* tests. Nonparametric tests are popular methods for hypothesis testing precisely because they can be used with small sample sizes, but there are some important caveats and limitations. Small sample sizes do not have an impact on Type I errors, which means that small sample sizes will not lead to the incorrect identification of a difference between groups where no such difference exists (Columb & Atkinson, 2016). In other words, small sample sizes will not lead to 'false positive' results. Small sample sizes do, however, have an impact on Type II errors, which means that small sample sizes may contribute to the failure to identify a significant difference between groups when that difference actually exists. In other words, small sample sizes may lead to 'false negative' results. Then there is the question as to what constitutes a 'small sample size' in this analysis, and the answer to this question is based on principles of statistical power analysis (J. Cohen, 1992a, 1992b). For the Mann-Whitney test, the minimum sample size needed for groups is 7 for the *Mann-Whitney U* and 5 for the *Kruskal–Wallis* tests (see tables D & F in the Appendix of Gibbons, 1993).

With small sample sizes then, we are dealing with *sins of omission* rather than *sins of commission* where important relationships may not be picked up in the analysis. This weakness is mitigated by the fact that this analysis uses a triangulation approach of multiple data sources and multiple analytic techniques. So, although this analysis may not detect a true effect given the small sample size, that same phenomenon may emerge as statistically significant in the HESA analysis or as an important theme in the interview data. However, if statistically significant relationships are found in this analysis where there are small sample sizes, these relationships are both valid and reliable.

Another possible criticism of this strategy is the use of the individual (i.e., not summated) Likert-type items rather than summated Likert-scale data. As was mentioned previously, the primary goal of this survey questionnaire is to identify the factors that influence the retention of graduates, particularly the role of perception of place. This question can be answered by analysing the individual, ordinal Likert-type items, which means a robust statistical comparison of the differences in median responses of stayers and leavers. Wesselmann's (2018) study exploring whether university students should be included in Richard Florida's creative class only reports Likert item and not scale data in the published findings. Developing new scales of measurement for the different dimensions of mobility attitudes and quality of place could be a PhD project unto itself and beyond the scope of this dissertation.

3.3.2 Qualitative Data Analysis

Much like the previous section on quantitative data analysis, this section on quantitative data analysis will also cover issues related to preparing, exploring, analysing, presenting and validating the interview data. However, the structure of this section will be based on Braun and Clarke (2006) guidelines for using thematic analysis in qualitative research. This section will first cover some preliminary concerns related to thematic analysis by providing working definitions of key concepts, explaining how this

approach is suited to the research design, and addressing relevant epistemological concerns. Finally, this section will provide a description of the process used to code and analyse the quantitative data, which largely follows the six-phased approach advanced by Braun and Clarke (2006).

Braun and Clarke (2006) view thematic analysis as a foundational qualitative method that any researcher should learn before moving onto more sophisticated techniques like narrative analysis or grounded theory, and thematic analysis has been used in many phenomenological studies on different topics and in a variety of different field in recent years (e.g., Cassol et al., 2018; Ho et al., 2017; Sundler et al., 2019). Braun and Clarke (2006) argue that one of the chief benefits of thematic analysis is its compatibility with a range of theoretical and epistemological approaches since it is largely independent of theory and its approach to knowing the social world, qualities which are well suited to mixed methods research.

Background on the analysis

When preparing qualitative data for analysis, the researcher is concerned with transcribing text from interviews into a word processing file for analysis (Creswell & Clark, 2007). Transcription was a multi-step process. First, the audio files were uploaded to otter.ai (https://otter.ai/), which is an online platform that automatically transcribes audio files using artificial intelligence (AI). Reliability in the transcription process is concerned with the accuracy of the transcription (Kvale, 2007), and the accuracy of the AI-produced transcripts were checked by listening to the recordings and making changes as needed. Jüngling and Hofer (2019) estimate that otter.ai is 87-95 per cent accurate, and this figure squares with the limited number of edits that were made to transcripts when accuracy checks were performed. However, it can be speculated that using automated transcription means that the researcher misses an opportunity to become more familiar with the data, which is often viewed as a key benefit of the traditional manual approach to transcription of interview data (Bryman, 2016; Kvale, 1996, 2007). As Kvale (2007), questions of validity are not pertinent to transcripts since transcripts are 'decontextualized conversations' and should not be viewed as representatives of original reality. The transcripts in this analysis should be viewed as useful tools in a research exercise, which in this instance means they function as records of a conversation that can help illuminate certain theoretical or statistical questions related to graduate mobility. Since this is not a work of ethnographic research, making a note of the research site's features or faithfully capturing pauses, 'umms', or use of 'like' in the transcripts is not a priority in this analysis.

Without a rigorous, replicable approach to qualitative analysis, Bran and Clarke argue that "it is difficult to evaluate…research, and to compare and/or synthesize it with other studies on that topic, and it can impede other researchers carrying out related projects in the future" (p. 80). With this imperative in mind, thematic analysis was used as the rigorous approach to coding and data analysis for the qualitative stage of this research project. Thematic analysis is simply a "method for identifying, analysing and reporting patterns (themes) within data." (Braun & Clarke, 2006, p. 79). A theme, one the other hand, is a concept that "captures something important about the data in relation to the research question" and is always subject to the researcher's judgement (Braun & Clarke, 2006, p. 82). Therefore, the starting point for developing the themes for the qualitative stage of the analysis began with reference to the three research questions, much like the quantitative stage.

Braun and Clarke maintain that developing themes is not a question of prevalence (i.e., frequency of occurrence) in the data *per se*; rather, they stress the importance of how the issue of prevalence is dealt with and justified in the analysis. Although documenting the prevalence of themes across a dataset may be a primary concern of mono-method qualitative studies, it is arguably a less important concern with an explanatory mixed-methods research design that uses qualitative data, in the words of Creswell and Clark, to "explain or build upon initial quantitative results" (2007, p. 96). In other words, this analysis is using a primarily deductive approach to coding and analysis where the themes

and codes are largely derived from the literature and survey results. This process is what Braun and Clarke refer to as 'theoretical thematic analysis' which is a researcher-driven model guided by theoretical or analytic interest. This theoretical form of thematic analysis tends to provide less of a thick description of the data whilst taking an approach to coding that is ultimately guided by the research questions and a prior reading of the literature.

This analysis does not intend to provide a 'thick description' that gives the reader a full representation of the interview transcripts in their entirety for every important instance; rather, it will provide what can be described a more targeted approach to coding and analysis based on the conceptual framework developed to answer the research questions, as well as the findings from the two preceding quantitative stages of the study. However, one of the key assets of thematic analysis is its flexibility in allowing both deductive and inductive approaches to be combined. So, although this study will rely mostly on a deductive approach, it will leave the door open for any themes or codes to emerge inductively from the data itself in accordance with the phenomenological approach take to the interviews.

Braun and Clarke provide a practical six-phase guide to using thematic analysis, which was followed in this project. The discussion of this approach will also be structured according to these six phases.

1. **Familiarising yourself with the data**

This process entails reading and re-reading the data for purposes of familiarizing oneself with the data whilst also noting initial ideas. Since AI was used to auto-transcribe the recordings (otter.ai), the first reading was to check for the accuracy of the transcription and make any needed adjustments. With rereading, initial ideas were noted, and these initial ideas were primarily conceptualised with the research questions, literature, and previous quantitative findings in mind.

2. **Generating initial codes**

Initial codes were developed by reading the transcripts with, as Braun and Clarke (2006) mention, "specific questions in mind that you wish to code around" (p. 89). In this instance, it was the research questions that seek to understand why graduates stay or leave the area and how these decisions are related to perceptions of Manchester. The initial coding was done in Microsoft Word, and a sample coded transcript is provided in Appendix 10.

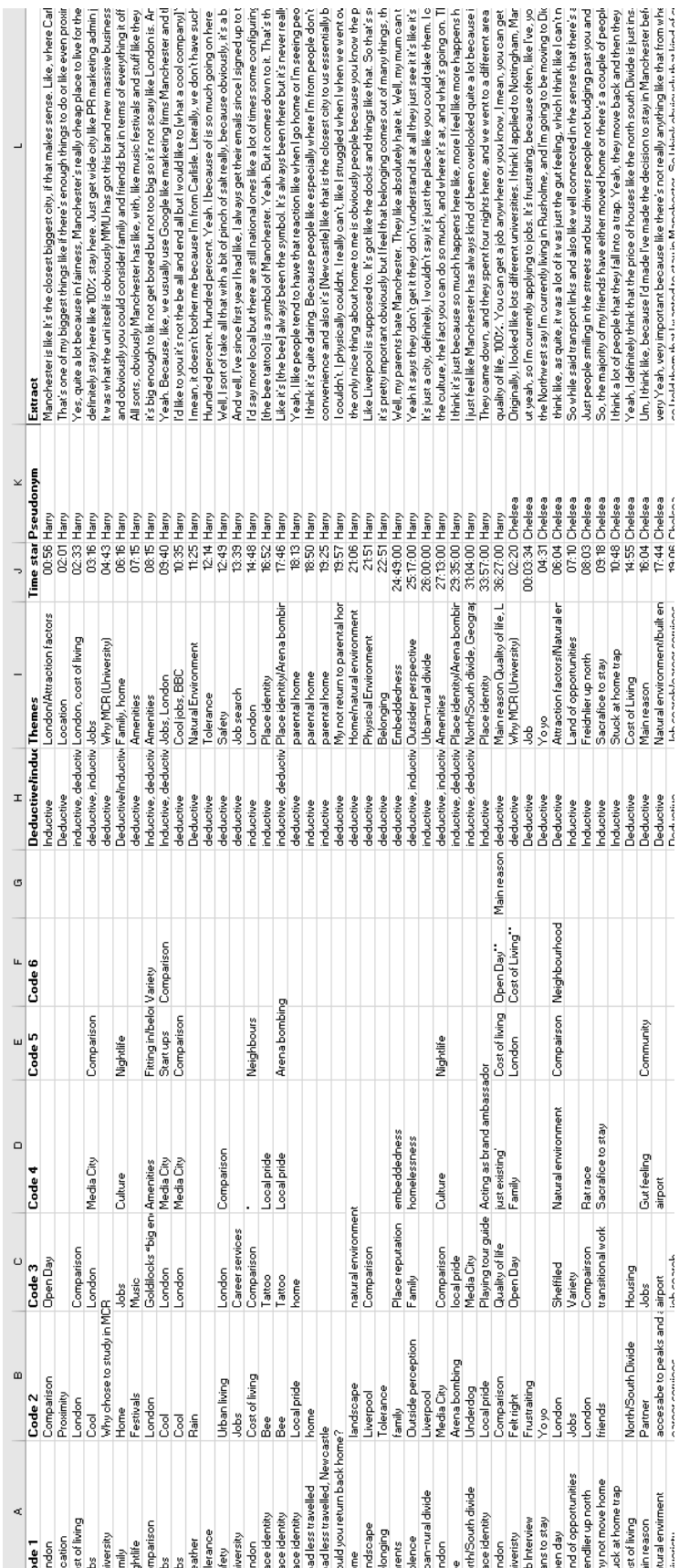
3. **Searching for themes**

The process of searching for themes entailed organising the coded transcript excerpts into potential themes using a Microsoft Excel workbook, using different workbook tabs for larger umbrella themes or what Braun and Clarke refer to as 'theme piles'. A screenshot of a portion of this Excel file showing theme piles is provided in Figure 3.8.

4. **Reviewing themes**

Reviewing the themes meant following Braun and Clarke's two-step process that involves first reviewing the coded extracts themselves and then turning attention to the larger dataset. In the first step, themes were refined, new themes generated, others collapsed, and some discarded based on whether there was sufficient data to justify the theme. The second step in the process involves rereading the entire dataset to ensure the themes are both valid and, in the words of Braun and Clarke, an "'accurate representation'… [of] your theoretical and analytic approach." (p.91). The 'litmus test' for whether themes are both valid and an accurate representation of the dataset is, according to Braun and Clarke, whether the "thematic map works" (p. 91), which requires researcher judgement. The thematic map developed from in this analysis was determined to be satisfactory, the themes were then named and largely conceptualised based on the background literature. In generating the initial codes as outlined in the previous step, a notation was made to distinguish between deductive (i.e., 'theoretical') and inductive codes that emerged from the data itself.

Figure 3.8 – Screenshot of Excel file with 'theme piles'



	A	B	C	D	E	F	G	H	I	J	K	L
1	**Code 1**	**Code 2**	**Code 3**	**Code 4**	**Code 5**	**Code 6**		**Deductive/Indu**	**Themes**	**Time star**	**Pseudonym**	**Extract**
2	London	Comparison	Open Day					Inductive	London/Attraction factors	00:56	Harry	Manchester is like it's the closest biggest city, if that makes sense. Like, where Carl
3	Location	Proximity						Deductive	Location	02:01	Harry	That's one of my biggest things like if there's enough things to do or like even proxir
4	Cost of living	London	Comparison					inductive, deductiv	London, cost of living	02:33	Harry	Yes, quite a lot because in fairness, Manchester's really cheap place to live for the
5	Jobs	Cool	London	Media City	Comparison			deductive, inductiv	Jobs	03:16	Harry	definitely stay here like 100%, stay here. Just get wide city like PR marketing admin j
6	University	Why chose to study in MCR						deductive	Why MCR (University)	04:43	Harry	It was what the uni itself is obviously MMU has got this brand new massive business
7	Family	Home	Jobs	Culture	Nightlife			Deductive/inductiv	Family, home	06:16	Harry	and obviously you could consider family and friends but in terms of everything it off
8	Nightlife	Festivals	Music					deductive	Amenities	07:15	Harry	All sorts, obviously Manchester has like, with, like music festivals and stuff like they
9	Comparison	London	Goldilocks +Big en	Amenities	Fitting in/belo	Variety		Inductive, deductiv	Amenities	08:15	Harry	it's big enough to lik not get bored but not too big so it's not scary like London is. Ar
10	Jobs	Cool	London	Media City	Start ups	Comparison		Inductive, deductiv	Jobs, London	09:40	Harry	Yeah. Because, like, we usually use Google like marketing firms Manchester and I'd
11	Jobs	Cool	London	Media City	Comparison			deductive	Cool jobs, BBC	10:35	Harry	I'd like to, you it's not the be all and end all but I would like to [what a cool company]'
12	Weather	Rain						Deductive	Natural Environment	11:25	Harry	I mean, it doesn't bother me because I'm from Carlisle. Literally, we don't have such
13	Tolerance							deductive	Tolerance	12:14	Harry	Hundred percent. Hundred percent. Yeah, I because of is so much going on here
14	Safety	Urban living	London	Comparison				deductive	Safety	12:49	Harry	Well, I sort of take all that with a bit of pinch of salt really, because obviously, it's a b
15	University	Jobs	Career services					deductive	Job search	13:39	Harry	And well, I've since first year I had like, I always get their emails since I signed up to t
16	London	Cost of living	Comparison	.	Neighbours			inductive	London	14:48	Harry	I'd say more local but there are still national ones like a lot of times some configuring
17	Place identity	Bee	Tattoo	Local pride				inductive	Place identity	16:52	Harry	[the bee tattoo] is a symbol of Manchester. Yeah. But it comes down to it. That's th
18	Place identity	Bee	Tattoo	Local pride	Arena bombing			inductive, deductiv	Place identity/Arena bombir	17:46	Harry	Like it's [the bee] always been the symbol. It's always been there but it's never reall
19	Place identity	Local pride	home					deductive	parental home	18:13	Harry	Yeah, I like people tend to have that reaction like when I go home or I'm seeing peo
20	Road less travelled	home						inductive	parental home	18:50	Harry	I think it's quite daring. Because people like especially where I'm from people don't
21	Road less travelled, Newcastle							inductive	parental home	19:25	Harry	convenience and also it's [Newcastle] like that is the closest city to us essentially b
22	Would you return back home?							deductive	My not return to parental hor	19:57	Harry	I couldn't. I physically couldn't. I really can't, like I struggled when I when we went on
23	Home	landscape	natural environment					deductive	Home/natural environment	21:06	Harry	the only nice thing about home to me is obviously people because you know the p
24	Landscape	Liverpool	Comparison					deductive	Physical Environment	21:51	Harry	Like Liverpool is supposed to. It's got like the docks and things like that. So that's a
25	Belonging	Tolerance						deductive	Belonging	22:51	Harry	it's pretty important obviously but I feel that belonging comes out of many things, th
26	Parents	family	Place reputation	embeddedness				deductive	Embeddedness	24:49:00	Harry	Well, my parents hate Manchester. They like absolutely hate it. Well, my mum can't
27	Violence	Outside perception	Family	homelessness				deductive, inductiv	Outsider perspective	25:17:00	Harry	Yeah it says they don't, get it they don't understand it at all they just see it it's like it's
28	Urban-rural divide	Liverpool						inductive	Urban-rural divide	26:00:00	Harry	It's just a city, definitely. I wouldn't say it's just the place like you could take them. I c
29	London	Media City	Comparison	Culture	Nightlife			deductive, inductiv	Amenities	27:13:00	Harry	the culture, the fact you can do so much, and where it's at, and what's going on. Th
30	Bee	Arena bombing	local pride					inductive, deductiv	Place identity/Arena bombir	29:35:00	Harry	I think it's just because so much happens here like, more I feel like more happens h
31	North/South divide	Underdog	Media City					inductive, deductiv	North/South divide, Geograp	31:04:00	Harry	I just feel like Manchester has always kind of been overlooked quite a lot because i
32	Place identity	Local pride	Playing tour guide	Acting as brand ambassador				Inductive	Place identity	33:57:00	Harry	They came down, and they spent four nights here, and we went to a different area
33	London	Comparison	Quality of life	just existing'	Cost of living	Open Day;"	Main reason	deductive	Main reason Quality of life, L	36:27:00	Harry	quality of life, 100%. You can get a job anywhere or you know, I mean, you can get
34	University	Felt right	Open Day	Family	London	Cost of Living"		deductive	Why MCR (University)	02:20	Chelsea	Originally, I looked like lots different universities. I think I applied to Nottingham, Mar
35	Job Interview	Frustraiting						Deductive	Job	00:03:34	Chelsea	ur yeah, so I'm currently applying to jobs. It's frustrating, because often, like I've, yo
36	Plans to stay	Yo yo						Deductive	Yo yo	04:31	Chelsea	the Northwest say I'm currently living in Rusholme, and I'm going to be moving to Dic
37	Open day	London	Sheffiled	Natural environment	Compairson	Neighbourhood		Deductive	Attraction factors/Natural er	06:04	Chelsea	think like, as quite, it was a lot of it was just the gut feeling, which I think like I can't n
38	Land of opportunities	Jobs	Variety					Inductive	Land of opportunities	07:10	Chelsea	So while said transport links and also like well connected in the sense that there's a
39	Friendlier up north	London	Compairson	Rat race				Inductive	Freidnlier up north	08:03	Chelsea	Just people smiling in the streets and bus drivers people not budging past you and
40	Why not move home	friends	transitional work	Sacrafice to stay				Inductive	Sacrafice to stay	09:18	Chelsea	So, the majority of my friends have either moved home or there's a couple of peopl
41	Stuck at home trap							Inductive	Stuck at home trap	10:48	Chelsea	I think a lot of people that they fall into a trap. Yeah, they move back, and then they
42	Cost of living	North/South Divide	Housing					Deductive	Cost of Living	14:55	Chelsea	Yeah, I definitely think that the price of houses like the north south Divide is just ins
43	Main reason	Partner	Jobs	Gut feeling	Community			Deductive	Main reason	16:04	Chelsea	Um, I think like, because I'd made I've made the decision to stay in Manchester beh
44	Natural enviment	accesable to peaks and	airport	airport				Deductive	Natural environment/built en	17:44	Chelsea	very Yeah, very important because like there's not really anything like that from wh
45	Urbanism							Deductive		19:05	Chelsea	

5. Defining and naming themes

Since a primarily deductive approach was taken to coding, preliminary themes were already derived from the literature (see Appendix 1). Column I in Figure 3.8 can be considered what Braun and Clarke refer to as high-level themes, which represents the overall conceptualisation of patterns in the data and the relationships between them. Although this data is in tabular form, it is akin to the thematic map suggested by Braun and Clarke.

6. Producing the report

Finally, presenting the data was done in a way to both convince the readers of the validity and merit of the analysis as suggested by Braun and Clarke, although in a mixed-methods context where quantitative and qualitative data findings are interwoven. The goal for interweaving the data in the findings chapter of this dissertation is characteristic of the data mixing decisions characteristic of explanatory mixed methods research designs described by Creswell and Clark (2007). Namely, this is to provide follow-up explanations for patterns that merged from either the HESA data or the survey questionnaire. Therefore, the structure of the results chapter will first discuss quantitative findings and then use narrative data that is a vivid example that 'compellingly illustrates' the story that is being told about the data, as recommended by Braun and Clarke. It should also be noted here that the students who took part in the interviews are allocated to prospective stay/leave or prospective migration pathways based on where they reported they planned to live after university.

Quality markers for good thematic analysis

Braun and Clarke (2006) provide a fifteen-point checklist of criteria that make for a good thematic analysis, many of which have already been discussed in detail already (e.g., faithful transcription, rigorous coding, and a coherent analytic approach). However, a few brief comments on the quality markers described by Braun and Clarke are needed. Regarding coding, the process followed combined both deductive and inductive techniques that were 'thorough, inclusive and comprehensive' (Braun & Clarke, 2006, p. 96). Regarding the analysis, the qualitative data was mixed with existing quantitative data, and the extracts were selected to both explain the quantitative trends from the previous two stages of research as well as to give voice to themes that emerge from the interview data itself. Finally, the coding and analysis were performed within an epistemological position that traverses the boundaries between the postpositivist traditions of realism and constructivism. Although the language used in the discussion and the analysis may be more reminiscent of detached and disinterested realism, this is a matter of personal preferences and writing style. There is an acknowledgement that the researcher is very much positioned as an active participant in the process of collecting, coding, and analysing the interview data. Similar to the dual positionality described by Braun and Clarke, the researcher in this study occupies a position of being both a member of the GM student community and a commentator on the community itself. The positionality of the researcher will be discussed further in the next section dealing with the ethics section.

3.4 Ethics, Reflexivity & Politics

This research study adheres to the ethical guidelines developed by Manchester Metropolitan University, and a copy of the approved application submitted to the University ethics committee is available in Appendix 11. Ethical principles in social research tend to be discussed according to four main areas: whether there is harm to participants, whether there is a lack of informed consent,

whether there is an invasion of privacy, and whether deception was involved (Diener & Crandall, 1978). Each of these items will be discussed in turn, with attention paid to the three phases of the research project: secondary data analysis, the survey questionnaire, and the interviews.

It should be noted that the analysis of the secondary HESA data presents a set of ethical concerns that are somewhat different than those related to collecting and analysing primary data. As Smith (2008) points out, one of the primary benefits of secondary data analysis is that ethical issues related to access, informed consent, and the confidentiality of study participants can be reduced or avoided entirely. Since this dataset was purchased under license (a copy of the contract is available in Appendix 12), there are terms and conditions in the contract that must be adhered to, many of which are concerned with HESA's rounding methodology which is intended to maintain anonymity by reducing the risk of identifying individuals from published figures (HESA, n.d.). As well as being bound contractually to observe HESA's data protection measures, use of the HESA data in this study falls under the Data Protection Act 2018 which says it is a criminal offence to re-identify information that is de-identified personal data without consent. Therefore, care was taken to observe HESA's guidelines whereby percentages based on fewer than 22.5 individuals and averages based on 7 or fewer individuals are suppressed from reporting of findings.

When it comes to primary data collection, harm to participants is a primary ethical concern. The notion of participant harm is a multifaceted concept and might include physical, psychological, or emotional harm (Diener & Crandall, 1978). Indeed, Bryman (2012) mentions that it is not possible to identify all the circumstances where harm is likely, but there are a few areas where harm might be likely in this study. An important ethical consideration for any study is maintaining the anonymity of participants and the confidentiality of records, which means there is a duty of care throughout the entire project lifecycle, from planning through to writing up the findings in a dissertation (Bryman, 2012). For the survey results, this meant removing all personal identifiers and using unique numerical IDs in the data analysis. For the interview data, each participant was given a pseudonym to protect their confidentiality and to maintain anonymity. The notion of harm can also be extended to the participant's academic standing, their personal values and beliefs, and their links to family and the wider community. All records and data were maintained or stored on password-protected devices like a personal laptop, a personal cloud account (Microsoft OneDrive), and university systems and platforms like Microsoft OneDrive and Surveys Online. Records were anonymised before being analysed in SPSS.

Informed consent is generally understood according to two interrelated aspects. First, research participants need to understand the nature of the research and their role within it, and second, they need to agree voluntarily to participate (Israel, 2015). Since the research was conducted in a higher education setting using students, the study participants were informed that participation is not connected to their course work and that participation would have no impact on their academic performance. This point is relevant to the previous *quid pro quo* discussion. Informed consent was obtained through separate mechanisms for the questionnaire and the interviews. Informed consent is usually obtained in survey research by the act of completing and returning the survey questionnaire (ibid.), and the questionnaire cover page also included background information of the study, relevant disclosures, and contact information.

The questionnaire stage of data collection also used incentives to increase response rates and participation in the study. Incentives were not part of the original ethics application, but an addendum was added to the application and subsequently approved. The decision to apply for ethical approval for incentives was taken because the initial launch of the survey was met with a lower than expected response rate, and it was hoped that an incentive to participate would ultimately boost the response rate. The incentive offered was a chance to win a £50 Amazon gift voucher for participation, which can be considered a 'contingent incentive' since the chance to win is dependent on the participant's completion of the questionnaire (Lavrakas, 2008). One of the ethical concerns of using incentives is

related to coercion and informed consent (Cobanoglu & Cobanoglu, 2003; Singer & Bossarte, 2006). Since the survey population is not considered a 'vulnerable population', the amount of money can be considered nominal, and informed consent was obtained, then the use of incentives in this instance does not conform to common definitions of 'coercion' or 'undue influence' (Singer & Bossarte, 2006). There is evidence that incentives in the form of gift vouchers do not have a big impact on response rate (Cobanoglu & Cobanoglu, 2003; Lavrakas, 2008; Singer & Bossarte, 2006), and the anecdotal evidence from this study seems to agree that they did not add much to the overall response rate. Similarly, offering participants bags of crisps as an incentive can also be claimed to pose a low risk of harm to participants.

Informed consent was obtained for the interviews by providing participants with copies of a participant information sheet (Appendix 7) and obtaining a signed consent form (Appendix 8). Prior to each interview, participants were asked to read both documents, given an opportunity to ask any questions, and then asked to sign the consent form. As Bryman (2012) says, the advantage of using consent forms is that they give study participants an opportunity to be fully informed about the nature of the research, the risks, and benefits of participation from the outset. It should also be mentioned that deception, i.e., misrepresenting the nature of the research to participants (Bryman, 2012), was not used in this study. This is an important point to make since deception nullifies informed consent.

The ethical concerns about whether there is an invasion of privacy in this study are related to issues of confidentiality and anonymity, which is also to say that no covert research was undertaken in this study. Anonymisation of records took place prior to the analysis of the survey questionnaire, and interview participants were given pseudonyms at the time of being interviewed. Participants will not be named in any publicly shared documents like this dissertation or any forthcoming articles. Personal data has been stored on secure systems as discussed previously, and any non-anonymised data will be destroyed after a period of three years from collection.

Alverson and Skoldberg (2000) define reflexivity as "the complex relationship between processes of knowledge production and the various contexts of such processes, as well as the involvement of the knowledge producer" (p. 8) that concern method, methodology, and candour about researcher values and biases. A mixed-methods study that is predominantly quantitative in nature may lead to the same accusations often levelled against naïve positivist works, i.e., that figures are wholly objective and value-neutral. When wrestling with a similar question about the perceived objectivity of economic data, Doreen Massey states emphatically that it is impossible to "separate-off 'the economic' from the political, cultural and ideological aspects of society… One way in which this is true is that economic phenomena have to be *interpreted.*" (1995, p. 309, emphasis in original). This is a view that holds that any interpretation of quantitative data is inherently value-laden and theory-laden, which is a sentiment that was expressed earlier in the discussion of the postpositivist worldview taken in this dissertation. Another way of stating this position towards knowledge taken here is that knowledge of the social world is essentially 'situated' – or partial – since all knowledge is produced and interpreted in specific circumstances and those circumstances shape its production and interpretation in some way (Rose, 1997). So, if a research interest ought to be declared, then this study seeks to position the understanding of graduate migration as a complex phenomenon that goes beyond the narrow theoretical or disciplinary lines. However, a political interest ought to be declared as well.

Writing about the political and theoretical divides of 1930s Europe in his influential monograph on Marx and Weber, Karl Löwith ([1932] 2002) says "social science, like the society it studies, is divided into two branches: *bourgeois* sociology and *proletarian* Marxism" (p. 42, emphasis in the original). Löwith, who studied personally under both Husserl and Heidegger, fled his native Germany in 1936 for America because the growing brutality of the regime meant that his Jewish roots disqualified him from teaching in German universities. I mention Löwith because he speaks of an academic divide that separates our understanding of important social phenomena like graduate migration, but his own lived experience demonstrates that migration can also be a political act, as well as poignantly personal.

From the peasants fleeing to the cities of the Holy Roman Empire to brain drain of European academics like Löwith and Einstein, through to our contemporary graduates of Greater Manchester, the proper duty owed to the stories of migration is one which honours both 'bourgeois' ideals of freedom and dignity and 'proletarian' notions of liberation and solidarity. This thesis, however, admittedly draws more inspiration from humanistic social theories rather than Marxist (or post-Marxist). The preference for the former is much the same as the character of Bill Haydon's preference for the latter in John le Carré's *Tinker, Taylor, Soldier, Spy,* which he explained by saying, "It's an aesthetic judgement as much as anything… Partly a moral one, of course." (Le Carré, 2002, p. 365) Like the character of Bill Haydon, my preference for humanism is primarily a matter of tastes, but I also have sincere moral and intellectual reasons for advancing a humanistic explanation.

Although sympathetic to some Marxist, post-Marxist, and critical positions, the suggestion that socioeconomic status (or gender or ethnicity) is *more* important than other factors in structuring society is an ideological position rather than a scientific one. Moreover, I believe that freedom has a moral dimension that is relevant to scholars, which Popper describes as the ideals of "freedom of thought, of the free search for truth, and with it, of the rationality and dignity of man." ([1945] 2006, p. 448) This thesis, much like any other endeavour in the social sciences, is a product of the life experiences, political inclinations, tastes, and preferences of the researcher. As a committed sceptic in most domains of life, I agree with Seidman's (2016) assertion that "the belief in science as liberating humankind from myth and oppression is itself one of the chief allusions of our era." (p. 35) However, I am also a firm believer that higher education is a life-changing and transformative experience for individuals, and that research – both in the social and the natural sciences – has the capacity to advance our material and societal wellbeing. The conclusion of this thesis will return to Popper since his postpositivist message is ultimately one of cheerful optimism, and optimism is the chief lifeblood of the great projects that are science, art, and civilisation.

3.5 Generalisability of the study findings

Discussion of generalisability was left until the end of this chapter because this mixed-methods study makes two separate claims about the generalisability of its findings. Maxwell (2005) makes a distinction between 'internal' and 'external' generalisability. External generalisability – or 'external validity' – is a matter of whether the findings of a study can be generalized beyond its specific research context to other situations or populations (Bryman, 2012). Although external generalisability is often not a priority of qualitative research, it is very much the primary goal of many quantitative researchers. Kuhn (1963) reminds us that most practitioners of quantitative research embrace an epistemological tradition born of the Enlightenment, one which has guided a cumulative scientific project based on observable regularities and causal relationships. This is a community of scholars who value, accuracy, consistency, and, certainly, study findings that can be generalised beyond their immediate contexts. The findings from Phase 1 of this project (the analysis of the secondary HESA data) are generalisable to the wider graduate population of Greater Manchester, with some important caveats. The next chapter of this dissertation will clearly outline the basis for these claims to external generalisability and under what conditions these claims are valid.

Internal generalisability, on the other hand, refers to "the generalizability of a conclusion *within* the setting or group studied (Maxwell, 2005, p. 115), and this definition can be equated with Yin's concept of 'analytic generalisation' (in Mills et al., 2010). Yin makes the argument that analytic generalisation is where the findings of a study are 'generalised' beyond their specific research context to other *studies* rather than to another *population*. This analytic generalisation is accomplished essentially through the use of theory whereby researchers first demonstrate how their findings relate to a theory or conceptual framework and, secondly, use that same theory to "implicate other, similar situations

where analogous events also might occur". In shorthand, one might say that 'the findings are generalised to theory rather than to populations'. In essence, the survey findings are drawn from a non-probability sample and the interviews may result in theoretical claims that can be extended to other cases (H. S. Becker, 1991; Maxwell, 2005; Ragin, 2014; Yin, 2003), but the use of non-probability samples and qualitative research means that generalisability to a larger population is impossible (Maxwell, 2005).

Consulting the methods literature from authorities in mixed method research can further clarify the precise interplay between the two separate phases of this study where one claims true external generalisability and another claims analytic generalisability. Tashakkori and Teddlie (2010) refer to the concept of 'within-design consistency' to describe whether consistency across all components of a research design leads to 'interpretive rigour'. Similarly, Collins et al. (2006) use the term 'interpretive consistency' to describe the consistency between the inferences made by researchers and the sampling design used. The degree to which a researcher can claim interpretive consistency is, according to Collins et al., contingent upon the relationship between the samples in the different phases of the study. Since the samples in this study are different for the two phases but are drawn from the same underlying population (i.e., university students in Greater Manchester), a 'parallel relationship' (Collins et al., 2007) exists between the sample used in Phase 1 (HESA data) and Phase 2 (survey and interviews). Collins et al. (2007) argue that when the quantitative component can claim external validity due to large sample sizes and the use of random sampling and the qualitative component relies on analytic generalisation, then claims to interpretive consistency may be justified if the appropriate generalizations and inferences are made. Therefore, the discussion and interpretation of the findings of this study will clearly restrict claims of generalisability (i.e., external versus internal) according to which phase of the research these claims ultimately stem.

Although the survey sample in Phase 2 is a non-probability sample, there may be use in understanding relatively how representative the sample is. Table 2.4 compares frequencies and percentages for the HESA sample with the corresponding frequencies and percentages for the primary data sample. The overall population for primary data sample is 204, and some variables (e.g., stayers/leavers, locals/non-locals, gender) do reflect the makeup of the actual student population of Greater Manchester, but other variables are less 'representative' (e.g., ethnicity, proportion of students studying at each HEI, etc.).

It should also be noted that the table refers to both 'actual' and 'prospective' migration categories, where the 'actual' figures are the observed movements in the HESA data, and the 'prospective' figures are derived from where students plan to live after university as measured in the survey, e.g., 'prospective stayers' or 'prospective HG loyals'. Although this information better helps us to understand our survey sample, the findings that will be discussed in Chapter 5 are non-generalisable beyond the sample itself. It also bears mentioning that the view taken of interviews in this study is characteristic of the constructivist-interpretivist tradition of phenomenology that is ultimately concerned with the subjectivity of human experience, which is to say, the subjective experience and understanding of graduate migration. As this is essentially a loose form of phenomenological sociology and decidedly post-positivist in orientation, meaning is derived from the immediate social context of the interviews rather than aspiring to pretences of generalisability. Where claims to either external validity or analytic generalisability are made with the secondary data, these claims are tempered by a philosophy that sees scientific knowledge as contingent, partial, value-laden, theory-laden, and, in the words of Burrell and Morgan (2017), both "socially constructed" and "socially sustained" (p.255).

Table 3.4 – Comparison of HESA and primary survey samples

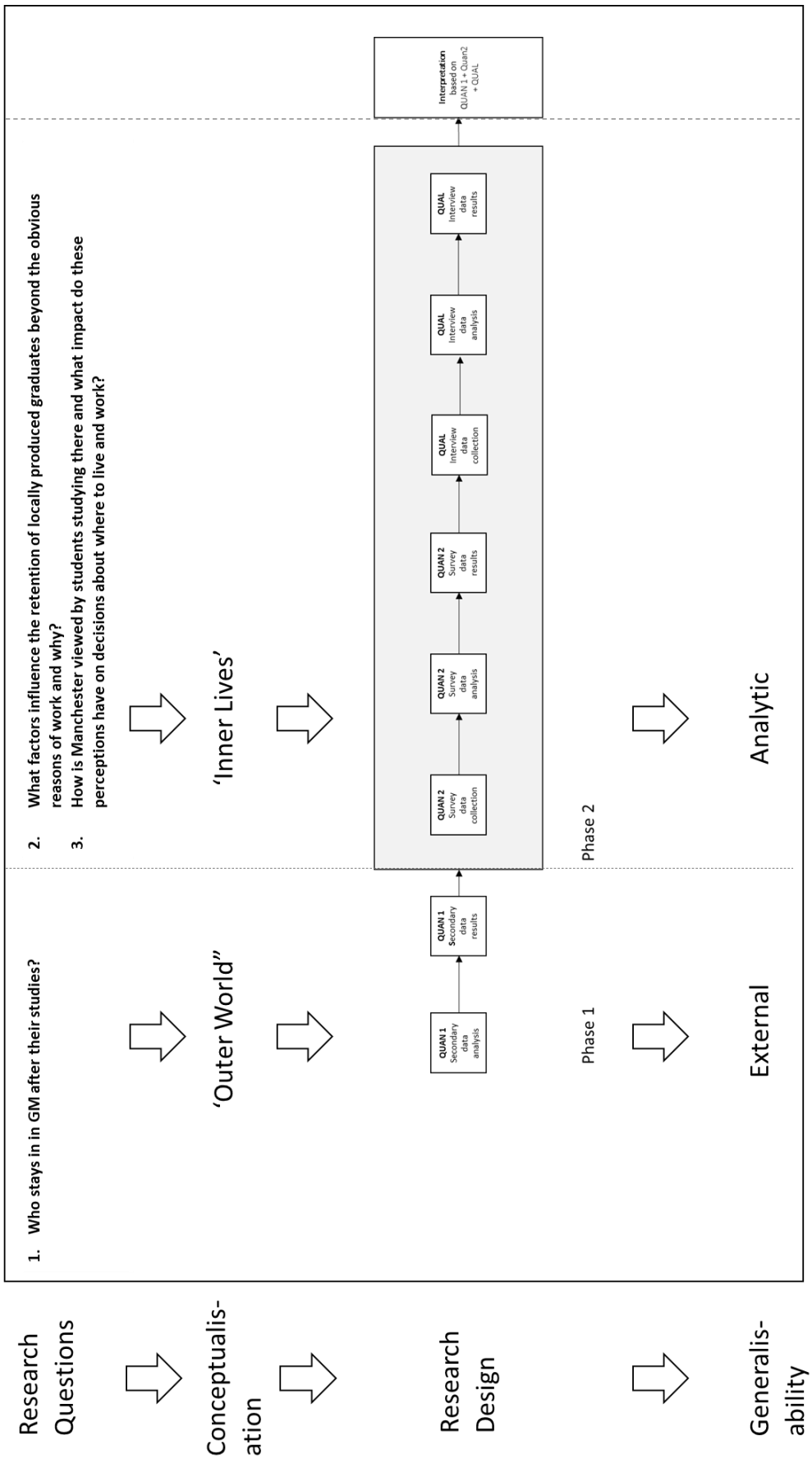
		HESA sample		Primary data sample	
		Frequency	Percent	Frequency	Percent
Total (N)		53485	100.0	204	100.0
Local/Non Local	From GM	18570	34.72	81	39.7
	Not From GM	34915	65.28	123	60.3
	TOTAL		100	204	100.0
GEOGRAPHY					
Grad Retention	Actual/Prospective Stay	26340	49.25	113	55.4
	Actual/Prospective Leave	27140	50.75	91	44.6
		53485	100	204	100.0
Migration Pathway	Actual/Prospective HG Loyal	15460	28.91	57	27.9
	Actual/Prospective HG Leaver	3105	5.81	5	2.5
	Actual/Prospective Stayer	10880	20.34	43	21.1
	Actual/Prospective Home Returner	11500	21.5	23	11.3
	Actual/Prospective Bouncer	12540	23.44	9	4.4
	Missing		0	67	32.8
	TOTAL	**53485**	**100**	**204**	**100**
DEMOGRAPHICS					
Gender	Male	22690	42.43	80	39.2
	Female	30790	57.57	119	58.3
	Other	0	0	5	2.5
	TOTAL	53485	100	204	100.0
Ethnicity	White	41275	77.17	139	68.1
	Black	2350	4.4	24	11.8
	Asian	7030	13.15	17	8.3
	Mixed	2035	3.8	13	6.4
	Other	530	0.99	4	2.0
	Missing	265	0.49	7	3.4
	TOTAL	53485	**100**	**204**	**100.0**
POLAR 4	Other Neighbourhood	8925	16.69		
	Low Participation Neighbourhood	1225	2.29		
	Missing	43335	81.02		
	TOTAL	53485	**100**		
Professional Background	Professional occupations			103	50.5
	Non-professional occupations			70	34.3
	Don't know			21	10.3
	Other			3	1.5
	Missing			7	3.4
	TOTAL			**204**	**100.0**
HIGHER EDUCATION					
University	The University of Bolton	2840	5.31	0	0.0
	The Manchester Metropolitan University	19805	37.03	175	85.8
	The University of Salford	11040	20.64	15	7.4
	The University of Manchester	19800	37.02	14	6.9
	TOTAL	53485	**100**	**204**	**100.0**

n.b. totals may not sum to 100 and percentages may not equal 100 due to HESA rounding requirements

3.6 Conclusion

To conclude, the mixed-methods approach taken in this study is very much a research question-driven strategy. This attitude can be expressed by Popper who said “We are not students of some subject matter, but students of problems. And problems may cut right across the borders of any subject matter or discipline.” ([1963] 2014, p. 88) To this sentiment can be added that solutions to problems cut across methodological divides as well. Figure 3.9 below summarises the overall problem-driven process taken in this research design. Research questions drive the conceptualisation of outer worlds and inner lives, with Phase 1 corresponding to the former and Phase 2 corresponding to the latter. Whereas Phase 1 is concerned with modelling graduates flows, prediction, and relationships between groups, Phase 2 is concerned separately with attitudes, tastes and preferences collected via survey research and subjectivities understood via interviews. Phase 1 claims external validity and generalisability of the findings, and the findings from Phase 2 aspire to analytic generalisability.

Figure 3.9 – Problem-driven research approach



The occurrence side by side of so many confused kinds of movement, ranging from transoceanic emigration to merely casual vagrancy, makes any attempt at classification arbitrary and uncertain. It is, nevertheless, important to make a board distinction between long-distance and short-distance movement, owing to a curious difference in their social effects.

Arthur Redford, *Labour Migration in England, 1800-1850*, (1926, p. 6)

4. Phase 1 – Secondary data methods and findings

Redford's (1926) classic study of labour migration in Industrial Revolution-era England is still read and cited today because it is a monumental piece of scholarship that has stood the test of time. Much like the medieval peasants fleeing to the free cities of imperial Germany, Redford claimed that migrants were attracted to the growing Industrial cities of early nineteenth-century England by the prospect of higher wages and better employment opportunities. Although Redford distinguished only between short- and long-distance movements, this chapter will employ some of the more advanced methods in modelling migrant flows have been developed in the century since Redford's work. As was discussed in the methods overview, this study uses a mixed-methods approach and an explanatory design whereby this secondary quantitative data analysis provides context about graduate mobility in Greater Manchester, as well as empirical evidence about the migration behaviour of local graduates. What follows is an answer to the first research question of this study: who stays in in GM after their studies? To answer this question, this chapter first provides an overview of the data source for this analysis and its limitations. The analyses in this chapter rely on a combined dataset of microdata provided by the Higher Education Statistical Agency. Then, the probability of graduate retention (or attrition) is modelled based on observable graduate characteristics using binomial logistic regression (BLR), while also controlling for variables related to gender, ethnicity, and university attended. Following this, graduate migration behaviour from home domicile to higher education and on to employment will be modelled using multinomial logistic regression (MLR), which will provide a richer understanding of graduate destinations.

Also, the results are also provided as predicted probabilities for either staying or leaving Greater Manchester (as is the case for the binomial logistic regression results) or of falling into one of five migration pathways (as is the case for the multinomial logistic regression results). Providing the results in the form of predicted probabilities of marginal effects both simplifies the discussion of variances, and the use of marginal effects also uses the latest methodological best practices for logit models in quantitative sociology (see Karlson et al., 2012; Mize, 2019).

4.1 HESA Student Record Data

The following analysis is based on a merged dataset of microdata collected by HESA. HESA datasets have been used in studies of UK graduate migration over the past twenty years (see Belfield & Morris, 1999; Bond et al., 2008; Bristow et al., 2011; Comunian & Jewell, 2018; Faggian et al., 2006; Hoare & Corver, 2010; Mosca & Wright, 2010; Perryman et al., 2003). HESA is the Designated Data Body for England under the Higher Education and Research Act 2017 (HERA) with statutory accountability to the Office for Student (OfS). HESA also plays a similar role with the funders and regulators of higher education in Scotland, Wales, and Northern Ireland. As the Designated Data Body, HESA has a remit to collect data from higher education institutions on students and courses and to make this information available to the OfS, UK Research and Innovation, and the Secretary of State for

Education. In addition, HESA provides tailored datasets to researchers and industry as a fee-for-service.

The merged dataset combines two datasets for five graduation cohorts of students from HEIs, covering the academic years of 2012/13 to 2017/18.

The first dataset is the *Students in Higher Education Institutions*, and it contains individual-level information provided by HEI. Variables include the level of study, course of study, degree class, mode of study, age, gender, ethnicity, place of domicile and place of study.

The second data set is the *Destinations of Leavers from Higher Education Institutions* (DLHE). This data is collected via a survey questionnaire that is administered six months after the student has left university. It collects detailed information about post-graduation employment and further study, including the place of employment.

Following Mosca and Wright (2010), it is from this merged dataset that three locations can be identified for home students:

- **Domicile of Student:** The student's permanent home address prior to entry to the course, and this data is provided in the form of postcodes for UK-domiciled students. Where no postcode data is provided about the student's domicile, students are allocated to another category for which there is identifying data (i.e., UK, England, Scotland, Wales, Northern Ireland, Isle of Man, and the Channel Islands) to assess fee eligibility. This data is taken from the *Students in Higher Education Institutions* record.
- **Institution Address**: The allocation of an HEI to a geographical region is done by reference to the administrative head office of that HEI. This is taken from the *Students in Higher Education Institutions* record.
- **Place of employment:** This corresponds to the postcode of their 'place of employment six months after graduation'. This information is taken from the DLHE survey.

Subject to certain limitations that will be discussed below, this 'three postcode approach' adapted from Mosca and Wright (2010) makes it possible to identify if an individual has moved from (1) their place of domicile to (2) their place of study and (3) from their place of study to their place of employment. Thus, from those in employment six months after leaving university, it is possible to calculate rates of graduate retention and attrition in Greater Manchester, as well as more granular pathways of graduate migration.

For this analysis, the geographic unit of analysis is the unitary or combined authority level, of which there are 161 included in this analysis. These administrative units are known as 'districts' in Northern Ireland, 'council areas' in Scotland, or 'combined authorities' or 'unitary authorities' in England and Wales (ONS, 2015; Sandford, 2018). HESA allocates students to the unitary or combined authority level (henceforth to be known as 'UA/CA level') based on postcode information detailed above.

The population of this analysis can correctly be called 'graduates' since the target population of the DLHE are university leavers, and this analysis includes only those graduates who meet the following criteria:

1) Are domiciled in the UK before their studies (i.e., 'home students')
2) Are undergraduates (i.e., studying for their first degree)
3) Received their first-degree qualification from one of the four universities located in Greater Manchester: The University of Bolton, The Manchester Metropolitan University, The University of Manchester, and The University of Salford. Note that The Royal Northern College of Music is omitted from this analysis since it is specialist conservatoire rather than an HEI with a general curriculum.
4) Received their qualification over the five years of 2012/13-2017/18

5) Can be tracked from their pre-university place of domicile to their post-graduation UK place of employment six months after leaving university.

The number of survey respondents that meet these above criteria is 52,484, which represents the population for the subsequent analysis in this chapter. We are only concerned with domestic pathways.

4.1.2 Issues Related to Data Quality

Mosca and Wright (2010) perform a similar analysis of the combined HESA dataset for national and international movements, and they note that using the 'three postcode approach' to approximate migration patterns results in some forms of measurement error. First, the DLHE does not collect a graduate's home postcode at the time of graduation, and the only information provided is the postcode of the student's permanent or home address prior to entering university. This will not have a bearing on the measurement of retention rates for Greater Manchester, but it may result in measurement error for the more granular pathways. For example, those graduates who return home after graduation may be misclassified if their permanent address changes between entering and leaving university (e.g., their parents move).

Another issue stems from the fact that the DLHE does not collect their residential address six months after graduation. Instead, the DLHE records a graduate's 'place of employment' postcode. However, most major quantitative studies on UK graduate migration that rely on HESA data use 'place of employment' as a marker for graduate destinations (see Ball et al., 2015; Bond et al., 2008; Faggian et al., 2006; Mosca & Wright, 2010; Perryman et al., 2003). Moreover, since this thesis is concerned with understanding the retention of graduates and their human capital (i.e., productive capacity) within the local area, 'place of employment' is a suitable marker for graduate destinations. Therefore, it is correct to say that a 'graduate is working in Greater Manchester six months after leaving university' and incorrect to say that 'graduate is living in Greater Manchester six months after leaving university' based on DLHE data.

'Place of employment' is only measured six months after graduation, which means that short-term repeat migration may be missed in the time between leaving university and when the survey is administered six months after. Data on movements after this period is also not captured, but two new data sources have become available while this research project has been ongoing. The new Longitudinal Education Outcomes (LEO), which links up tax, benefits, and student loans data may provide greater detail on graduate movements in the future. It should be noted that the DLHE has been discontinued and has been replaced as of December 2018 with a new Graduate Outcomes survey that collects graduate employment data over a fifteen-month period.

This analysis is only concerned with graduates from local universities, and local distance learners like those studying at the Open University will be completely omitted. There is also a potential measurement issue with those HEIs that have multiple campuses since the HESA data only reports the name of the institution, as is the case with MMU satellite campus in Crewe, Cheshire. Therefore, for those students from outside of Greater Manchester studying at MMU Crewe who are working outside of GM six months after graduation, will be misallocated as 'leavers'. A similar measurement error may impact the measurement of those students who commute to Greater Manchester from outside the metropolitan area.

Since the combined dataset includes DLHE survey data drawn from a sample taken six months after graduation, there is a concern about the overall repressiveness of the sample. Non-response bias presents challenges to the validity of any findings drawn from a survey-based analysis (De Vaus, 2002). Although HESA claims a response rate above 75 per cent and that the data is representative of the

overall graduate population. Bailey (2015) suggests, however, that there may be significant non-response bias, but these findings are not able to be identified with any certainty based on limitations of the dataset provided by HESA to researchers. Despite these possible weaknesses, other studies that use HESA data (e.g., Ball et al., 2015; Bond et al., 2008; Faggian et al., 2006; Mosca & Wright, 2010; Perryman et al., 2003) do not support the view that the data is non-representative.

This section attempted to highlight some of the problems posed by using postcode data to model migration patterns. Although there are some important limitations, particularly when the data is disaggregated at the UA/CA level, this analysis is still merited.

4.1.3 HESA rounding requirements

The licence to use HESA data in this thesis requires that HESA's rounding methodology be applied to the figures provided in secondary data analysis for purposes of anonymity. These requirements are that:

- Counts of people are rounded to the nearest multiple of 5.
- Percentages (like the percentage of students who are disabled) are not published if they are fractions of a small group of people (fewer than 22.5).
- This includes percentage change calculations where either the old or new number is less than 22.5. (HESA, n.d.)

This means that frequencies based on HESA data reported in this thesis, where they refer to people, are rounded to the nearest five. As a consequence, totals may not sum to 100, and percentages may not equal 100.0% due to HESA rounding methodology. The BLR and MLR results, however, are unaltered and were calculated based on unrounded figures.

4.1.4 Generalisability of findings

One of the main advantages of using secondary data from government agencies (or quasi-governmental agencies in the case of HESA) is that they often use probability samples based on the general population in their surveys, which means the findings can then be generalised to the population as a whole. However, researchers have no control over the quality of the data in such instances. Some of the limitations of using HESA data have already been discussed, and many of the studies that use HESA data in their published findings do not address questions of generalisability. In other words, they implicitly accept HESA's claims about representativeness, validity, and reliability. If we also accept this premise, then any claims to generalisability of findings is also impacted by the size of the sample used in this analysis.

To compute the appropriate sample size, we can use Cochran's equation for a representative sample for proportions and the correction for a finite population where

(Equation 1 - representative sample for proportions)

$$n_0 = \frac{Z^2 * p * (1-p)}{e^2}$$

n_0 = the sample size

Z^2 = the is the critical value of the Normal distribution at α/2

e = the acceptable sampling error

P = the estimated proportion of an attribute that is present in the population

and where

(Equation 2 – finite population correction for proportions)

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

n_0 = the initial sample size from equation X

n = the adjusted sample size

N = the population size (Daniel & Cross, 2018)

Recalling from the previous section that the HESA dataset is actually a combined dataset where the *Students in Higher Education Institutions* is not a survey but a census of all undergraduate students in UK HEIs. The DLHE, on the other hand, is a survey. Therefore, from the *Students in Higher Education Institutions* census, we know that 114,441 UK-domiciled students were studying in the four Greater Manchester HEIs over the five-year period. This represents the population size from which the *DLHE* sample was taken. The number of students who meet the inclusion criteria described earlier, and thus the sample for this analysis is 53,484. If we factor in the previous response rate of 75 per cent reported by HESA, then the minimum sample size needed to estimate the true population proportion with the required margin of error and confidence level is only 288. Since we are working with 53,484 cases, we can, therefore, have some confidence that the findings from the secondary data analysis phase of the project are generalisable to the Greater Manchester student population that meets the inclusion criteria described earlier.

The Technical Appendix includes a section on the coding and cleaning of the raw HESA data.

4.2 Findings: Descriptive Statistics

The descriptive statistics are organised into four categories: demographics (Table 4.1), higher education (Table 4.2), and employment outcomes (Table 4.3). Most of these variables are self-explanatory, but the geography variables require some explanation. Regression analysis often require the transformation of categorical predictor variables into binary or dichotomous (e.g., 0 and 1) 'dummy' variables so the results can be meaningfully interpreted. As Acock (2008) points out, dichotomous variables are also known as dummy, indicator, or binary variables. This dissertation will

use all three terms interchangeably. Appendix 14.5 lists the 41 dummy variables that were created for the regression analyses, and these dummy variables are organised according to four categories: geography, demographics, higher education (HE), and employment. Generally speaking, a categorical variable with *x* levels can be transformed into *x - 1* variables, each with two levels (e.g., 0 and 1) (Acock, 2008). Commonly, 1 indicates the presence of a qualitative attribute, and 0 indicates the absence of the attribute.

For example, 'Manchester Domiciled' dummy variable was created by coding all those graduates who were listed as domiciled in GM prior to entry to their course with a '1' and graduates from the other 164 UK locations were coded as '0' to denote not being from GM. As another example, the dependent variable for the regression analysis results later in this chapter, 'Grad Retention', is a dummy variable that was created by coding all those graduates who are employed in GM six months after leaving university as '1' for stay, and graduates employed in the other 164 UK locations were coded as '0' for 'Leave'.

The original categorical variable 'Occupation (SOC)' provided by HESA has 90 categories which can be entered into the regression model, but the result of which could not be meaningfully interpreted due to the complexity.

Recalling the equation with an interaction term from appendix section 14.2.1, Female*Asian is the difference between the log-odds ratio comparing Asian males versus females and the log-odds ratio comparing non-Asian males versus females. The advantage of dichotomous variables is that they can be entered directly into the regression model, and the interpretation is generally straightforward (Stockburger, 2016).

4.2.1 Demographics

Table 4.1 - Geography and demographics descriptive statistics

Geography			**Frequency**	**Per cent**
Manchester Home Domiciled	From GM		18570	34.72
	From elsewhere in the UK		34915	65.28
	Total		**53485**	**100**
NW Home Domiciled	From North West England		28070	52.48
	From elsewhere in the UK		25415	47.52
	Total		**53485**	**100**
North of England Home Domiciled	From the North of England		33895	63.37
	From elsewhere in the UK		19590	36.63
	Total		**53485**	**100**
Grad Retention	Retention (Stay)		26340	49.25
	Attrition (Leave)		27140	50.75
	Total		**53485**	**100**
Grad Retention by Home Domicile	Manchester	Retention (Stay)	15460	16.73
		Attrition (Leave)	3205	83.27
		Total	**18570**	**100**
	Not Manchester	Retention (Stay)	10880	31.16
		Attrition (Leave)	24035	68.84
		Total	**34915**	**100**
Demographics			**Frequency**	**Per cent**
Academic Year	2012/13		11435	21.38
	2013/14		11875	22.2
	2014/15		10110	18.9
	2015/16		9890	18.5
	2016/17		10170	19.02
	TOTAL		**53485**	**100**
Gender	Male		22690	42.43
	Female		30790	57.57
	Other		0	0
	TOTAL		**53485**	**100**
Ethnicity	White		41275	77.17
	Black		2350	4.4
	Asian		7030	13.15
	Mixed		2035	3.8
	Other		530	0.99
	Missing		265	0.49
	TOTAL		**53485**	**100**
POLAR 4	Other Neighbourhood		8925	16.69
	Low Participation Neighbourhood		1225	2.29
	Missing		43335	81.02
	TOTAL		**53485**	**100**

n.b.: totals may not sum or correspond to percentages due to HESA rounding requirements

4.2.2 Higher Education

Table 4.2 – Higher education descriptive statistics

		Frequency	Per cent
Name of university	The University of Bolton	2840	5.31
	The Manchester Metropolitan University	19805	37.03
	The University of Salford	11040	20.64
	The University of Manchester	19800	37.02
	TOTAL	**53485**	**100**
Course Subject	Medicine & dentistry	4010	7.49
	Allied to medicine	7795	14.58
	Biological sciences	4330	8.1
	Veterinary sciences, agriculture & related subjects	20	0.04
	Physical sciences	2115	3.95
	Mathematical sciences	865	1.62
	Engineering	2320	4.34
	Computer science	1490	2.79
	Technology & Materials	535	1
	Architecture, building & planning	1170	2.19
	Social studies	5120	9.57
	Law	1175	2.2
	Business studies	8785	16.43
	Mass communications & documentation	1530	2.86
	Language, linguistics, classics & related subjects	1905	3.56
	European languages, literature & related subjects	1145	2.14
	Others in Eastern, Asiatic, African, American, Australasian languages, literature & related subjects	335	0.63
	Historical & Philosophical Studies	2100	3.93
	Creative arts & design	4790	8.96
	Education	1945	3.64
	TOTAL	**53485**	**100**
Mode of Study	Full Time	51075	95.49
	Part Time	2410	4.51
	TOTAL	**53485**	**100**
Degree Class	First class honours	13065	24.43
	Upper second class honours	24290	45.42
	Lower second class honours	9785	18.3
	Third class honours/Pass	2120	3.96
	Unclassified	4210	7.87
	Missing	15	0.03
	TOTAL	**53485**	**100**

n.b.: totals may not sum or correspond to percentages due to HESA rounding requirements

4.2.3 Employment Outcomes

Table 4.3 – Employment outcomes descriptive statistics

		Frequency	Per cent
Employment Activity	Full-time paid work only (including self-employed)	41305	77.23
	Part-time paid work only	8465	15.83
	Voluntary/unpaid work only	1175	2.2
	Work and further study	2290	4.28
	Other	15	0.03
	Explicit refusal	235	0.44
	TOTAL	**53485**	**100**
Employment Basis	Self-employed/freelance 2065	2065	3.86
	Starting up own business	315	0.59
	On a permanent or open-ended contract	31640	59.16
	On a fixed-term contract lasting 12 months or longer	9190	17.19
	On a fixed-term contract lasting less than 12 months	3895	7.28
	Voluntary work	665	1.24
	On an internship/placement	1265	2.37
	Developing a professional portfolio/creative practice	330	0.62
	Temping (including supply teaching)	1595	2.98
	Other	985	1.84
	On a zero hours contract	1105	2.06
	Missing	425	0.8
	TOTAL	**53485**	**100**
Industry (SIC)	Agriculture, Forestry and Fishing	40	0.07
	Mining	95	0.17
	Manufacturing	2395	4.48
	Water/Gas/Sewerage Supply & Construction	1400	2.62
	Retail & Wholesale Trade	8570	16.03
	Transport & Logistics	655	1.23
	Accommodation & Food Service	3415	6.38
	Media, Information & Communication	3125	5.84
	Financial Services	2435	4.55
	Real Estate	590	1.1
	Professional, Scientific, & Technical Services	5900	11.03
	Administrative & Support Services	2810	5.25
	Public Administration	1465	2.74
	Education	4965	9.29
	Human Health & Social Work	12790	23.91
	Arts, Entertainment & Recreation	2060	3.85
	Other	565	1.05
	Missing	220	0.41
	TOTAL	**53485**	**100**
Occupation (SOC)	Not in Professional Employment	16085	30.08
	In Professional Employment	37340	69.82
	Missing	55	0.1
	TOTAL	**53485**	**100**

n.b.: totals may not sum or correspond to percentages due to HESA rounding requirements

4.3 Binary Logistic Regression (BLR)

Binomial logistic regression (BLR) is used when a researcher is interested in modelling the relationship between one or more independent variables and a binary dependent variable (Acock, 2008). Essentially, BLR can answer the following question, "What is the probability that a given graduate stays in Greater Manchester rather than leaves Greater Manchester given her geographic, demographic, higher education, and employment characteristics?"

The introductory section will provide an overview of the methods and techniques used in the analysis of the HESA dataset. The first analytical technique covered in this chapter is BLR, which serves as the basis for the other techniques employed in the analysis. The next technique discussed is the introduction of interaction terms into the BLR model, which is done for theoretical reasons related to the moderating effects of gender and ethnicity on mobility. The next topic covered is that of the predicted probabilities of graduate retention (i.e., the dependent variable) for a series of independent variables and interaction variables. The final part of this section discusses the process for managing missing data and dropping unreliable variables from the model.

The Technical Appendix (Appendix 14) provides an overview of the BLR model (Section 14.2), the calculation of interaction terms for certain variables (Section 14.2.1), and the use of marginal effect calculations (Section 14.2.2).

4.3.1 Assumptions, Variable Selection, and Missing Data

As is the case with all regression modelling, BLR relies on a few important assumptions related to the completeness of the model, the linearity of the model, that the variables are measured at interval scale and without error, that the residuals are normally distributed, and independence of observation. Issues related to collinearity were not identified through standard testing. The process of identifying a final model with a good statistical fit consisted of building a nested model that sequentially tested geography, demographics, higher education-related factors, and employment factors from the HESA data. Model one included a geographic indicator of being Manchester domiciled. Then the numbers of variables in the model were sequentially increased, i.e., Model 2 included the variables from Model 1 along with important demographic factors like gender and ethnicity. Model 3 incorporated Model 1 and Model 3 as well as factors related to higher education like the university attended, course of study, mode of study, and degree class. This nested approach follows the recommendations for hierarchical logistic regression modelling for multilevel analysis as described by Wong and Mason (1985). The goodness of fit was approximated by using McKelvey and Zavoina Pseudo-R^2, which can be defined as the proportion of the variance of the dependent variable that is explained by the independent variable (Hu et al., 2006). Langer (2016) argues that results of Monte Carlo studies of binary and ordinal logits suggest that the McKelvey and Zavoina Pseudo-R^2 is the best approximation for the 'true R^2'of linear ordinary least squares regressions.

A logistic regression was performed to ascertain the effects of geography, demographics, HE, and employment outcomes on the likelihood that students will be working in Manchester 6 months after leaving university. Model 1 (Geography) explained 28.4% of the variance in graduate retention (i.e., (McKelvey and Zavoina's R^2). Model 2 (Demographics + Model 1) explained 28.8 % of the variance in graduate retention. Model 3 (HE + Model 2) explained 30.5 % of the variance in graduate retention. Model 4 (Employment Outcomes = Model 3) explained 33.5% of the variance in graduate retention. This BLR model selection process suggests that all four 'families' of variables should be included in the final model. The full details for the model selection process are reported in Appendix 14.11.

The approach taken to missing values in this analysis is to drop any individual record, which does not have complete information on every item used in the analysis. This approach is known as full case analysis, case-wise deletion, or listwise deletion (Acock, 2008). Alternative strategies to deal with missing data are imputation and direct estimation. Imputation substitutes the missing values with estimates, and direct estimation requires all available missing data to be analysed using a maximum likelihood approach (de Leeuw & Hox, 2008).

Appendix Section 14.2.1 provides more detail about the calculation on interaction terms, but a short explanation here about the relative effects of the interaction terms that will be helpful in explaining the results of the analysis, as shown in Table 4.4. The reference category, or base category, in this model is white males coded as 0,0, and all other combinations of gender and ethnicity are compared against white males. Equations can then be created, and through plugging in 1's and 0's, relative effects can be identified for each category. For example, the relative effects for a black female in this model are $\beta_{Female} + \beta_{Black} + \beta_{Black*Female}$ where $\beta_{Black*Female}$ reflects the interaction term.

Table 4.4 – Interaction Terms Equations and Relative Effects for Gender & Ethnicity

Category	Ethnicity	Gender	Equation	Relative Effect
White Male	0	0	β_0	Reference Category
White Female	0	1	$\beta_0+ \beta_{1(Female)}$	$\beta_{1(Female)}$
Black Male	1	0	$\beta_0+ \beta_{2(Black)}$	$\beta_{2(Black)}$
Black Female	1	1	$\beta_0+ \beta_{1(Female)}+ \beta_{2(Black)}+\beta_{3(Female*Black)}$	$\beta_{1(Female)}+ \beta_{2(Black)}+\beta_{3(Female*Black)}$
Asian Male	2	0	$\beta_0+ \beta_{4(Asian)}$	$\beta_{4(Asian)}$
Asian Female	2	1	$\beta_0+\beta_{1(Female)}+ \beta_{4(Asian)}+\beta_{5(Female*Asian)}$	$\beta_{1(Female)} + \beta_{4(Asian)}+\beta_{5(Female*Asian)}$
Mixed Male	3	0	$\beta_0+\beta_{6(Mixed)}$	$\beta_{6(Mixed)}$
Mixed Female	3	1	$\beta_0+ \beta_{1(Female)}+\beta_{6(Mixed)} +\beta_{7(Female*Mixed)}$	$\beta_{1(Female)}+\beta_{6(Mixed)} +\beta_{7(Female*Mixed)}$
Other Male	4	0	$\beta_0+ \beta_{8(Other)}$	$\beta_{8(Other)}$
Other Female	4	1	$\beta_0+\beta_{1(Female)}+ \beta_{8(Other)}+\beta_{9(Female*Other)}$	$\beta_{1(Female)}+ \beta_{8(Other)}+\beta_{9(Female*Other)}$

Similarly, Table 4.5 below shows the interaction terms for geographic origin (GM or Not GM) and university attended (University of Manchester, Bolton, MMU, and Salford).

Table 4.5 – Interaction Terms Equations and Relative Effects for Geography & University

Category	GM	HEI	Equation	Relative Effect
Not GM, Univ of MCR	0	0	β_0	Reference Category
GM, Univ of MCR	1	0	$\beta_0+ \beta_{1(GM)}$	$\beta_{1(GM)}$
Not GM, Bolton	0	1	$\beta_0+ \beta_{2(Bolton)}$	$\beta_{2(Bolton)}$
GM, Bolton	1	1	$\beta_0+ \beta_{1(GM)}+ \beta_{2(Bolton)}+\beta_{3(GM*Bolton)}$	$\beta_{1(GM)}+ \beta_{2(Bolton)}+\beta_{3(GM*Bolton)}$
Not GM, MMU	0	2	$\beta_0+ \beta_{4(MMU)}$	$\beta_{4(MMU)}$
GM, MMU	1	2	$\beta_0+\beta_{1(GM)}+ \beta_{4(MMU)}+\beta_{5(GM*MMU)}$	$\beta_{1(GM)}+ \beta_{4(MMU)}+\beta_{5(GM*MMU)}$
Not GM, Salford	0	3	$\beta_0+\beta_{6(Salford)}$	$\beta_{6(Salford)}$
GM, Salford	1	3	$\beta_0+ \beta_{1(GM)}+ \beta_{6(Salford)}\ \beta_{7(GM*Salford)}$	$\beta_{1(GM)}+ \beta_{6(Salford)}\ \beta_{7(GM*Salford)}$

The results of the interaction terms will be reported in the same manner as the other logistic regression results, i.e., as odds ratios. With many different permutations, explaining the odds ratios and the relative effects become difficult. One technique to make the results clearer is to calculate predicted probabilities for migration using marginal effects.

The methods literature (Acock, 2008; de Leeuw & Hox, 2008; De Vaus, 2002) recommends that any strategy dealing with missing data should seek to understand why the data are missing. After examining missing variables from the descriptive statistic tables, it is clear that the POLAR4 variable suffers from significant nonresponse issues given over 81 per cent of respondents are unclassified. Participation of local areas (POLAR) measures is an indicator of low participation in higher education. Although some use POLAR data as a proxy for socioeconomic status (e.g., the Social Mobility Commission, 2017), the OfS is clear that POLAR data is only a measure of the likelihood of entry to higher education, and other factors that impact entry include an area's ethnic profile, the adult education level, the local school outcomes, the availability and accessibility of local HE provisions, and the availability of alternative pathways (Office for Students, 2019a). In this analysis, POLAR4 is a treated as a binary variable indicating whether the student comes from a geographic area with low-rates of participation in higher education (coded 1) or any other area (coded 0). Because of the data quality issues, the POLAR4 variable was dropped from the main regression analyses. Instead, the POLAR data will be analysed in a separate section using both binary and logistical regression without any additional explanatory variables. The results will be on the effects of POLAR4 on retention rates and migration pathways *ceteris paribus,* which is to say that a limitation is that results cannot account for the effect of interaction of any other variable except socio-economic background in the model.

The other missing data can be found in fields related to ethnicity, degree class, employment basis, industry, and occupation. It should be noted that employment basis, industry, and occupation come from the DLHE survey, and the use of listwise deletion with survey data has the potential to introduce bias (Acock, 2008). However, the total number of individual records dropped is 514, which represents less than one per cent of the overall population of 53,484. Therefore, the total number of observations in the following regression is 52,968.

4.3.2 BLR Findings

As stated earlier, logistic regression models are used to predict the probability of a case falling into a target group on a binary outcome (or dependent) variable in the case of binary logistic regression or multiple outcome variables in the case of multiple logistic regression.

Some of the variables are self-explanatory, but others require further explanation. Ethnicity (F_XETHNIC01_1), university (F_XINSTID01_1), course of study (F_XJACS201Condensed), and industry of employment (SICSectionCodes_Condensed) are factor variables with more than two categories, and the results as odds ratios will be interpreted against the base category of comparison, which is noted in Table 4.6. For example, the odds ratios for females working in GM after university must be interpreted in relation to males. For example, the odds of staying in GM if a graduate is female is 1.087 times that of males, or in other words, nearly equal to that of males.

The other independent variables are dichotomous dummy variables, where 1 indicates the presence of a qualitative attribute, and 0 indicates the absence of the attribute. For example, 'FirstClass' is a dummy variable that categorises graduates according to their degree class, with the reference or baseline being a 2nd, 3rd, pass or unclassified degree. 'FTwork' is a dummy variable representing those in full-time employment, with the reference group being set at those who are in a form of employment that is not full time (e.g., part time).

The estimates of the binary logistic regression model are summarised in Table 4.6. The results shown here indicate that the model fits the data significantly better than a null model, $\chi 2\ (43) = 15{,}686.95$, $p<.001$. Both the pseudo-R^2 (0.214) and McKelvey and Zavoina's R^2 (0.333) values are above 20 per cent, which implies a very good fit considering that this model is estimated with micro-data (Mosca & Wright, 2010).

Table 4.6 - Binary logistic regression results as odds ratios for the probability of staying in GM

		Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interval]	
Geography	**ManchesterDomicile** (base = Not Manchester)						
	Manchester	7.242548	0.3147727	45.56	0.000	6.651151	7.886529
Demographics	**F_SEXID_1** (base = Male = 1)						
	Female	1.086701	0.0264636	3.41	0.001	1.036052	1.139826
	F_XETHNIC01_1 (base = White = 1)						
	Black	0.7558036	0.061788	-3.42	0.001	0.6439054	0.8871475
	Asian	0.7049168	0.0330762	-7.45	0.000	0.6429803	0.7728194
	Mixed	0.9153995	0.0761912	-1.06	0.288	0.7776119	1.077602
	Other	0.7966695	0.1182928	-1.53	0.126	0.5955089	1.065781
	F_SEXID_1#F_XETHNIC01_1 (base= white male = 1)						
	Female#Black	1.118472	0.1184757	1.06	0.291	0.9087835	1.376543
	Female#Asian	1.173338	0.0738301	2.54	0.011	1.037201	1.327344
	Female#Mixed	1.119466	0.1217588	1.04	0.299	0.9045441	1.385453
	Female#Other	1.196697	0.2529243	0.85	0.396	0.7908266	1.810871
Higher Education	**F_XINSTID01_1** (base = University of Manchester = 1)						
	The University of Bolton	1.110701	0.0839483	1.39	0.165	0.9577721	1.288048
	The Manchester Metropolitan University	1.063705	0.0302985	2.17	0.030	1.005948	1.124778
	The University of Salford	1.634792	0.0597393	13.45	0.000	1.521799	1.756174
	ManchesterDomicile#F_XINSTID01_1 (base = Not from GM, University of Manchester = 1)						
	Manchester# Univ of Bolton	2.072107	0.2230841	6.77	0.000	1.67792	2.558898
	Manchester# Man Met Univ	2.250533	0.1339726	13.63	0.000	2.002691	2.529047
	Manchester#Univ of Salford	1.222179	0.0778913	3.15	0.002	1.078664	1.384787
	FTstudy (base = Part Time = 1)						
	Full Time	1.235191	0.0682961	3.82	0.000	1.108331	1.376571
	FirstClass (base = not 1st Class Honours = 1)						
	First class honours	0.9488411	0.0232572	-2.14	0.032	0.9043354	0.9955371
	F_XJACS201Condensed (base = STEM = 1)						
	Medicine & Allied	1.129577	0.0493941	2.79	0.005	1.036799	1.230658
	Social Sciences	1.038592	0.0423149	0.93	0.353	0.9588808	1.124928
	Law	1.532986	0.1157045	5.66	0.000	1.322186	1.777395
	Business & Comms	1.192355	0.0391793	5.35	0.000	1.117985	1.271672
	Arts & Humanities	1.135142	0.0367977	3.91	0.000	1.065263	1.209604
	Education	0.5525364	0.0367006	-8.93	0.000	0.48509	0.6293604
Employment Outcomes	**FTwork** (base = PT Work= 1)						
	In FT work	1.003689	0.0273244	0.14	0.892	0.9515374	1.058698
	PermContract (base = not on a FT contact = 1)						
	Permanent Contract	1.075575	0.0234341	3.34	0.001	1.030611	1.122499
	Prof_Occupation (base = Not in professional employment = 1)						
	Professional	0.9346956	0.0254896	-2.48	0.013	0.8860485	0.9860135
	SICSectionCodes_Condensed (base = Media, Information & Communication= 1)						
	Agriculture, Forestry and Fishing	0.1413515	0.0756293	-3.66	0.000	0.0495302	0.4033954
	Mining	0.0334927	0.0245479	-4.63	0.000	0.007963	0.1408719

	Manufacturing	0.4848931	0.0332095	-10.57	0.000	0.4239832	0.5545533
	Water/Gas/Sewerage Supply & Construction	0.6097273	0.0485139	-6.22	0.000	0.5216852	0.7126278
	Retail & Wholesale Trade	1.159218	0.0597813	2.86	0.004	1.047776	1.282513
	Transport & Logistics	1.089235	0.1123857	0.83	0.407	0.8898075	1.33336
	Accommodation & Food Service	1.464627	0.0884595	6.32	0.000	1.301118	1.648684
	Financial Services	1.154031	0.0743452	2.22	0.026	1.017141	1.309344
	Real Estate	1.29068	0.1353025	2.43	0.015	1.050962	1.585077
	Professional, Scientific, & Technical Services	1.23485	0.0645717	4.03	0.000	1.114561	1.368121
	Administrative & Support Services	1.509976	0.0923487	6.74	0.000	1.339404	1.702272
	Public Administration	0.8257575	0.0643824	-2.46	0.014	0.708739	0.9620968
	Education	2.340103	0.1333779	14.92	0.000	2.09276	2.616679
	Human Health & Social Work	1.410998	0.0800341	6.07	0.000	1.262539	1.576914
	Arts, Entertainment & Recreation	1.256305	0.0851701	3.37	0.001	1.09999	1.434834
	Other	1.608875	0.1713628	4.46	0.000	1.30575	1.982369
	Constant	0.2441613	0.0202178	-17.03	0.000	0.2075836	0.2871842
	Number of observations = 52,968						
	LR $\chi 2$ (43) = 15,686.95						
	Prob>$\chi 2$ =0.0000						
	Log likelihood = −28864.484						
	Pseudo R2= 0.2137						
	McKelvey and Zavoina's R2 = 0.333						

This table contains the odds ratio and tests of those coefficients. Odds ratios can be interpreted where a value above 1.00 means there is a greater likelihood that a graduate will stay in GM, and there is a lower likelihood that the graduate will stay if the value is below 1.00. Because of the very large sample size, most of the coefficients are statistically significant at the standard criterion for statistical significance of $p < 0.05$ (J. E. Miller, 2013).

In a quantitative analysis, results are often discussed in terms direction, magnitude, and statistical significance of association (J. E. Miller, 2013). Therefore, the results will be organised according to statistically significant 'graduate retention factors' (positively associated variables with an odds ratio greater than one) and statistically significant 'graduate attrition factors' (negatively associated variables with an odds ratio greater than one). These factors will also be discussed according to their order of magnitude according to odds ratios and marginal effects. Marginal effects will be provided in form of probabilities and the differences in effects per Mize's recommendations of best practise for *Best Practices for Estimating, Interpreting, and Presenting Nonlinear Interaction Effects* (2019). Graphs will be used in select cases to illustrate the size of differences across variables and heterogeneous populations. Finally, any surprising non-statistically significant results will also be discussed.

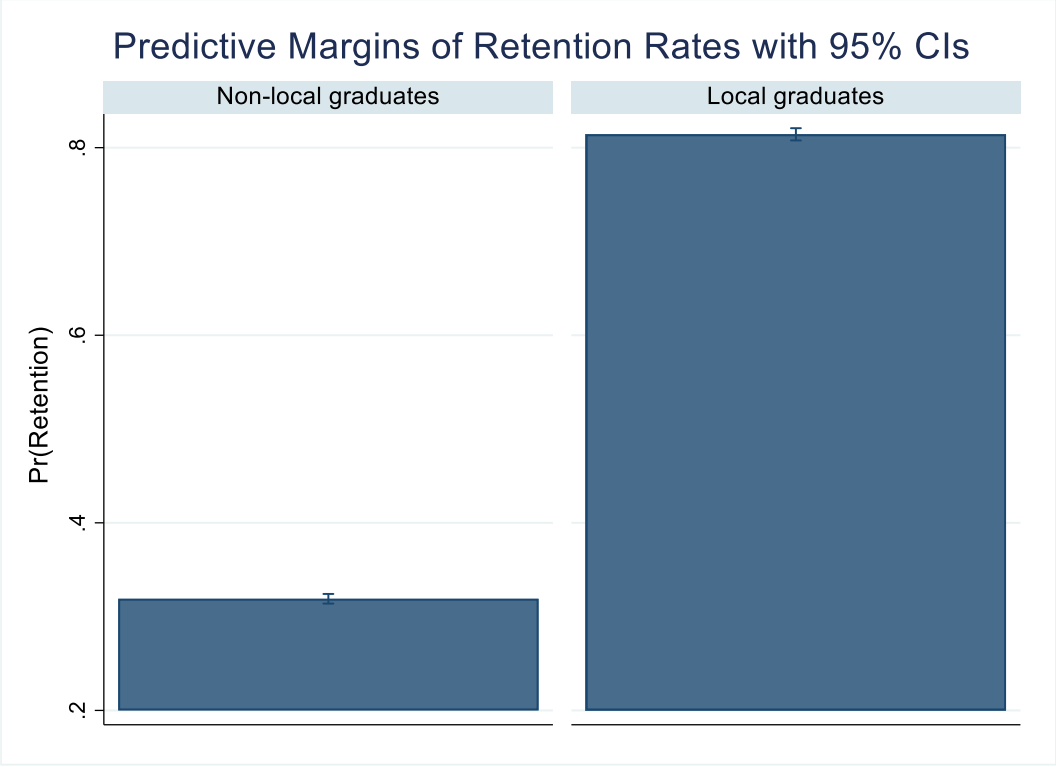
4.3.3 Graduate Retention Factors

In this model, several statistically significant factors are associated with graduate retention, which is measured by having an odds ratio higher than one. The retention factor with the greatest magnitude is associated with geography and being from Greater Manchester. The odds of staying in GM is 7.24 higher for those from Greater Manchester than those graduates from elsewhere in the UK. The results show that those graduates from GM have a significantly higher probability (Pr) of staying in GM (Pr =

0.814) than those from elsewhere in the UK (Pr = 0.319; p < 0.01). This high rate suggests that there is a less than a 20 per cent probability that a local graduate will leave the area within six months of graduation. In other words, the immediate post-graduation prospects for most local graduates are inherently local and not regional or national in scope, perhaps reflecting the broader patters of geography of uneven economic development.

These results suggest that the location choice for jobs for recent university graduates reflects the stickiness of the geography; however, this study's focus on only Manchester means that these results do not reflect the overall geography of UK graduate employment. Another potential issue of these findings is suggested by Dorling (2003), who argues that that the use of statistics in human geography is sometimes problematic, particularly due to reasons of accessibility and suitability. Regarding the issue of accessibility, Dorling (ibid.) suggests that quantitative researchers sometimes use overly technical language that makes their results unintelligible to general or innumerate audiences. He suggests that the presentation of statistical results should be done with accessible and easy-to-understand language, and it is the use of marginal effects presented in straightforward probabilities rather than difficult-to-interpret odds ratios or relative risk ratios. Dorling (ibid.) also posits that researchers who employ quantitative methods are suspectable to using inappropriate statistical tests in their analysis, which may result in meaningless results dressed up in the language of statistical precision and robustness. To counter this possibility, this analysis uses the most common logistical regression techniques used by contemporary researchers of graduate migration.

Figure 4.1 - Probability of staying or leaving for local and non-local students



Therefore, there is evidence that is both statistically significant and large in terms of magnitude that local students can be conceptualised in terms of *immobility* rather than *mobility*. Conversely, the predicted probability of non-local graduate retention is comparatively small. Although similar figures were reported in the descriptive statistics, we can now say that these rates are statistically significant and a high magnitude.

The next highest retention factor in order of magnitude of odds ratios is the HEI attended, with the reference category being the University of Manchester. The odds of staying in GM is 1.63 higher for

graduates from The University of Salford and 1.06 higher for graduates from The Manchester Metropolitan University. Although the odds are also higher for The University of Bolton, the results are not statistically significant. When the marginal effects are calculated, graduates from Salford have a predicted retention rate of 0.554, Bolton has 0.504, MMU has 0.499, and the University of Manchester has 0.445 ($p < 0.01$). Graduates from the University of Manchester, the city-region's only Russell Group university, have the lowest probability of staying in the area after university.

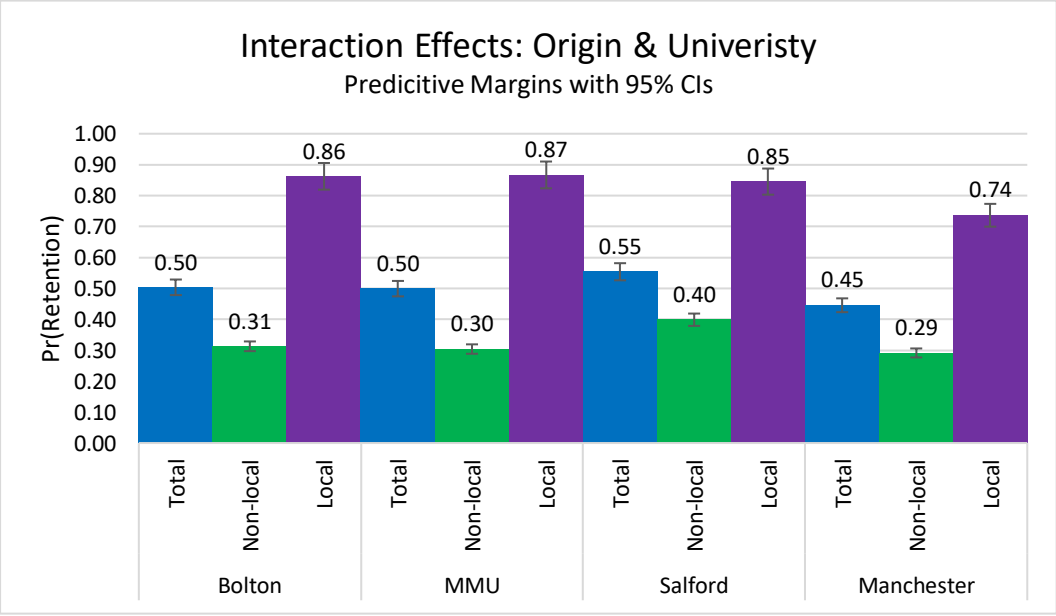
However, what these main effects mask is the mediating role geography might play in the HEI attended and subsequent migration. The literature suggests that Russell Group universities (e.g., the University of Manchester) serve national and international students while the Post-92 (e.g., Bolton and MUU) and plate glass universities (e.g., Salford) cater to more local constituencies. Therefore, there is a desire to test the interaction effects between geographic origin, university attended, and retention rates.

The results in Table 4.6 also include the interaction effects between the place of domicile and university attended, and with the inclusion of these interaction effects, the results for all three universities increase in magnitude and are all statistically significant, including for the University of Bolton.

Figure 4.2 below shows the probability of graduate retention by domicile and HEI with confidence error bars to represent uncertainty. A total column is also included in this chart, but please note that the figures for locals and non-locals do not sum to the total. What this chart brings into sharp relief is that the University of Manchester has only slightly lower retention rates for non-locals (Pr = 0.291; $p < 0.01$) when compared to MMU (Pr = 0.304; $p < 0.01$) and Bolton (Pr = 0.313; $p < 0.01$). It should also be noted that Salford retains more of its non-local students (Pr = 0.399 < 0.01 than the other three universities.

However, there is a wide disparity between the retention rates of locals for the University of Manchester (Pr = 0.736, $p < 0.01$) and the other three universities of MMU (Pr = 0.867, < 0.01), Bolton (Pr = 0.862, p < 0.01), and Salford (Pr = 0.845, $p < 0.01$). In other words, there is compelling evidence that is both statistically significant and of a sizable magnitude that local students who attend the University of Manchester are more mobile than their local peers who attend non-Russell Group universities. Therefore, the interplay between a graduate's place of origin and her place of study plays a demonstrable role on retention rates.

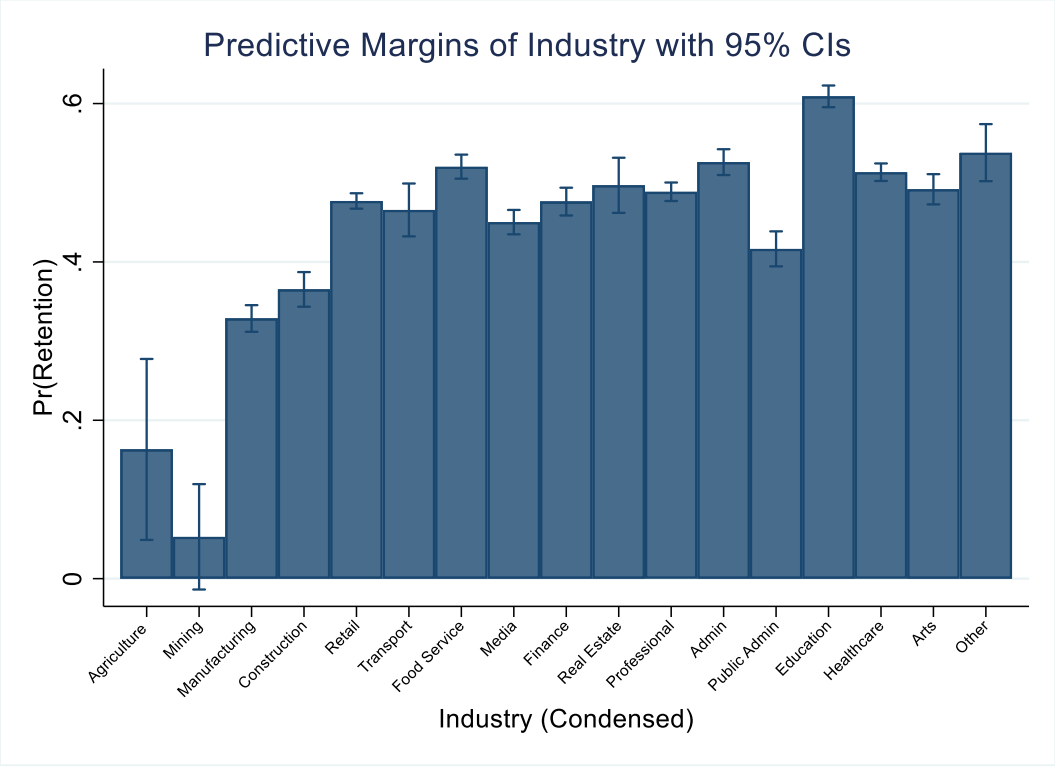
Figure 4.2 – Probability of graduate retention by domicile and HEI



The odds ratios with the third-largest magnitude are associated with a graduate's industry of employment where the basis of comparison is the media, information, and communications sector. This industry was chosen as the basis of comparison for theoretical reasons since there are discussions about a 'digital skills shortage' in GM, and this sector aligns closely with digital. All but four industry sectors are classified as 'graduate retention factors', except for agriculture, mining, manufacturing, and construction, which can be classified as 'attrition' factors since they have odds ratios less than one. It should come as no surprise that not many graduates are employed in mining and farming in a 21st-century urban environment. Marginal effects can be calculated for the different graduates, the results of which are depicted in Figure 4.3 below along with confidence error bars to represent uncertainty. The full predicted retention probabilities are available in section 14.9 of the Technical Appendix.

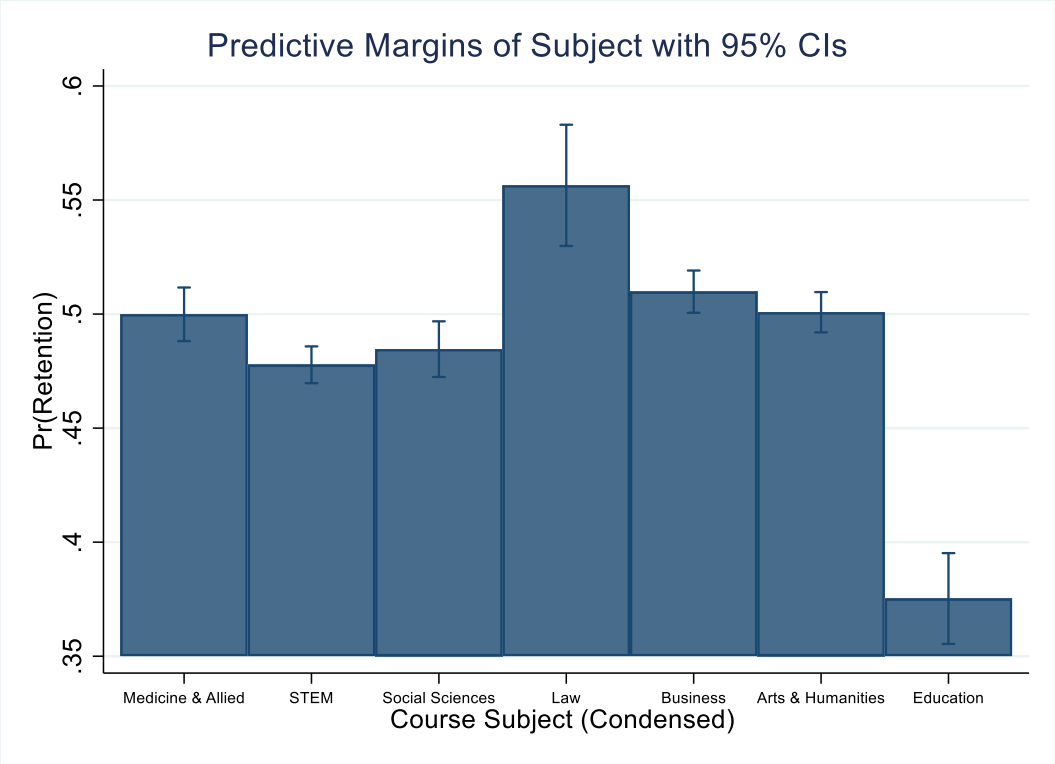
There are significant differences across the different industries. Graduates working in education (Pr = 0.609), administrative and support services (Pr = 0.526), accommodation and food services (Pr = 0.517) and human health and social work (Pr = 0.513) all have predicted probabilities of working in GM over 50 per cent ($p < 0.01$). The reference category - media, information, and communication - has a probability of 0.450. The results for the transport and logistics sector are not statistically significant, however.

Figure 4.3 – Predictive Margins of Graduate Industries



Other moderate 'retention factors' based on odds ratios (OR) are associated with a graduate's course of study (see Figure 4.4.). A graduate who was studying a law course is the strongest retention factor (OR = 1.532; Pr = 0.560; $p < 0.01$) while being on an education course is a 'attrition factor' (OR = 0.552; Pr = 0. .375; $p < 0.01$). The other courses of study all associated with probabilities around 50 per cent of staying in GM after graduation. Interestingly, studying education is an attrition factor, but being employed in education is a retention factor, and this could be a line of inquiry for further study. Another retention factor related to higher education is being a full-time student (OR = 1.235; Pr = 0.493; $p < 0.01$) rather than studying part-time (Pr = 0.456; $p < 0.01$).

Figure 4.4 – Predive Margins – Course of Study (JAC Condensed)

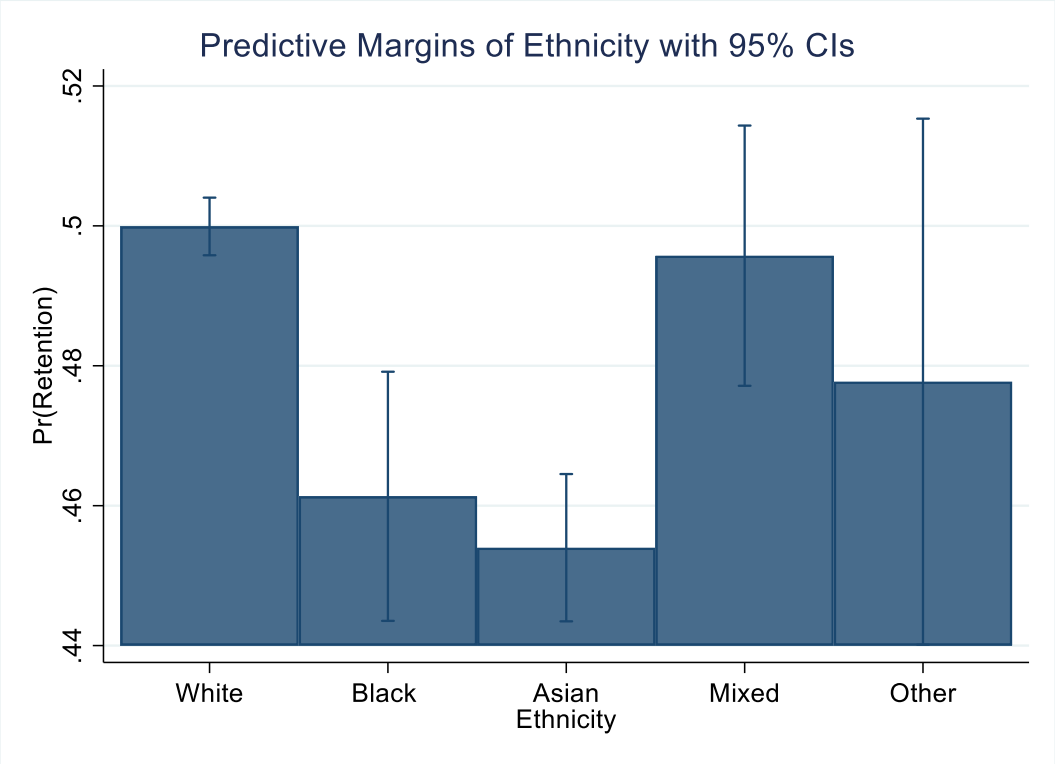


There are weaker retention factors associated with being on a permanent contract (OR = 1.075; Pr = 0.498; $p < 0.01$), as well as being female (OR = 1.087; Pr = 0.501 $p < 0.05$) rather than male (Pr = 0.480; $p < 0.05$). Essentially, both females and males have an equal probability of either staying in GM or moving on after university. Recall that gender and ethnicity were further analysed to better understand their moderating effects, and the topic of gender will be discussed further in the next section. The final retention factor is being on a permanent contract (OR = 1.076; Pr = 0.498; $p < 0.01$) rather than not (Pr= 0.484; $p < 0.01$), but the differences are slight. The next section will explore some of the attrition factors associated with graduate migration in Greater Manchester.

4.3.4 Graduate Attrition Factors

In this model, several statistically significant factors are associated with graduates leaving Manchester, which is measured by having an odds ratio of less than one. The attrition factor with the greatest magnitude is associated with ethnicity (See Figure 4.5). Being both 'black' (OR = 0.756; Pr =0.461; $p < 0.01$) and 'Asian' (OR = 0.705; Pr = 0.453; $p < 0.01$) are statically significant and moderate in magnitude in comparison to the base group of 'white' (Pr =0.500; $p < 0.01$). This could also be restated as saying white graduates are more likely to stay and being white can be viewed as an 'attraction' factor.

Figure 4.5 – Predictive margins of ethnicity



This is surprising given that the literature postulates that being an ethnic minority is often associated with lower rates of mobility. Although those graduates who are from 'mixed' and 'other' backgrounds also have odds ratios less than one, these results are not statistically significant.

Recall that the introductory section of this chapter mentioned that an interaction term for gender and ethnicity was added to the model based on the theoretical assumption that gender and ethnicity have a moderating influence on one another. When an interaction term for gender and ethnicity is included in the model (F_SEXID_1#F_XETHNIC01_1), females in all ethnic groups are then more likely to remain in Greater Manchester, but only the results for Asian females is statistically significant (OR = 1.173; $p < 0.05$). This nuance requires some explanation.

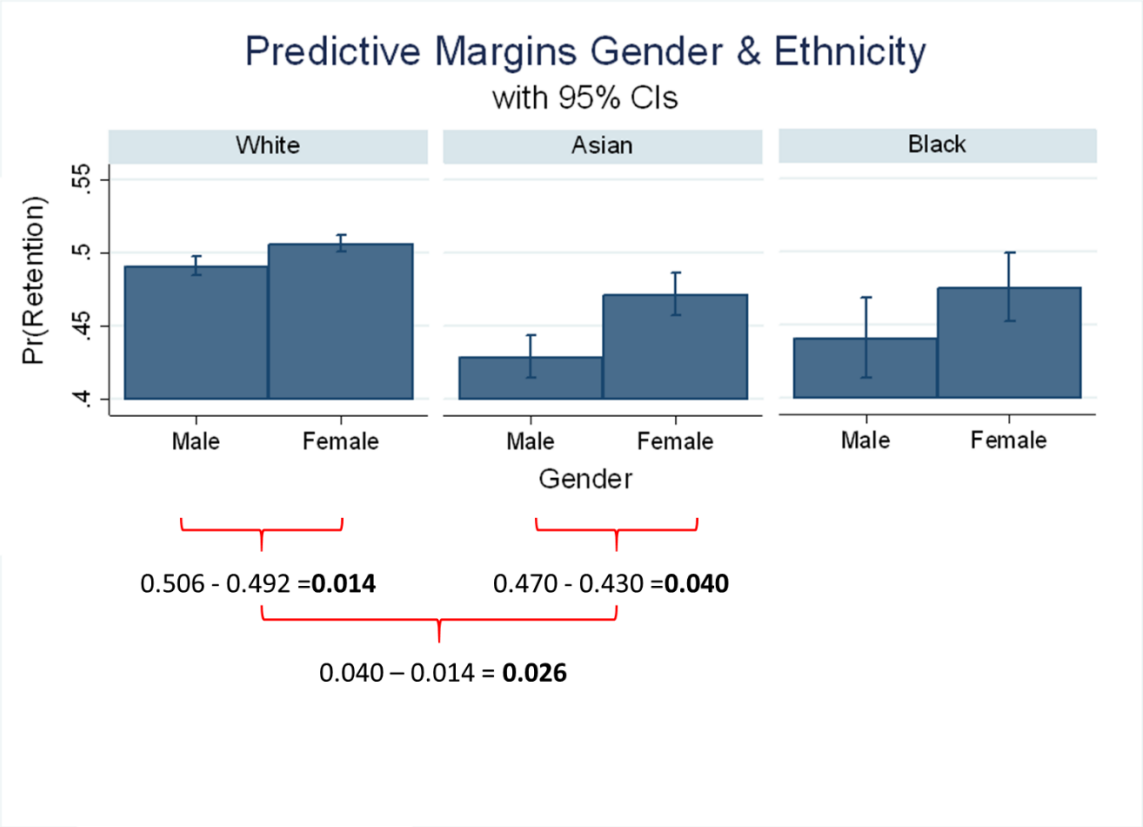
If we refer to the table on relative effects of the interaction terms for gender and ethnicity in Appendix 14.2.1, the relative effects for Asian females is $\beta_{1(Female)} + \beta_{4(Asian)} + \beta_{5(Female*Asian)}$. In other words, the retention of Asian females is a function of being female (as compared to male), Asian (as compared to white) and Asian*female, of which the precise nature of this interaction is unclear.

Table 4.7 and Figure 4.6 present the same information in different formats. The table illustrates that although white females have a greater probability of staying, the difference between white males and white females is small at just over 1.4 per cent. In fact, both males (Pr= 0.492; $p < 0.01$) and white females (Pr= 0.506 $p < 0.01$) have an equal chance of staying or leaving GM. The difference been Asian men (Pr= 0.430; $p < 0.01$) and women (Pr= 0.470; $p < 0.01$) is greater at 4 per cent.

Table 4.7 - Probability of graduate retention by gender and ethnicity with a test of interaction

Ethnicty*Gender	Pr(Retention)	First Difference	Second Difference
White Male	0.4920211	0.5059179 - 0.4920211 =	
White Female	0.5059179	**0.0138968**	0.0399598 - 0.0138968 =
Asian Male	0.4300533	0.4700131 - 0.4300533 =	**0.026063**
Asian Female	0.4700131	**0.0399598**	

Figure 4.6 - Probability of retention by gender and ethnicity



Restated, what these findings suggest is that, in general, white graduates have a greater likelihood of staying in GM than black and Asian graduates, and this difference is both statistically significant and significant in magnitude. However, there is a moderating relationship between gender and ethnicity, and females from non-White backgrounds are more likely to stay in GM. Although the interaction between ethnicity, gender, and graduate retention is complex and nuanced, the disparity in rates of mobility is greatest among Asian men and Asian women. These differences are both statistically significant and moderate in magnitude (a 4 per cent difference between Asian men and women).

The final attrition factors that have not been discussed thus far are related to degree classification and working in a professional occupation, both of which are weakly associated with leaving Manchester. Having a first-class honours degree is (OR = 0.949; Pr = 0.484; $p < 0.05$) has only slightly less chance of leaving than having a second, third, or unclassified degree (Pr = 0.494; $p < 0.01$). Likewise, being employed in a professional occupation (OR=0.935; Pr = 0.488; $p < 0.05$) is associated with a slight probability of leaving GM when compared to those working in non-professional occupations (Pr = 0.501; $p < 0.05$).

What this next section will demonstrate is that although the BLR results of graduate retention are interesting, they do not give the fullest account possible of the phenomenon of graduate migration. This can, however, be accomplished taking a graduate's geographic origin as well as ultimate destination into account. Once again, this is also a change from a place-based orientation in terms of graduate retention to a people-based orientation in terms of migration pathways.

4.4 Multinomial Logistic Regression (MLR)

Leaving university and choosing where to live is a complex phenomenon, although in the last chapter, it was viewed as a simple binary graduate retention(stay/leave) outcome. Using binomial logistic regression (BLR), interactions terms, and marginal predictions, this analysis provided sound statistical evidence for the role of geography and HEIs in the retention of graduates, as well as the nuanced and complex interaction of gender and ethnicity in the process. What the BLR results fail to do, however, is provide an insight into the geographic destinations of the graduates beyond the borders of Greater Manchester. The basic principle behind Multinomial Logistic Regression (MLR) is like that of BLR, and the technical details for MLR can be found in Section 14.3 of the Technical Appendix.

Graduate migration can also be conceptualised on a regional basis (e.g., Faggian et al., 2006) or even as a series of point-to-point trajectories from Greater Manchester to any number of the UK's cities and towns (e.g., McDonald, 2019). The most common analytical method for the quantitative analysis of multiple graduate pathways is to use multinomial logistic regression (see Abreu et al., 2015; Comunian et al., 2010; Faggian et al., 2006, 2007, 2014; Mosca & Wright, 2010).

Multinomial logistic regression (sometimes also referred to as polytomous logistic regression) is an extension of BLR that allows for the generalisation of a categorical dependent variable with more than two categories (Osborne, 2017). The implicit assumption behind using a multinomial logistic regression (MLR) directly after a BLR is that the former will provide additional insights about graduate migration that remain hidden in the stay/leave category. For example, graduates who return home after university may differ substantially from those who are more mobile and go on to a location that is neither their home domicile nor the location of their university.

The first step in the MLR process is to create a typology of different migrant categories based on their geographic origin and ultimate destination, which are referred to as 'migration pathways' in this thesis. The process for creating these pathways is covered in the next section. This chapter will then conclude with the findings.

4.4.1 A Graduate Migration Typology

Several typologies have been developed over the past two decades to understand UK graduate migration, as illustrated in Table 4.8. There are noticeable similarities between the typologies of Belfield and Morris (1999), Perryman et al. (2003), Hoare and Corver (2010), Bristow et al. (2011), and Ball et al. (2015). Attention should be called to the fact that the work of Ball et al. informed the Government report discussed in Section 2.3 of the literature review, *Future of Cities: Graduate Mobility and Productivity: An Experiment in Place-Based Open Policy-Making* (Office for Science, 2016). Faggian et al. 's (2006) typology has been influential in studies that can be found in the economics and regional science literature, including Bond et al.'s (2008) study of the attraction and retention of Scottish graduates and Comunian and Jewell's (2018) research on the inter-regional

mobility of 'creative' graduates in the UK. Faggian et al. (2006) are interested in testing DaVanzo's thesis of repeat migration (1983), which explains the categories of 'repeat migrant' and 'late mover'. DaVanzo herself was influenced by the typology of Kau and Sirmans (1976) and earlier economic treatments of migration.

Table 4.8 – Graduate Migration Typologies

Graduate Typology	**Geographic Focus**	**Authors and Date**
1. Move to attend HE and stay in region 2. Move to attend HE and exit that region 3. Stay to attend HE and stay in region 4. Stay to attend HE and exit that region	Inter-regional UK graduate migration	Belfield and Morris (1999)
1. SW Loyals 2. Lost SW Graduates 3. Lost SW Students 4. Returners 5. Incomers 6. Passers Through 7. Poached Graduates 8. Missed Opportunities	South West England graduate attraction/retention	Perryman et al. (2003)*
1. Repeat Migrant 2. Return Migrant 3. Sticker 4. Late Mover 5. Stayer	Inter-regional UK graduate migration	Faggian et al. (2006)
1. Non-migrants 2. Delayed migrants 3. Immediate migrants (no return) 4. Immediate migrants (temporary return) 5. Return migrants	Scotland graduate attraction/retention	Bond et al. (2008)*
1. Locals 2. Returners 3. Stayers 4. Outsiders	North-South UK graduate migration	Hoare and Corver (2010)
1. Stayer 2. National mover 3. International mover	National & International UK graduate migration	Mosca and Wright (2010)
1. Locals 2. Returners 3. Stayers 4. Outsiders	Wales graduate attraction/retention	Bristow et al. (2011)
1. Local Student 2. Commuter or Distance Learner 3. Internal Student Migrant 4. Migrant Commuter or Distance Learner attending local HEI 5. Internal Migrant Commuter or Distance Learner 6. International Student Migrant 7. International Migrant Commuter or Distance Learner 8. Unknown	National & International UK student migration	Bailey (2015)
1. Regional Loyals 2. Regional Returners 3. Regional Stayers	Inter-regional UK graduate migration	Ball et al. (2015)*

4. Regional Incomers		
1. Home-grown graduates 2. Returners 3. Retained 4. Bouncers 5. Graduate movers	UK cities	Swinney and Williams (2016)*
1. Non-Movers 2. Move-Returners 3. Stay-Leavers 4. Leave-Stayers 5. Non-Returning Double-Movers	UK Regions	Kidd et al. (2017)
6. Non-migrant 7. Late migrant 8. University stayer 9. Return migrant 10. Repeat migrant	Inter-regional UK graduate migration	Comunian and Jewell (2018)

N.B. those entries marked with an asterix (*) are taken from the grey literature and not from peer reviewed sources.

The task of this thesis is to examine graduate migration in the context of Greater Manchester, which is a single combined authority in England. The existing frameworks have all been developed to analyse either national flows between the four countries of the UK (e.g., Bond et al., 2008; Bristow et al., 2011; Mosca & Wright, 2010) or inter-regional flows (Ball et al., 2015; Belfield & Morris, 1999; Comunian & Jewell, 2018; Faggian et al., 2006; Hoare & Corver, 2010; Perryman et al., 2003).

The process of migration is often classified according to at least three main variables: the individual migrant, the origin, and the destination (Dennett & Stillwell, 2010). For this study, there are four main variables: the individual graduate, the origin (i.e., 'domicile of student'), place of study (i.e., Greater Manchester'), and the destination (i.e., the 'place of employment').

There is a tension between taking either a Manchester-focused or graduate-focused typology since this thesis endeavours to be both place-based while also elevating the position of the individual graduates. Therefore, the typology developed for this dissertation takes a position of compromise. The origin categories are binary of 'Greater Manchester' and 'other UK domicile', and the destination categories include 'Greater Manchester', 'Home UK Domicile', and 'Other UK Location', as illustrated in Table 4.9. The format of this table is borrowed from Perryman et al. (2003).

'Home grown loyals' are graduates who are domiciled in GM, who studied in GM, and remain in GM for work, and this category title is taken from Swinney and Williams' report for the Centre for Cities (2016). 'Home grown leavers' are graduates who are domiciled in GM, went to study in GM, who then go somewhere else in the UK for work. 'Stayers' are UK domiciled graduates who move from their home domicile to study in GM and then stay in GM for work. 'Bouncers' are UK domiciled graduates who migrate to GM for the study who then leave to work elsewhere in the UK. 'Home returners' are graduates domiciled outside of GM, who study in GM, who then return to their home UA/CA for employment. Whereas most of the categories are based on whether graduates stay or leave Greater Manchester, the 'returner' category is unique because it goes beyond any GM-specific location and takes into account the individual graduate's positionality. 'Home grown loyals', 'home grown leavers', 'stayers', and 'bouncers' owe their conceptualisations largely to the Perryman et al. (2003)-inspired taxonomies, but the 'returner' is borrowed from Faggian et al. (2006).

Table 4.9 – Typology of graduates' relationship to Greater Manchester

Types of graduate	Where from?	Where studied?	Where job?
Home Grown Loyals	Greater Manchester	Greater Manchester	Greater Manchester
Home Grown Leavers	Greater Manchester	Greater Manchester	Other UK Location
Stayers	Other UK Domicile	Greater Manchester	Greater Manchester
Returners	Other UK Domicile	Greater Manchester	Home UK Domicile
Bouncers	Other UK Domicile	Greater Manchester	Other UK Location

Thirdly, this dissertation offers a place-based framework to understand graduate mobility flows based on student origin, university, and distinct socio-spatial 'routes' of graduate mobility. A place-based approach is an explicit attempt to relocate the discussion of graduate mobility from dominant UK national, regional, and London-centric discourses to local concerns for the attraction and retention of highly educated workers. A place-based framework firmly situates graduates in the very places that host UK universities and student populations, while also acknowledging that graduate flows have marked social, economic, and geographic dimensions.

The methods literature provides some requirements for creating rigorous typologies in the social sciences. Bailey (1994) mentions that any typology should include classes that are both 'exhaustive' and 'mutually exclusive'. Since graduates must fall into one of the pathways, and they cannot belong to more than one of the pathways, this typology meets this baseline requirement. Both Bailey (1994) and Collier et al. (2012) suggest that rigorous typologies should also be multidimensional as well as conceptual. These migration pathways are multidimensional because they account for a graduate's geographic origin as well as their post-university geographic destination. They are conceptual because the pathways represent relative immobility and mobility to reflect relative incidences of immobility and mobility for all graduates, as well as separately for locals and non-locals.

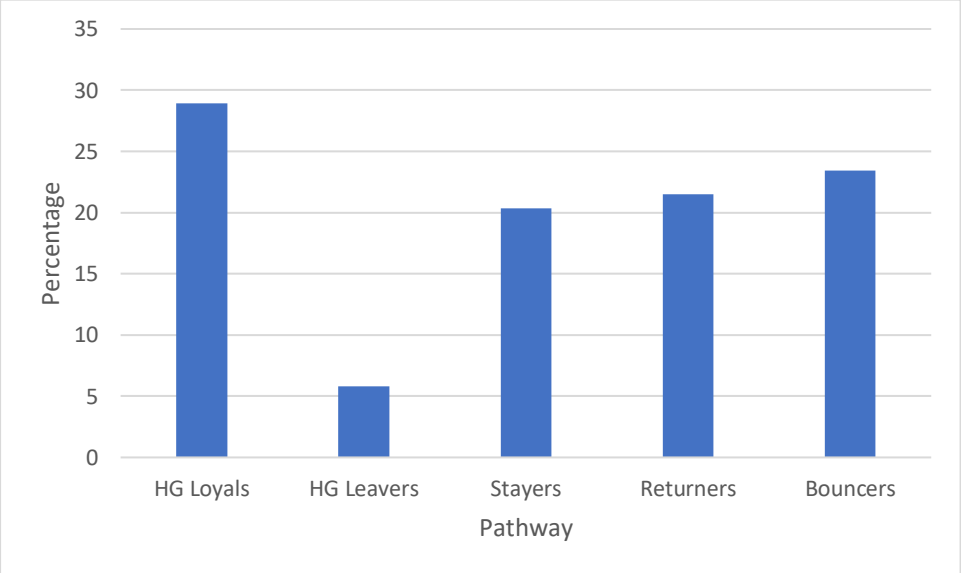
Table 4.10 below shows the total number of students in each migration pathway and the corresponding percentages, and a bar chart is provided in Graphic 4.7. Students are relatively evenly spread across HG loyals, stayers, returners and bouncers, but HG leavers represent a relatively small percentage (5.8) of the overall total.

Table 4.10 – Frequency of migration pathways for GM students, 2012/13-2016/17

	Freq.	Per cent
HG Loyals	15460	28.91
HG Leavers	3105	5.81
Stayers	10880	20.34
Returners	11500	21.5
Bouncers	12540	23.44
Total	**53485**	**100**

N.B. Totals may not sum due to HESA rounding methodology

Figure 4.7 – Frequency (as percentages) of migration pathways for GM students, 2012/13-2016/17



4.4.3 MLR Findings

The multinomial logistic regression results are presented in Table 4.11, with the baseline category being the 'Bouncers' category, which is the most mobile group. The interpretation of the results for the MLR will be similar to the previous interpretation of the BLR. Rather than odds ratios, the table contains the relative risk ratios (RRR) and tests of those coefficients. For example, the RRR for females in the 'HG Loyals' category indicates that the relative risk for graduates identified as female (coded 1) is 1.236995 that of males. This means that females are at a greater risk of falling into the 'HG Loyals' category and at a lower risk of belonging to the base outcome, 'Bouncers'. For males, this picture is reversed, i.e., males are at a lower risk of falling into the 'HG Loyals' category and at a higher risk of belonging to the 'bouncers' category.

The discussion of the findings cannot be neatly organized according to 'graduate retention' and 'graduate attrition' factors like the previous discussion since these factors change relative to the pathway in question. Rather, the discussion will broadly be organized according to the easiest way to discuss the order of magnitude and statistical significance, as suggested by Miller (2013). Statistically significant is understood to mean the standard criterion for statistical significance of $p < 0.05$ (J. E. Miller, 2013). The RRR are useful to identify and prioritize the main results that to be discussed, but the easiest way to interpret these findings is to calculate and graph the predicted probability values of a graduate falling into one of the migration pathways given a single predictor variable. Unlike the previous binomial logistic regression, this multinomial logistic regression did not use interaction terms due to the complexity in interpreting the results. Therefore, the main effects must be interpreted individually. Finally, any surprising non-statistically significant results will also be discussed.

The pseudo-R^2 result for the MLR model is 0.1003, which suggests this model is not as good as the previous BLR model with a higher pseudo-R^2. Recall that the R describes how well the independent variables can predict the response, with $R = 1$ for perfect prediction (Agresti, 2013). Faggian et al. (2006) used a similar MLR model with HESA data to explore graduate migration, and their pseudo-R^2 result was lower at 0.0823. A later study using MLR on the study of gender and graduate migration, also using HESA data, had a 0.1403, and Faggian et al. (2007) considered this result as being a "reasonable level fit for a logit model" (p. 526) based on the judgements of Louviere et al. (2000). Based on this interpretation, the pseudo-R^2 result for this MLR model can also be seen as a 'reasonable level fit'.

Table 4.11 - Multinomial logistic regression results as odds ratios for graduate migration pathways

HG_Loyals (base outcome = Bouncers = 1)	**RRR**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
F_SEXID_1 (base = Male)						
Female	1.236995	0.0356494	7.38	0.000	1.16906	1.308877
F_XETHNIC01_1 (base = White = 1)						
Black	2.57369	0.1839421	13.23	0.000	2.237281	2.960682
Asian	3.845654	0.1596544	32.44	0.000	3.545129	4.171654
Mixed	1.863252	0.1366941	8.48	0.000	1.613707	2.151386
Other	6.04195	0.8734257	12.44	0.000	4.551214	8.020973
F_XINSTID01_1 (base = University of Manchester)						
The University of Bolton	16.20851	1.238068	36.47	0.0000	13.95485	18.82613
The Manchester Metropolitan University	3.645561	0.1316193	35.83	0.0000	3.396507	3.912876
The University of Salford	12.01615	0.503615	59.32	0.0000	11.06854	13.0449
FTstudy (base = Part Time = 1)						
Full Time	0.5003956	0.036007	-9.62	0.000	0.4345737	0.5761869
FirstClass (base = not 1st Class Honours = 1)						
First class honours	0.7918739	0.0252972	-7.3	0.000	0.7438127	0.8430406
F_XJACS201Condensed (base = STEM = 1)						
Medicine & Allied	1.327286	0.0750158	5.01	0.000	1.188108	1.482766
Social Sciences	1.423679	0.0769149	6.54	0.000	1.280636	1.5827
Law	2.884539	0.3049697	10.02	0.000	2.344675	3.548708
Business & Comms	1.041408	0.0444705	0.95	0.342	0.9577955	1.13232
Arts & Humanities	0.96799	0.0431888	-0.73	0.466	0.886937	1.05645
Education	1.274817	0.109318	2.83	0.005	1.077596	1.508135
FTwork (base = PT Work= 1)						
In FT work	0.5956291	0.0221861	-13.91	0.000	0.5536945	0.6407397
PermContract (base = not on a FT contact = 1)						
Permanent Contract	1.287165	0.0369783	8.79	0.000	1.216692	1.36172
Prof_Occupation (base = Not in professional employment = 1)						
Professional	0.4769959	0.017896	-19.73	0.000	0.4431789	0.5133933
SICSectionCodes_Condensed (base = Media, Information & Communication= 1)						
Agriculture, Forestry and Fishing	0.3455435	0.2173561	-1.69	0.091	0.1007103	1.185581
Mining	6.81E-08	0.0000586	-0.02	0.985	0	.
Manufacturing	0.5575623	0.0482249	-6.75	0.000	0.4706206	0.6605654
Water/Gas/Sewerage Supply & Construction	0.7309723	0.0733955	-3.12	0.002	0.6003899	0.8899558
Retail & Wholesale Trade	1.322061	0.0889471	4.15	0.000	1.158733	1.50841
Transport & Logistics	1.256409	0.1671344	1.72	0.086	0.9680541	1.630657
Accommodation & Food Service	0.9745942	0.0834398	-0.3	0.764	0.8240399	1.152655
Financial Services	1.117577	0.0938779	1.32	0.186	0.9479281	1.317587
Real Estate	1.497099	0.2102348	2.87	0.004	1.136889	1.971438
Professional, Scientific, & Technical Services	1.152818	0.0792283	2.07	0.039	1.007538	1.319047
Administrative & Support Services	1.528905	0.1259138	5.16	0.000	1.301006	1.796725
Public Administration	1.334546	0.1289608	2.99	0.003	1.104282	1.612826
Education	3.342338	0.2622486	15.38	0.000	2.865912	3.897965
Human Health & Social Work	1.758975	0.1295262	7.67	0.000	1.522578	2.032076
Arts, Entertainment & Recreation	1.188557	0.1090883	1.88	0.060	0.9928762	1.422805
Other	1.617348	0.238249	3.26	0.001	1.211753	2.158702
_cons	0.728623	0.0793721	-2.91	0.004	0.5885425	0.9020445

Stayers (base outcome = Bouncers = 1)	**RRR**	**Std. Err.**	**z**	**P>z**	**[95% Conf.**	**Interval]**
F_SEXID_1 (base = Male)						
Female	1.076548	0.0306448	2.59	0.010	1.01813	1.138318
F_XETHNIC01_1 (base = White = 1)						
Black	1.050107	0.0869959	0.59	0.555	0.8927217	1.23524
Asian	0.7368518	0.0379908	-5.92	0.000	0.6660299	0.8152045
Mixed	1.291877	0.0942531	3.51	0.000	1.119745	1.490471
Other	1.176708	0.2063211	0.93	0.353	0.83449	1.659267
F_XINSTID01_1 (base = University of Manchester)						
The University of Bolton	1.592287	0.14528	5.1	0.000	1.331551	1.904078
The Manchester Metropolitan University	1.397736	0.0464396	10.08	0.000	1.309616	1.491785
The University of Salford	2.007186	0.0864847	16.17	0.000	1.84464	2.184056
FTstudy (base = Part Time = 1)						
Full Time	1.316502	0.1242444	2.91	0.004	1.094182	1.583993
FirstClass (base = not 1st Class Honours = 1)						
First class honours	0.9256787	0.0291498	-2.45	0.014	0.8702735	0.9846112
F_XJACS201Condensed (base = STEM = 1)						
Medicine & Allied	1.069337	0.0632603	1.13	0.257	0.9522675	1.200799
Social Sciences	1.031971	0.0565242	0.57	0.566	0.9269246	1.148921
Law	1.758188	0.1974845	5.02	0.000	1.410769	2.191163
Business & Comms	1.100689	0.047383	2.23	0.026	1.01163	1.197588
Arts & Humanities	1.211398	0.0516964	4.49	0.000	1.114196	1.317079
Education	0.4044123	0.0419309	-8.73	0.000	0.3300416	0.4955414
FTwork (base = PT Work= 1)						
In FT work	0.9435507	0.0373683	-1.47	0.142	0.8730805	1.019709
PermContract (base = not on a FT contact = 1)						
Permanent Contract	1.093814	0.0311895	3.14	0.002	1.034361	1.156685
Prof_Occupation (base = Not in professional employment = 1)						
Professional	0.6553601	0.0253396	-10.93	0.000	0.6075307	0.706955
SICSectionCodes_Condensed (base = Media, Information & Communication= 1)						
Agriculture, Forestry and Fishing	0.1242842	0.1314921	-1.97	0.049	0.015626	0.9885151
Mining	0.0582632	0.0419641	-3.95	0.000	0.0142009	0.2390407
Manufacturing	0.4527031	0.0386247	-9.29	0.000	0.3829912	0.5351038
Water/Gas/Sewerage Supply & Construction	0.6628005	0.0694528	-3.92	0.000	0.5397442	0.8139123
Retail & Wholesale Trade	1.019112	0.066747	0.29	0.773	0.8963389	1.158702
Transport & Logistics	0.9767621	0.135195	-0.17	0.865	0.7446853	1.281164
Accommodation & Food Service	1.775635	0.1418367	7.19	0.000	1.518309	2.076573
Financial Services	1.027795	0.0826097	0.34	0.733	0.8779925	1.203157
Real Estate	1.358619	0.1878834	2.22	0.027	1.03606	1.7816
Professional, Scientific, & Technical Services	1.187798	0.0757113	2.7	0.007	1.048301	1.345857
Administrative & Support Services	1.598087	0.1243469	6.03	0.000	1.372046	1.861368
Public Administration	0.6123613	0.06802	-4.42	0.000	0.4925585	0.7613031
Education	3.042772	0.2288948	14.79	0.000	2.625652	3.526157
Human Health & Social Work	1.311301	0.0959539	3.7	0.000	1.136099	1.513522
Arts, Entertainment & Recreation	1.395067	0.1224077	3.79	0.000	1.174648	1.656846
Other	1.742878	0.2445239	3.96	0.000	1.323867	2.294508
_cons	0.5611914	0.069141	-4.69	0.000	0.440798	0.7144674

Returners (base outcome = Bouncers = 1)	**RRR**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
F_SEXID_1 (base = Male)						
Female	1.102594	0.0314508	3.42	0.001	1.042643	1.165992
F_XETHNIC01_1 (base = White = 1)						
Black	1.703597	0.1297392	7	0.000	1.46738	1.977839
Asian	1.528195	0.0693201	9.35	0.000	1.398195	1.670283
Mixed	1.690766	0.1199278	7.4	0.000	1.471319	1.942943
Other	1.954922	0.3167776	4.14	0.000	1.422984	2.68571
F_XINSTID01_1 (base = University of Manchester)						
The University of Bolton	1.817839	0.1556065	6.98	0.000	1.537067	2.149898
The Manchester Metropolitan University	1.480883	0.0486255	11.96	0.000	1.388581	1.579321
The University of Salford	1.505944	0.068037	9.06	0.000	1.378327	1.645376
FTstudy (base = Part Time = 1)						
Full Time	0.4933384	0.0385482	-9.04	0.000	0.4232863	0.5749839
FirstClass (base = not 1st Class Honours = 1)						
First class honours	0.8358063	0.0267559	-5.6	0.000	0.784977	0.889927
F_XJACS201Condensed (base = STEM = 1)						
Medicine & Allied	0.8260276	0.0497074	-3.18	0.001	0.7341288	0.9294304
Social Sciences	1.312745	0.0679058	5.26	0.000	1.186177	1.452819
Law	1.475032	0.1664032	3.45	0.001	1.182428	1.840044
Business & Comms	0.9956772	0.0423977	-0.1	0.919	0.9159524	1.082341
Arts & Humanities	1.262624	0.0529934	5.56	0.000	1.162916	1.37088
Education	1.31103	0.1140053	3.11	0.002	1.105588	1.554647
FTwork (base = PT Work= 1)						
In FT work	0.6506832	0.0242072	-11.55	0.000	0.6049264	0.6999011
PermContract (base = not on a FT contact = 1)						
Permanent Contract	1.037325	0.0295771	1.29	0.199	0.9809445	1.096945
Prof_Occupation (base = Not in professional employment = 1)						
Professional	0.3779308	0.0138899	-26.48	0.000	0.3516645	0.4061589
SICSectionCodes_Condensed (base = Media, Information & Communication= 1)						
Agriculture, Forestry and Fishing	2.216244	0.9273587	1.9	0.057	0.9759854	5.032594
Mining	0.3670633	0.1229149	-2.99	0.003	0.1904178	0.7075782
Manufacturing	0.9068571	0.0702569	-1.26	0.207	0.779101	1.055562
Water/Gas/Sewerage Supply & Construction	1.044773	0.1006647	0.45	0.649	0.864984	1.261932
Retail & Wholesale Trade	1.147857	0.075827	2.09	0.037	1.008458	1.306525
Transport & Logistics	0.8376727	0.115798	-1.28	0.200	0.6388606	1.098355
Accommodation & Food Service	1.471115	0.1180926	4.81	0.000	1.256947	1.721774
Financial Services	1.024497	0.0830519	0.3	0.765	0.8739919	1.200921
Real Estate	1.528461	0.206867	3.13	0.002	1.17233	1.992778
Professional, Scientific, & Technical Services	1.120569	0.074702	1.71	0.088	0.9833172	1.276977
Administrative & Support Services	1.388558	0.1116822	4.08	0.000	1.186046	1.625648
Public Administration	1.174949	0.1127256	1.68	0.093	0.9735401	1.418025
Education	2.140246	0.1662466	9.8	0.000	1.837999	2.492194
Human Health & Social Work	1.127841	0.0843791	1.61	0.108	0.9740143	1.305961
Arts, Entertainment & Recreation	1.422321	0.1244779	4.03	0.000	1.198126	1.688467
Other	1.337761	0.195299	1.99	0.046	1.004875	1.780922
_cons	2.897657	0.3214331	9.59	0.000	2.331441	3.601386

HG_Leavers (base outcome = Bouncers = 1)	**RRR**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
F_SEXID_1 (base = Male)						
Female	0.9038844	0.0403638	-2.26	0.024	0.828136	0.9865613
F_XETHNIC01_1 (base = White = 1)						
Black	2.928061	0.2791857	11.27	0.000	2.428955	3.529724
Asian	3.618048	0.2100937	22.15	0.000	3.22884	4.054171
Mixed	1.878276	0.2099732	5.64	0.000	1.508701	2.338382
Other	6.197829	1.09952	10.28	0.000	4.377569	8.774981
F_XINSTID01_1 (base = University of Manchester)						
The University of Bolton	8.77819	0.8804119	21.66	0.000	7.211629	10.68505
The Manchester Metropolitan University	1.97383	0.1134429	11.83	0.000	1.763552	2.209181
The University of Salford	6.504351	0.3836617	31.74	0.000	5.794227	7.301505
FTstudy (base = Part Time = 1)						
Full Time	0.753156	0.0765961	-2.79	0.005	0.617046	0.9192894
FirstClass (base = not 1st Class Honours = 1)						
First class honours	0.9672501	0.0468003	-0.69	0.491	0.8797384	1.063467
F_XJACS201Condensed (base = STEM = 1)						
Medicine & Allied	1.118326	0.0949659	1.32	0.188	0.946861	1.320841
Social Sciences	0.8980774	0.0796781	-1.21	0.226	0.754735	1.068644
Law	1.551483	0.2508264	2.72	0.007	1.130145	2.129903
Business & Comms	0.7739933	0.0502273	-3.95	0.000	0.681553	0.8789715
Arts & Humanities	0.7320369	0.0532604	-4.29	0.000	0.6347498	0.8442352
Education	0.9740016	0.1547943	-0.17	0.868	0.7133152	1.329958
FTwork (base = PT Work= 1)						
In FT work	0.9776403	0.0612552	-0.36	0.718	0.8646614	1.105381
PermContract (base = not on a FT contact = 1)						
Permanent Contract	1.191836	0.0533248	3.92	0.000	1.091773	1.30107
Prof_Occupation (base = Not in professional employment = 1)						
Professional	0.949898	0.0597967	-0.82	0.414	0.8396404	1.074634
SICSectionCodes_Condensed (base = Media, Information & Communication= 1)						
Agriculture, Forestry and Fishing	1.43829	0.9042254	0.58	0.563	0.4194807	4.931518
Mining	1.146283	0.3625103	0.43	0.666	0.6167379	2.130508
Manufacturing	0.9502883	0.1001011	-0.48	0.628	0.7730221	1.168205
Water/Gas/Sewerage Supply & Construction	1.120212	0.1380858	0.92	0.357	0.8797811	1.426349
Retail & Wholesale Trade	0.8133137	0.0799954	-2.1	0.036	0.6707121	0.9862342
Transport & Logistics	1.30802	0.2401088	1.46	0.144	0.9127719	1.874418
Accommodation & Food Service	0.7018882	0.0984072	-2.52	0.012	0.5332446	0.9238669
Financial Services	0.7460366	0.094311	-2.32	0.020	0.5823105	0.9557969
Real Estate	0.8223257	0.1885293	-0.85	0.394	0.5246799	1.288823
Professional, Scientific, & Technical Services	0.8498549	0.0811644	-1.7	0.088	0.7047771	1.024797
Administrative & Support Services	0.92403	0.1145104	-0.64	0.524	0.7247712	1.17807
Public Administration	0.9392406	0.1346752	-0.44	0.662	0.7091292	1.244023
Education	0.9674837	0.1233013	-0.26	0.795	0.7536366	1.242011
Human Health & Social Work	0.9906976	0.1049142	-0.09	0.93	0.8050067	1.219222
Arts, Entertainment & Recreation	0.9359933	0.1301192	-0.48	0.634	0.7127563	1.229149
Other	0.9455957	0.2263056	-0.23	0.815	0.5915492	1.511542
_cons	0.1434377	0.0229744	-12.12	0.000	0.1047916	0.1963361

Number of observations = 52,968
LR χ2 (140) = 16,137.70
Prob>χ2 =0.0000
Log likelihood = − 72357.873
Pseudo R2= 0.1003

The probability of graduates falling into one of the five migration pathways is illustrated in Figure 4.8 below. Brackets are included to represent the 5 per cent confidence intervals. Roughly a fifth of graduates from GM universities have a predicted probability of falling into each of the Stayers, Returners, and Bouncers category ($p < 0.01$), but only a 5.8 per cent chance of being a local student who leaves (i.e., an HG Leaver).

Figure 4.8- Predictive Margins of Migration Pathways

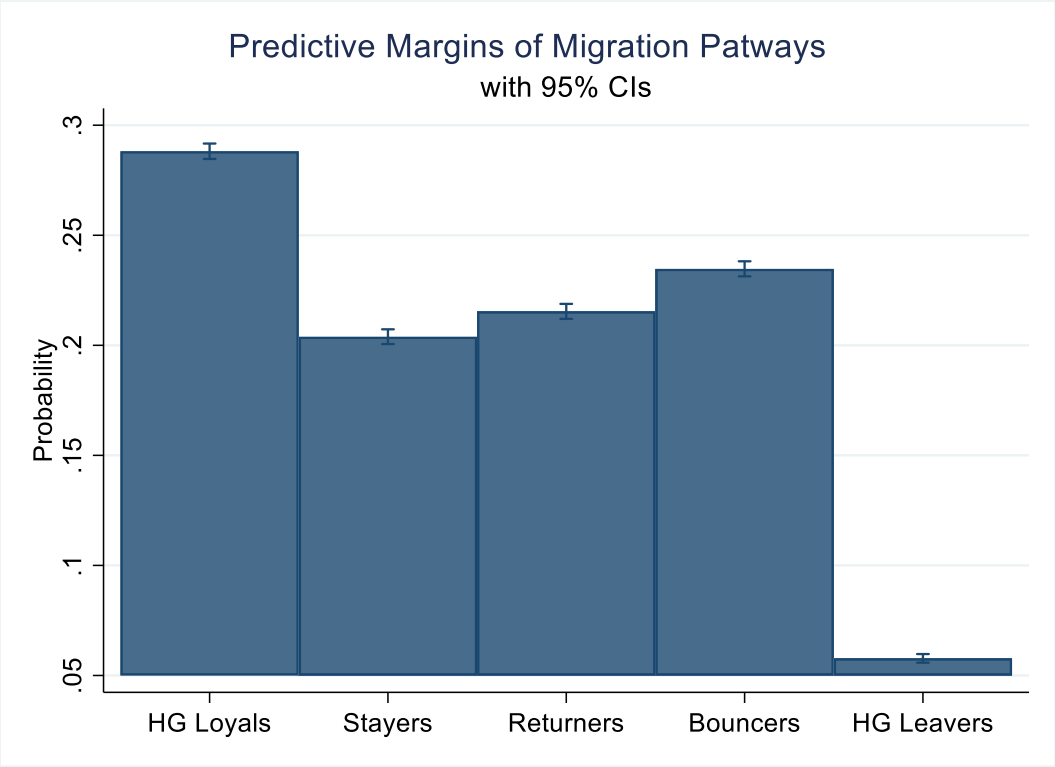
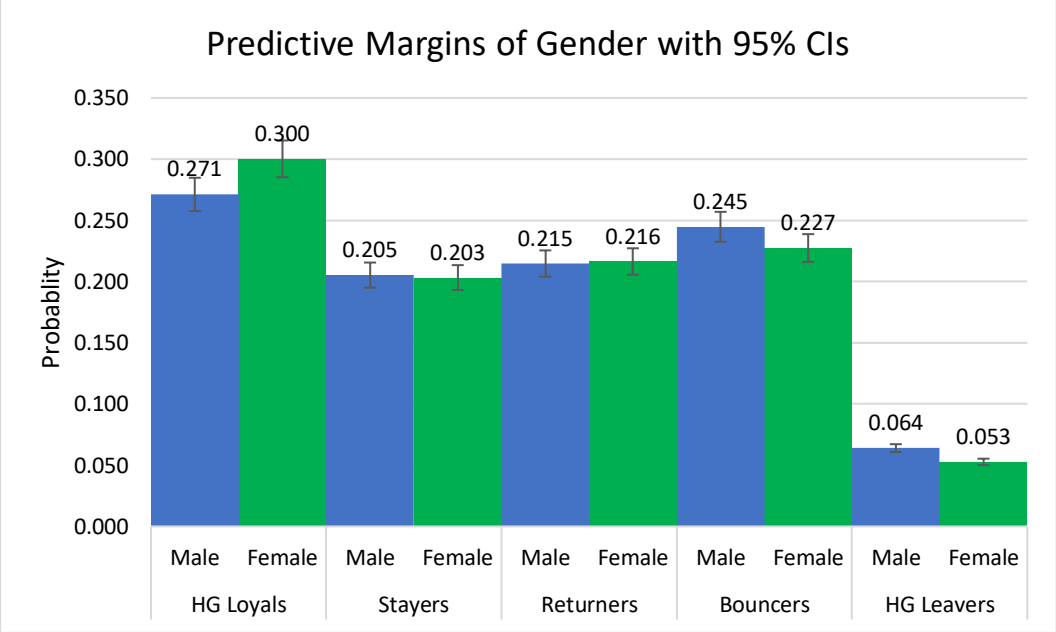


Figure 4.9 below shows the probability of falling into one of the five pathways based on gender with confidence error bars to represent uncertainty. Recall from the previous section that the results of the binary logistic regression showed that men and women had roughly an equal chance of staying or leaving Greater Manchester, with females having a 0.501 probability and men having a 0.480, $p < 0.05$. The results of the multinomial logistic regression, however, paint a slightly different picture. First, the probability of females falling into the 'HG Loyals' category (Pr = 0.300; $p < 0.01$) is nearly 3 per cent higher than males (Pr = 0.271; $p < 0.01$). Secondly, the probability of males falling into the most mobile category (Pr = 0.245$p < 0.01$) ('Bouncers') is nearly 3 per cent higher than females (Pr = 0.216; $p < 0.01$). This is evidence that is statistically significant and of a considerable magnitude that men are more mobile than females in two different categories: the most mobile ('Bouncers') and the least mobile ('HG Loyals') graduates. For the HG Leavers category, males (0.063) have a higher probability of falling into this category than females (0.052)($p < 0.01$). This can be restated by saying that female

graduates from the local area are slightly more mobile than males (0.011), and this difference is statistically significant ($p < 0.01$).

Whereas the probability for men and women are relatively equal for stayers and returners, the rates diverge noticeably for the other categories. Females have a higher probability of being in the least mobile category and a lower probability of being in the most mobile category. Conversely, males have a higher probability of falling into the more mobile group of local graduates.

Figure 4.9 – Predictive Margins of Gender & Migration Pathways



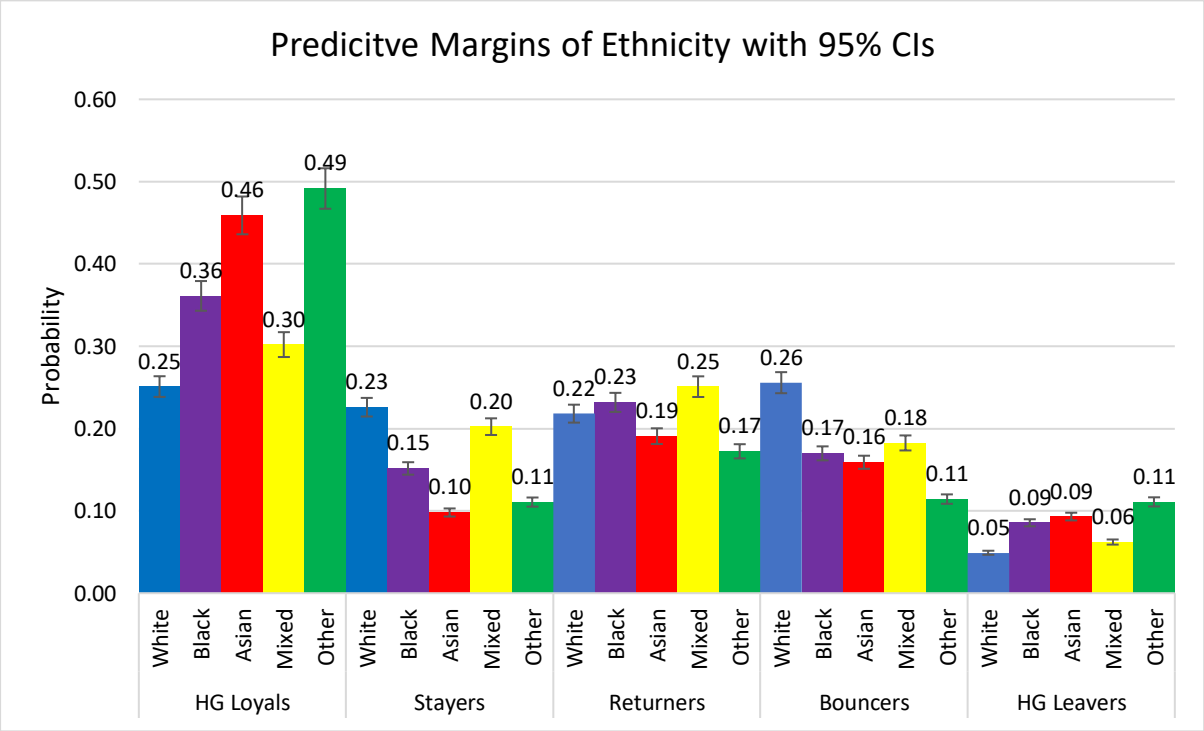
The probability of falling into one of the migrations based on ethnicity is depicted in Figure 4.10 below. Once again, recall that the binomial logistic regression results suggested that black and Asian graduates were more likely to leave Greater Manchester than white graduates. With the five migration pathways, however, a clearer picture of what these results mean emerges. The discussion of ethnicity will be confined to three main categories: the least mobile (HG Loyals), the most mobile (Bouncers), and HG Leavers.

The biggest differences can be found in the HG Loyals, where Asians have a 20.8 per cent higher chance of being classified in the least mobile category than whites, black graduates have over an 11 per cent chance, and mixed graduates have over a 5 per cent chance, $p < 0.01$. Contrast these findings with those local students who do leave Greater Manchester, the HG Leavers, where students from a non-white background have a greater probability of leaving than whites. In this instance, Asians have a 4.4 per cent higher chance than whites, black graduates have a 3.64 per cent higher chance, and those from a mixed background have a 1.3 per cent higher chance than whites, $p < 0.01$. The analysis of the most mobile category shows that Asians have a 9.7 per cent lower probability of falling into the Bouncers category than whites, and black graduates have an 8.6 per cent lower chance than whites, $p < 0.01$. Mixed graduates, however, have a 1.27 per cent higher chance than whites of falling into the most mobile group, $p < 0.01$.

What this evidence shows is that being from a BAME ethnic background is associated with higher incidences of immobility and being from a white background is associated with being more mobile.

The one exception is white home-grown graduates show higher rates of immobility (Pr = 0.049) than their Asian (0.093), Black (0.086) and mixed peers (0.062), $p < 0.01$.

Figure 4.10 – Predictive Margins of Ethnicity & Migration Pathways

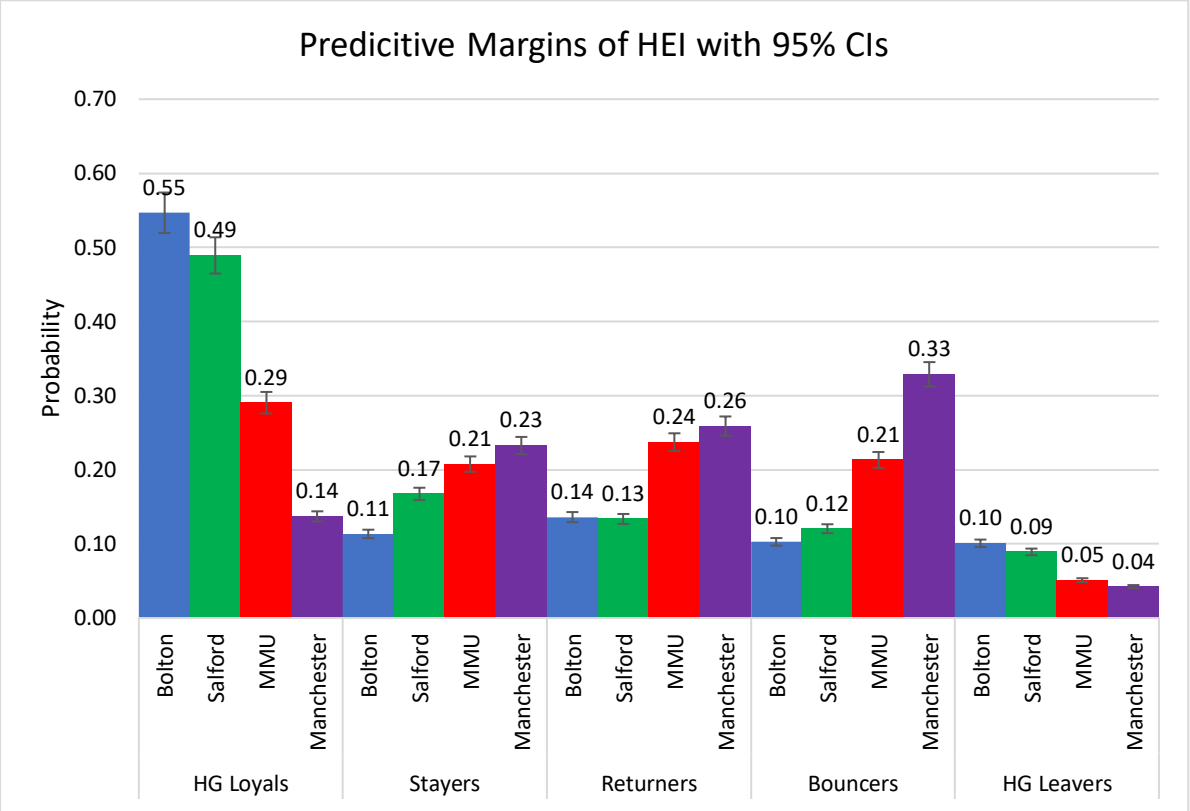


Restated, graduates from a BAME background have a higher chance of falling into the least-mobile category and a lower chance of falling into the most mobile category. Whereas the returners category is more uniform across the different ethnic groups, non-local BAME graduates are less likely than their white peers to stay in GM. Stayers are also more likely to be white, but returners are more evenly distributed across the ethnic groups.

Figure 4.11 below shows the probability of falling into one of the migration pathways based on the HEI attended, which also includes confidence interval bars to represent uncertainty. Both Bolton and Salford are dominated by the least mobile group, Home-Grown Loyals, (Pr = 0.547; $p < 0.01$). Although HG Loyals are also the largest group of students at Manchester Metropolitan, MMU's graduates are more evenly spread across the first four categories. Bouncers, the most migratory category, represent the largest group of University of Manchester graduates at (Pr = 0.845; $p < 0.01$). The relatively low representation of Home-Grown Leavers is also of note, where rates range between a low of .0423 at the University of Manchester and 0.101 at Bolton ($p < 0.01$).

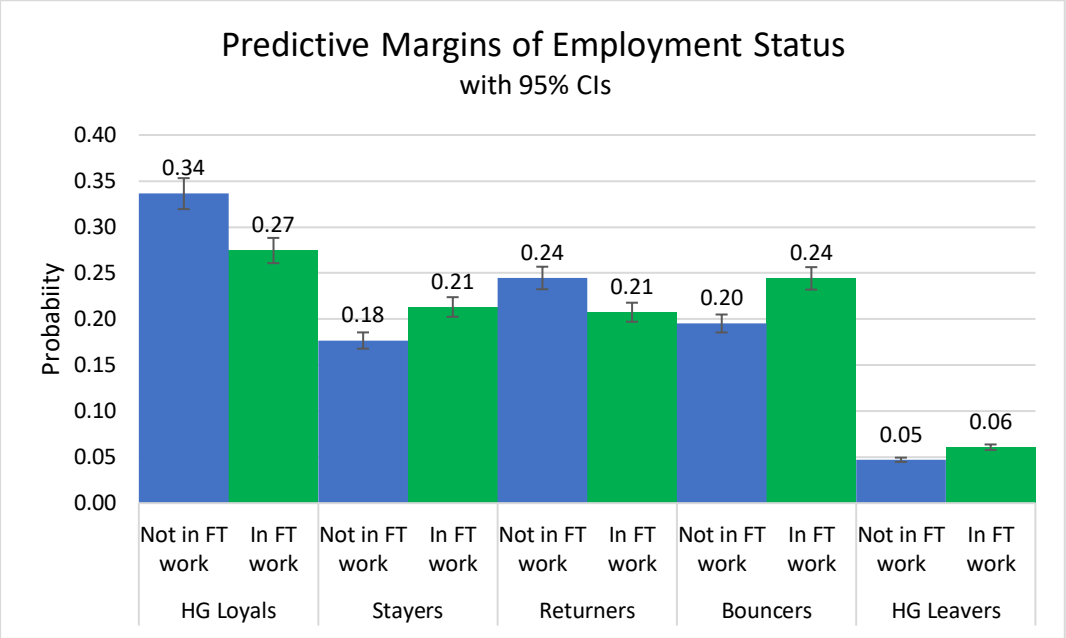
In summary, graduates from universities other than the city-region's only Russell Group university are far more likely to fall into the least mobile group of students and least likely to fall into the most mobile category. The most mobile graduates are most likely to come from the University of Manchester, GM's only Russell Group university.

Figure 4.11 – Predictive margins of HEIs & migration pathways



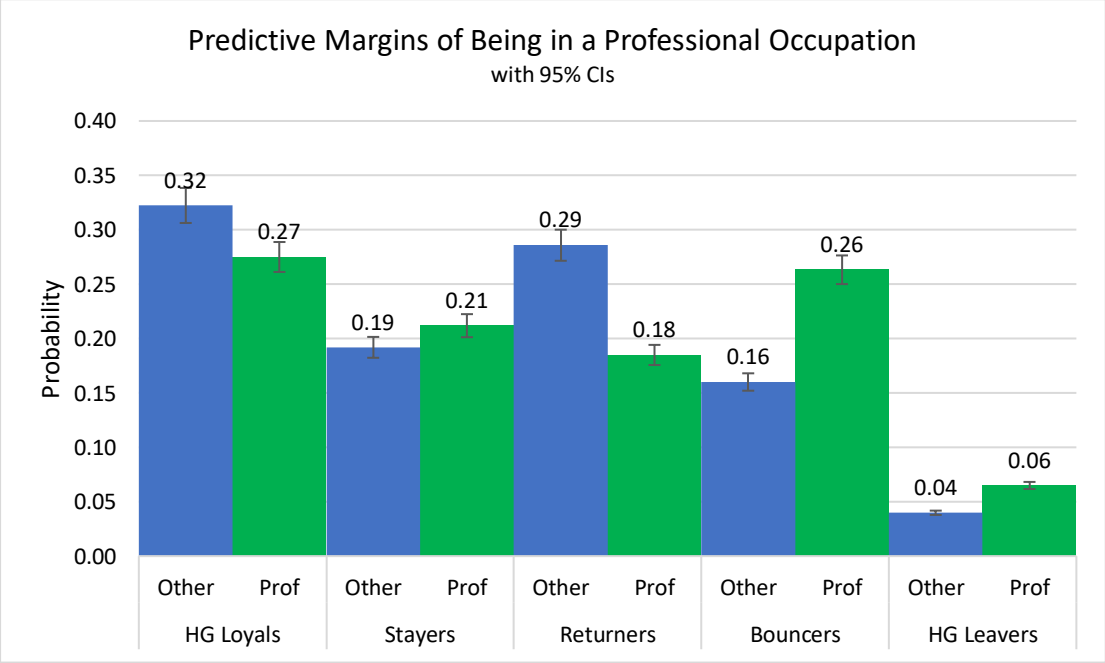
Figures 4.12 and 4.13 give an indication of the quality of employment for graduates and mobility according to measures of being in full-time work and being employed in a professional occupation. For example, home grown graduates who are not in full time employment are more likely (Pr = 0.336; $p < 0.01$) to either stay in GM than those in full time employment (Pr = 0.274; $p < 0.01$). In the case of non-local graduates, those who are not in full time employment are more likely to return home (Pr = 0.245; $p < 0.01$) than those in full time employment (Pr = 0.245; $p < 0.01$). For home grown students, those graduates who are not in professional employment are nearly five per cent more likely to be in the Loyals category than those in full-time employment ($p < 0.01$). The differences are even more pronounced for non-local students. Graduates who are not in professional employment are over 10 per cent more likely to be in the Returners category than those in professional employment.

Figure 4.12- Predictive Margins of FT Work & Migration Pathways



For the least-mobile category, home grown graduates are more likely to be both in non-Professional occupations and not in full-time employment. Graduates in the most mobile group are much more likely to be in professional occupations and in full-time work. Non-local students who return home are much more likely to be in non-professional occupations and part-time work. For non-local students who stay in GM, they are slightly more likely to be in professional occupations and in full-time employment. In other words, relative immobility is associated with being in non-graduate and part-time jobs, and a higher incidence of mobility is associated with graduate-level and full-time work.

Figure 4.13- Predictive Margins of Professional Occupation & Migration Pathways



The marginal effect calculations for the other variables can be found in Section 14.10 in the Technical Appendix, but some of these effects will be discussed in brief. When the marginal effects of degree class are calculated, the results are evenly spread between 20 and 30 per cent in ($p < 0.01$) all categories except HG leavers for both those with first-class honours and those with second, third, or unclassified degrees.

4.5 Socioeconomic status analysis

A separate analysis was undertaken to explore the effect of socioeconomic status on graduate retention and migration using the POLAR4 binary predictor variable in both a binary and a multinomial logistic regression. Much like the previous analyses, the process followed here is to first perform a binary logistic regression to model the probability of graduates staying or leaving Greater Manchester-based on their socioeconomic status (POLAR4 marker). A post-estimation test of predicted marginal effects tells us the probability of graduates staying or leaving as percentages. This gives us an indication of the effect size in an easy to understand manner.

Although knowing if the socioeconomic status has an impact of staying or leaving is incredibly valuable, the results of the multinomial logistic regression provide additional insights according to the five migration pathways. This is another way of testing if factoring in a graduate's geographic origin and destination can tell us anything more. The predicted marginal effects as percentages tell us the probability of graduates falling into the 5 migration pathways based on their POLAR4 marker.

This analysis was done separately because the low response rate (18.98 per cent) raises concerns about the quality of the secondary data. However, there is still a desire to learn what the analysis of this variable tells us about the role of socioeconomic status in graduate retention and graduate mobility.

4.6 Socioeconomic status results

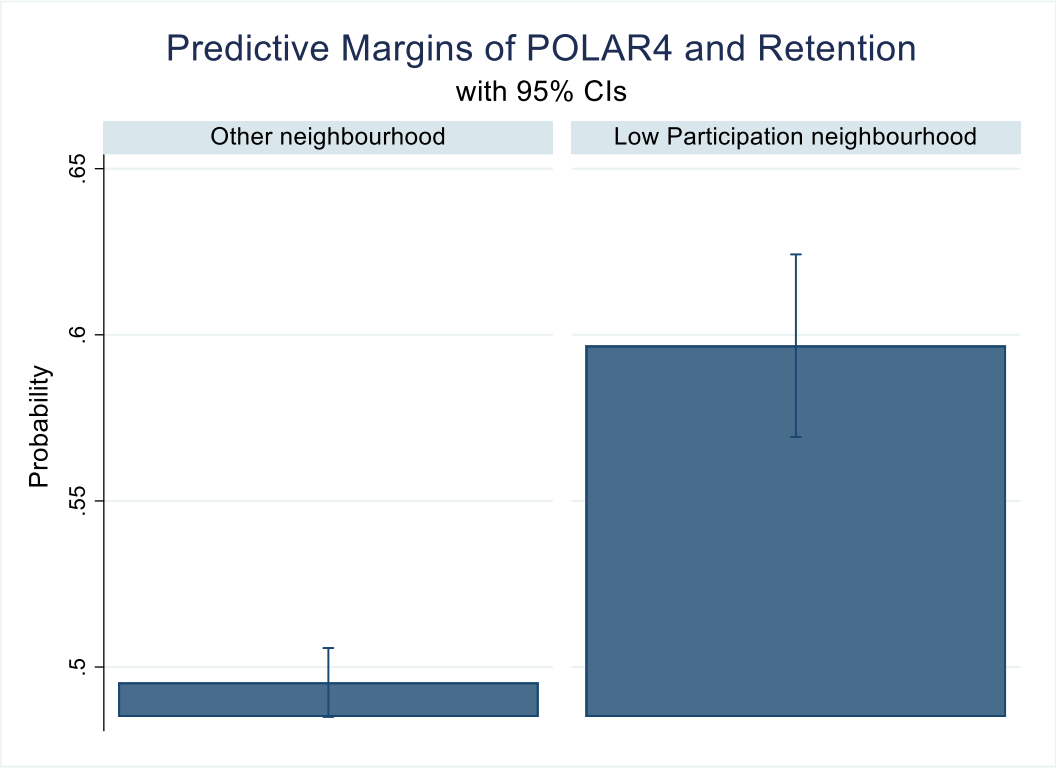
The results of the binary logistic regression appear in Table 4.12 below, and the main result is that a graduate who comes from a low participation neighbourhood has odds of staying in Greater Manchester that are 1.51 higher than the odds of a graduate who is not from a low participation area, $p < 0.01$. This suggests that being from a low participation neighbourhood (i.e., an indicator for being from a disadvantaged background) is associated with staying in Greater Manchester after university.

Table 4.12 –Binary logistic regression results as odds ratios for the probability of staying in GM with POLAR4

	Odds Ratio	Std. Err.	z	P>z	[95% Conf. Interva	
POLAR4 (base = other neighbourhood)						
Low Participation neighbourhood	1.507538	0.0934248	6.62	0.000	1.335112	1.7022
Constant	0.9815719	0.020781	-0.88	0.380	0.9416754	1.0231
Number of observations = 10,150						
LR χ2 (1) = -44.58						
Prob>χ2 =0.0000						
Log likelihood = -7011.9866						
Pseudo R2= 0.2137						

When the marginal effects of the POLAR4 marker are calculated, graduates from a low participation neighbourhood have a predicted retention rate of 0.597 and those from other neighbourhoods have a predicted rate of 0.495 ($p < 0.01$), which is a difference of 10.2 per cent. These rates are depicted graphically in Figure 4.14 below.

Figure 4.14 – Predictive margins of graduate retention according to POLAR4 marker



So, the results of the binary logistic regression demonstrate that lower socioeconomic status is a statistically significant and strong predictor that a graduate will stay in the local area, *ceteris paribus.* The next step in our analytic processes is to see if the migration pathway differs according to the POLAR4 marker.

Rather than interpret the complex multinomial logistic regression results as odds ratios for the probability of staying in Greater Manchester with POLAR4 (Table 4.13), the discussion will instead focus on the results of the predictive margins calculations in Figure 4.15. It should be noted, however, that the results of the MLR analysis indicate that being from a low participation neighbourhood is a retention factor for all four pathways when compared to the base of bouncers, the most mobile graduate migration category. These results are all statistically significant at least the $p < 0.05$ level.

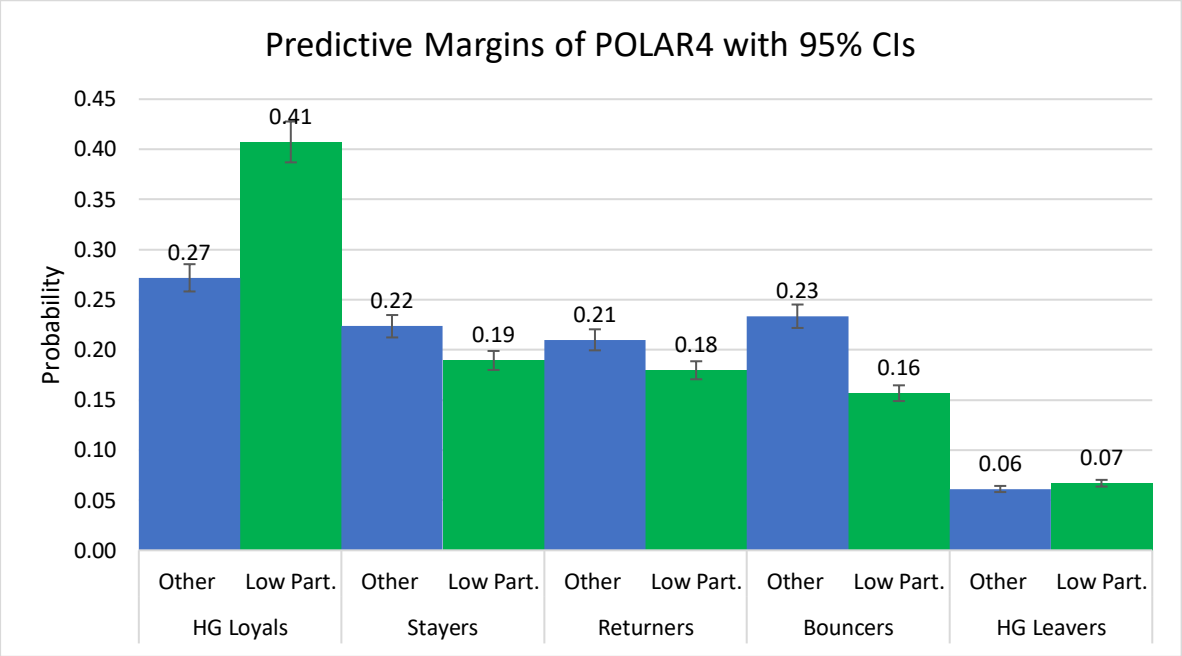
The marginal effects calculations provided a clearer picture of the role socioeconomic status plays in graduate migration, and the results of these calculations are provided in section 14.10 of the Technical Appendix. It should be noted that all results discussed here are statistically significant at the $p < 0.01$ level. The results provide striking evidence that graduates from a higher socioeconomic background are the most geographically mobile group

Table 4.13 –Multinomial logistic regression results as odds ratios for probability of staying in GM with POLAR4

n.b: (base outcome = Bouncers = 1)	**RRR**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
HG_Loyals						
Low Participation neighbourhood (base = other neighbourhood = 1)	2.232576	0.2009863	8.92	0.000	1.871446	2.663392
Constant	1.164107	0.0347686	5.09	0.000	1.097919	1.234287
Stayers						
Low Participation neighbourhood (base = other neighbourhood = 1)	1.262239	0.1293396	2.27	0.023	1.032572	1.542989
Constant	0.9572937	0.0299848	-1.39	0.163	0.9002921	1.017904
Returners						
Low Participation neighbourhood (base = other neighbourhood = 1)	1.274235	0.1322215	2.34	0.020	1.039739	1.561618
Constant	0.8992322	0.028627	-3.34	0.001	0.8448389	0.9571276
HG_Leavers						
Low Participation neighbourhood (base = other neighbourhood = 1)	1.630113	0.2288832	3.48	0.001	1.237944	2.146517
Constant	0.2619962	0.0125959	-27.86	0.000	0.2384362	0.2878841
Number of observations = 10,150						
LR $\chi 2$ (4) = 104.64						
Prob>$\chi 2$ =0.0000						
Log likelihood = -15420.294						
Pseudo R2= 0.0034						

The results indicate that home-grown graduates (the least mobile group) are much more likely to come from a low participation background. Conversely, for non-local students from a low participation background are also more likely to return to their parental domicile after university (returners) and are less likely to be retained in Greater Manchester (stayers) or move elsewhere in the UK other than their parental home domicile (bouncers). Otherwise, the students from a low participation (0.07) and other background (0.06) are even.

Figure 4.15 – Predictive margins of migration pathways according to POLAR4 marker



4.6 Conclusion

Using logistic regression, interactions terms, and marginal predictions have provided sound statistical evidence for the role of geography and HEIs in graduate mobility, as well as the nuanced and complex interaction of gender, ethnicity, socioeconomic status, and other factors in the process of graduate retention and onward migration. The results of the BLR demonstrate that those who stay are more likely to be from Greater Manchester, white, a graduate of a modern university, and with only minor differences based on gender and employment outcomes. However, a people-based analysis using MLR of the same data reveals a different picture altogether. The people who stay in Manchester are composed of two distinct groups based on their geographic origin: home grown loyals and non-local stayers.

This analysis answers the first research question of this thesis, “who stays in GM after their undergraduate studies?” Although the strengths of these association may answer the first research question posed at the beginning of this thesis, these figures do not provide explanations as to why students make the locational decisions that they do. The next section will endeavour to provide some possible explanations for the remaining two research question, “what factors influence the retention of graduates from local universities beyond the obvious reasons of work and why?” and “how is GM viewed by students studying there and what impact do these perceptions have on decisions about where to live and work?”

Hamlet: *There are more things in heaven and earth, Horatio, then are dreamt of in your philosophy…*

William Shakespeare, *Hamlet*, ([1603] 1909, 1.5.167-8)

5. Phase 2 — Primary data findings

The previous regression analyses provided important context about the role of gender, socioeconomic status, ethnicity, and higher education in the attraction and retention of graduates to Greater Manchester, as well as their importance in graduate migration more broadly. It should be noted at this stage that although these quantitative results provide robust evidence on the significance of demographic characteristics and structural forces on graduate migration, it is much more difficult to draw inferences about the reasons for graduate locational choice. In this stage, we are moving from the *outer world* of counting flows to *the inner lives* of students to uncover their attitudes toward mobility, perceptions of place, and subjective meanings. If we cast our mind back to the two conceptual frameworks guiding this study, we are also probing the individual *reasons* that underpin the observed aggregate *patterns*.

Recall that this thesis uses what Creswell and Clark (2007) refer to as an 'explanatory design', which means that the qualitative data helps to *explain* some of the finds emerging from quantitative survey results. Therefore, the narrative data can be correctly described as providing a supporting function to the quantitative data. This characterisation may make it seem as though the interview data is secondary to the survey data, but the phenomenological approach that guided the conduct of the interviews and the analysis of the narrative data does allow for themes to emerge independently of the survey. However, because two types of data are presented here as is expected with a mixed method work, there are fewer extracts provided than one might expect to see in a mono-method qualitative thesis. Following examples set by other mixed methods studies (e.g., Clifton, 2008; Crescenzi et al., 2016), the results of the primary data will be organised thematically, with the findings from the two types of data – survey and narrative - being interwoven in the discussion. This chapter will be organised according to the following themes: mobility attitudes, attitudes toward employment, communities, and social concerns, and, finally, perceptions of Greater Manchester.

The overall population for primary data sample is 204, and survey respondents are allocated into 'prospective' migration pathways based on where the students intend to reside after leaving university (e.g., 'prospective stayers' or 'prospective HG loyals'). As outlined in the methods chapter, the survey responses will also be analysed to determine if there are significant differences between prospective stayers and prospective leavers, as well as any variance amongst the five prospective pathways. Mann-Whitney (MW) tests will be used to determine if differences exist for prospective stayers or leavers, and Kruskal–Wallis (KW) tests will be used to determine if differences exist for the prospective migration pathways. The number of HG Leavers (5) and bouncers (9) prompt legitimate questions about whether using statistical tests is possible or even desirable. As with all MW and KW tests with small sample sizes, Type I error (i.e., 'false positives') is not a concern since even sample sizes of 5 or 9 are adequate statistically, but Type II error (i.e., 'false negatives') is a possibility. We can conclude that these MW and KW test results should be viewed as partial due to small sample sizes, but any statistically significant differences between groups can be seen as important findings for this study. As to whether testing is desirable, the attitude taken in this analysis is that if there are statistically significant differences in attitudes and tastes between prospective stayers/leavers or the mobility pathways, then it is worthwhile to identify and discuss those differences. The full results for the MW and KW tests can be found in Appendix 10, sections 10.3, 10.4, and 10.5.

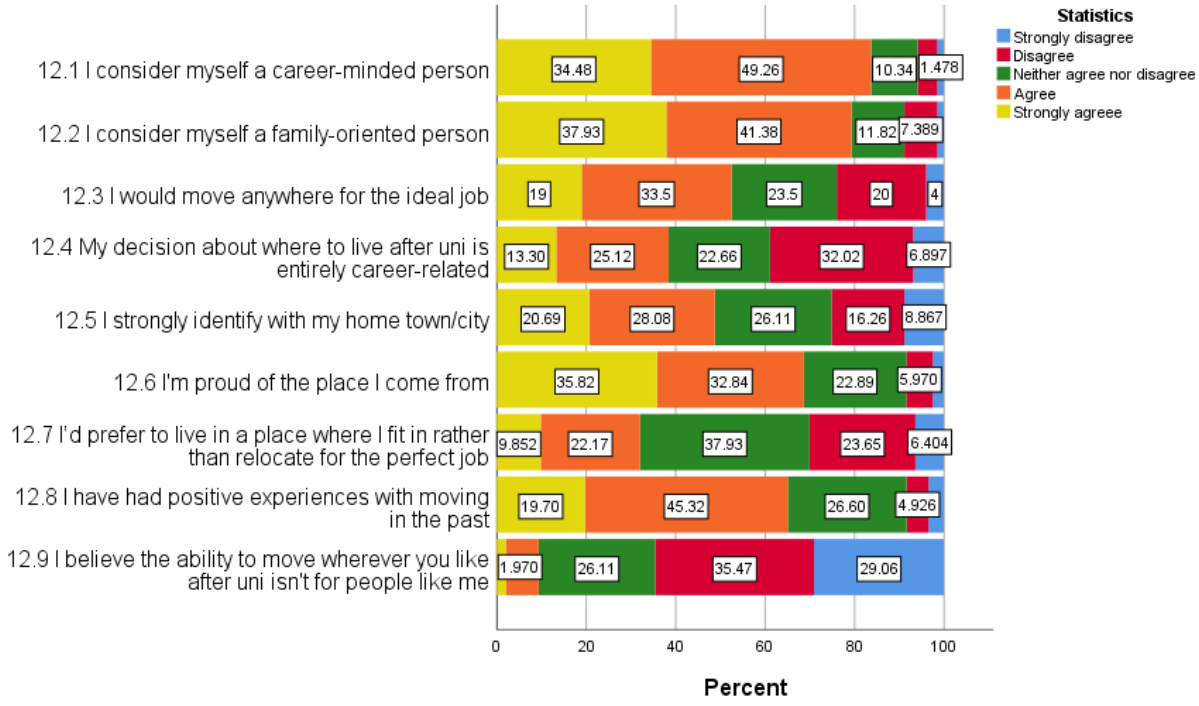
These findings include narrative extracts from the participants listed in Table 3.2, and the extracts used in this chapter were chosen primarily because of their ability to clearly and eloquently represent themes that reoccur throughout the other interviews. This is in line with Braun and Clarke's (2006) recommendations criteria associated with good thematic analysis, specifically selecting extracts that are good at illustrating the analytic claims and have an ability to tell a compelling story.

5.1 Mobility attitudes

The central tenet of Human Capital Theory – that people move for employment – has long been the taken-for-granted explanation for the attraction and retention of graduates and others to cities. Increasingly, this explanation has been problematised by the 'jobs versus amenities' debate (Florida, 2014; Partridge, 2010; Storper, 2013), and it is unlikely that this debate will ever result in a definitive answer (Faggian et al., 2018). As scholars interested in the attraction and retention of graduates to cities, we need to come to terms with multiple – and sometimes competing - explanations and different ways of knowing the phenomenon of graduate migration. In other words, it may no longer be a question of jobs *versus* amenities, but rather, a question of jobs *and* amenities. To this binary can be added idiosyncratic tastes for various markers of place quality, subjective needs of individuals, as well as constraints related to social structures and power hierarchies.

The first section of the survey questionnaire seeks to understand general attitudes toward mobility by asking questions derived from the diverse body of literature reviewed in this thesis. Attitudes to mobility were assessed using nine Likert-type items, where respondents were asked to what extent do they agree with the statements, where 1 means they 'strongly disagree', 5 means they 'strongly agree', and 3 is the middle position of 'neither agree nor disagree'. The frequency of responses to each question is presented in Figure 5.1 as percentages.

Figure 5.1 - Mobility attitudes as percentages



We will first discuss the employment-related results before moving on to the other findings related to identity, place, family, and access to a mobile lifestyle. For purposes of exploring attitudes related to employment, the most relevant questions are 12.3 ('I would move anywhere for the ideal job') and 12.4 ('My decision to live after uni is entirely career-related). These two questions are also related to this thesis's second research question related to the drivers of graduate migration beyond the obvious reason of employment. 52.5 per cent of respondents agreed or strongly agreed that they would move anywhere for the ideal job. Yet, only 38.6 per cent of respondents agreed or strongly agreed that their decision about where to live is entirely career related. Before these results are discussed in detail, let us briefly mention the other noteworthy findings from this section. Nearly 84 per cent of respondents consider themselves to be career-minded (Question 12.1), and over 79 per cent also consider themselves to be family-oriented. The interplay between family, careers, and mobility will be returned to frequently throughout this chapter.

Although nearly 49 per cent of students strongly identify with their hometown or city, nearly 61 per cent are proud of their place of origin. These results suggest that although half of the students express ambivalence – or even a lack of pride – toward their hometown, the majority of our students are proud of where they come from. It became apparent throughout the course of the interviews that students view *where they come from* as a complex interconnection of place, family, friends, attitudes, and experiences. Also, many of the students do not necessarily view the home-to-HEI migration experience as separate and distinct from the HEI-to-work experience. Rather, when asked in the interviews about where they would like to live and work after university, students often relate their future aspirations to where they come from, as well as to their family, their university experience, and other idiosyncratic concerns. Migration (or staying put) can, therefore, be viewed as both a backwards-looking and forward-facing movement in space and time, with higher education being an important punctuation point in the journey.

To help shed light on the complexity of the phenomenon of graduate migration, we will enlist the help of our first interviewee, Harry, who is originally from a rural area outside of the cathedral city of Carlisle in Cumbria. Although Carlisle is also in the North West region of England, Harry maintains that most university-bound students from Carlisle typically go to study in the closer city of Newcastle upon Tyne. Harry is a final-year marketing student at MMU, and he plans to stay in Manchester after leaving university (i.e., a prospective stayer). When discussing his plans, Harry mentioned that he has no interest in moving to London, and when asked whether he would consider moving to London for his dream job, this was his reply:

> You can get a job anywhere, you know... But what's the point in being there if you're not happy? If you're not happy, then what's the point? There's no point…If you go to London, what's the point in just existing for this job when you get the same job in Manchester and go out, enjoy yourself, enjoy going out with people, going to do things, and being able to afford to do those things. It's a lot more important than just looking for a job…. I'll use the example if there were two jobs, exactly the same…same position, same company…same everything, but one was in Manchester, one was in London. I'd pick Manchester. Why? Living costs, primarily living costs... It doesn't sound enjoyable what everyone says about London, they…literally just exist. They don't live, they just exist…

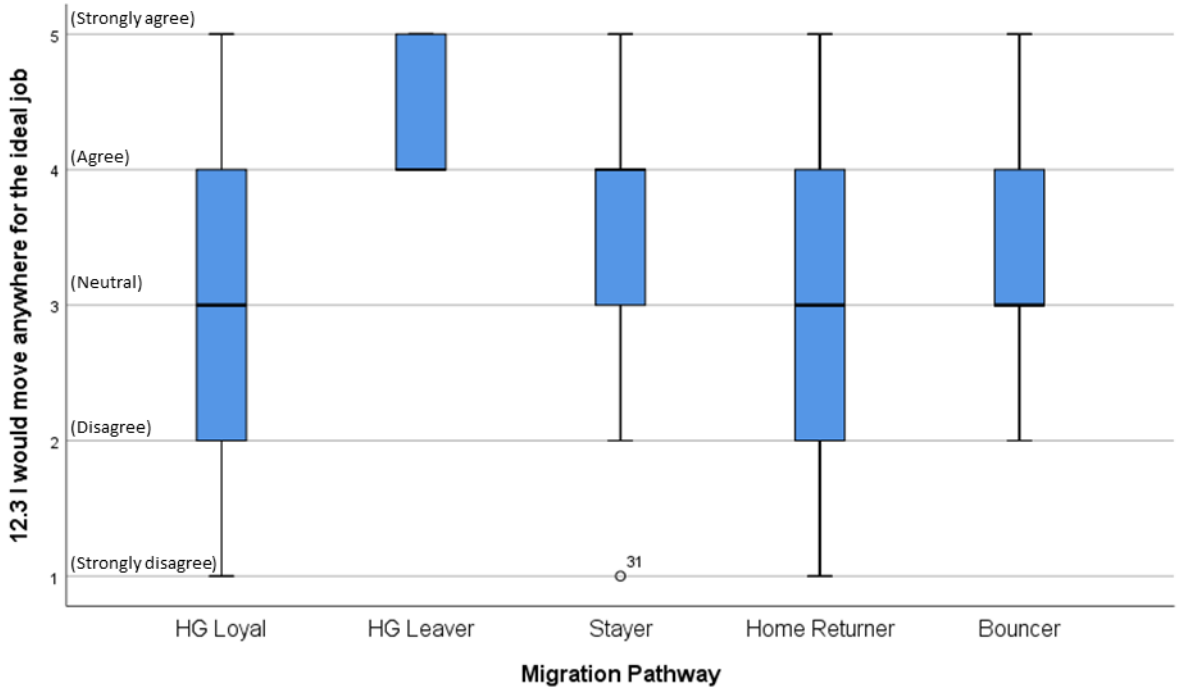
In this extract, Harry picks up on themes that recur throughout the interviews: the perceived trade-off between jobs, location, and quality of life, particularly when the students compare Manchester to London. Several of the interviewees also expressed the sentiment that 'you can get a job anywhere', which suggests that jobs may be secondary to other factors like location. For Harry, his 'happiness' – and not employment - emerges as a key reason for his decision to stay in Manchester.

Harry's explanation supports a finding that emerges when Likert item 12.3 ('I would move anywhere for the ideal job') was tested using the MW test. A statistically significant difference was found

between stayers and leavers, where the median score for prospective stayers is a neutral (3 - neither agree nor disagree), and the median score for prospective leavers is 'agree' (4)[2]. In other words, those students who agree with the statement are more likely to have plans to leave Manchester than those who are neutral on the subject. Although this finding may be intuitive (i.e., that those who are more willing to move for the ideal job are actually planning to move), this is a statistically significant finding related to mobility attitudes.

When further MW tests were conducted for this same Likert item using geographic origin, gender, social class, and ethnicity, the only additional statistically significant result was found to be the student's geographic origin, where the median score for local students was neutral and non-local students was 'agree' (3)[3]. With this additional result, there is an emerging picture that geography might play a role in respondents' attitudes toward mobility. To probe further, a KW test was conducted to determine if students in the different prospective migration pathways had differing views, and the results show that there was a statistically significant difference between the prospective migration pathway groups and the willingness to move for the ideal job. [4] The median scores are 3 (neither agree nor disagree) for HG loyals and home returners, and 4 (agree) for HG leavers, stayers, and bouncers, and this statistically significant difference has a moderate effect size. This same information is shown using a boxplot in Figure 5.2.

Figure 5.2 - Boxplot of median 'move-anywhere' scores by prospective migration pathway



[2] The Mann-Whitney Test found the difference to be statistically significant: U = 3618.5 p = 0.01. The effect size, *r*, was calculated to be 0.241, which can be interpreted as being a small effect. The results of the Mann-Whitney test are provided in Appendix 10.3.

[3] The Mann-Whitney Test found the difference to be statistically significant: U = 3885.5, p = 0.021. The effect size (*r*) was estimated to be small, 0.163., the results of which are provided in Appendix 10.4.

[4]The Kruskal-Wallis test showed the difference between groups to be statistically significant, H (4) = 14.26, p < .05. The epsilon-squared estimate of effect size of 0.107 shows this to be a moderate effect (Rea & Parker, 2014). The results of the Kruskal–Wallis H test for migration pathways, along with the corresponding median scores and effect sizes are available in Appendix 10.5.

One way to interpret these results is to say that there is a statistically significant difference in mobility attitudes between home-grown students who plan to stay and home-grown students who plan to leave since those who plan to leave GM have a more positive attitude toward moving for the ideal job. We can contextualise this quantitative finding with the words from our first home-grown student, Will, who is from Salford in Greater Manchester. Here, Will talks about his sense of local roots and pride, and, ultimately, why he plans to stay:

> I am just a little 'Manc.' And that's it really, I suppose. From here, born here, and will probably die [here]. I'm quite happy with that... I know where everything is, and I know who's who and where to go, where's good, where's bad, and I think to move somewhere else... Some people might be excited to lose all they know and start again and, you know, pick it all up as they go along and be amazed by new things, but I just quite like home comfort...I've got friends here. I know where everything is... I know all this know where to go really in Manchester, I suppose. I enjoy it and never really crossed my mind really [to leave]...

The literature uses terms like 'embeddedness', 'place attachment', the 'psychic costs' of moving, being 'stuck in place', or 'roots' to describe the various forces or emotions compelling Will to stay in Manchester. He, on the other hand, describes the stickiness of place in terms of "home comforts". Through the course of the interview, it was apparent that Will uses the informal term 'Manc' (a short form of the demonym *Mancunian*) as a positive term for expressing his local identity, much like a native of Birmingham might identify as a 'Brummie' or a Liverpudlian as a 'Scouser'. Thomas, who is a final-year psychology student at the University of Manchester, uses the similar term 'Monner' to describe those born-and-bred natives of his hometown of Droitwich Spa in Worcestershire. Much like the terms Manc, Brummie, or Scouser, Monner can have positive, negative, or neutral connotations depending upon its usage (see BBC, 2017; Urban Dictionary, 2007). Thomas has this to say about those born-and-bred locals who stay in his hometown of Droitwich:

> They're quite happy in their Monner lifestyle with their whole family living in Droitwich… and they're quite happy not wanting to see the outside world...it's often that they sort of settle down with the person they went to school with… And then they live very close to relatives, and they tend to work in like low-middle-income jobs in the local area, and they're not commuting out the area to go to work… I moved around when I was younger. You appreciate the world. You sample different people, different areas, cultures and stuff.

Although it is possible that Thomas uses the term Monner in a neutral manner, he does appear to be favouring his own experience of seeing the world over those who have more local orientations. He also is clear not to self-identify as a Monner himself. These themes of identity, belonging, and place attachment will be revisited throughout the remainder of this discussion.

The other question in this section related to employment, Question 12.4, asks respondents whether they agree with the statement 'my decision about where to live after uni is entirely career-related'. Only 38.4 per cent of respondents agreed or strongly agreed with the statement, which suggests that factors other than employment might influence locational choice. Georgina is a final-year undergraduate student at MMU who moved to Manchester from West Sussex to attend university. Since she plans to move to London after finishing her studies, we can classify her as a prospective bouncer). When asked why she wants to move to London, she recounts how the idea of living in London has been a dream of hers since childhood. Although this appears to be her primary motivation, she also mentions the importance of family, work, and how the shopping amenities compare in London (Oxford Street) versus Manchester (the Arndale shopping centre):

> I've always wanted to go to London. I think coming to Manchester might have made me want to live in Manchester and after uni, but I really just want to go to London…because I've so many ties with my friends and family, and I love it. And there's so many big companies and such loads of opportunities. So, I feel like London…this is just where I want to go....as well the

> money, the salaries, and the London lifestyle…and…to be honest, the job opportunities and the large companies out there. And also not just jobs…there's so much to do outside of your job, you know, jam-packed full of stuff that you can do on a weekend or in the evenings…… there's absolutely tons of stuff to do [in Manchester] but I don't think there's as much to do as there is in London. I don't like the [Manchester] city centre as much as I like, let's say… Oxford Street in London or any of the shopping centres in London. I don't like the Arndale as much as I like the shopping centres in London. I just don't like the city as much as I do [London]… And I feel like this city here is quite a lot dirtier and…but I do feel quite unsafe in Manchester lots of the time…

For Georgina, fulfilling a lifelong dream of living in London is a primary motivation, but like most of the interviews, it is difficult to attribute her motivation to any single causal factor. Her feelings related to personal safety are a recurring theme in the interviews, and this point will be revisited towards the end of this chapter. Many of the interviewees also discuss moving away or moving on as being part of the process of growing up and gaining independence as adults. This theme was particularly pronounced with those from small towns or conservative communities. Maya, who moved to Manchester from Nottingham in the East Midlands to study at MMU explains that going away for university is uncommon for girls from the British Pakistani community, but the experience of being away from home often offers girls a newfound sense of freedom:

> When it comes to Pakistani girls, you just stay in your house till you get married… if you were to have this conversation with a generic Pakistani girl, the standard Pakistani, they would just tell you, 'I was born here, raised here, I study here and I'm going to get a job here'…Out of the [Pakistani] girls I know, I'm the only one that is sort of doing my own thing. But most of them, the ones I've met here, they're all from Manchester, they stay here [for university], and the ones I know from home, they stayed at home... If they do move out of home, they go 'move mad'... For us, it's our first chance of freedom…they sort of do everything… the ones that moved out of home are in the mindset of 'I want to do everything'… When they… move away from home, with their parents not around... we can do whatever we want. But I'm very grateful because my mum let me do what I want. So, I don't need to do that… most of us are third generation now…it was my grandparents that came, and so my mom was born and raised here. So, she lived the hardships that she had dealing with immigrant parents and all the cultural things that are forced on her. Because she's had that experience, she doesn't want me to have that. She sort of brought me out of that situation…

Maya uses the slang term 'move mad' to describe a phenomenon – almost a rite of passage - where girls from the British Pakistani community use their first experience of living away from home as an opportunity to experiment with dating, enjoying the nightlife, and other activities associated with the 'typical' British undergraduate experience. Maya explains that these experiences often clash with the traditional expectations of females in the British Pakistani community, and they may take the form of abandoning the hijab, drinking alcohol, and experimenting with drugs. Similarly, Cara, a prospective bouncer, discusses her notion of freedom as being getting away from her small village near Derry (Londonderry) in Northern Ireland and breaking what she describes as an inter-generational cycle of sectarianism. She also compares her experiences and future aspirations with those of her more international partner, Dave:

> …growing up, I came from a very small town, small-town mindsets. So, there wasn't very much any diversity in my town… and so, a major factor of coming here was just to have my own freedom. And not sneeze and have my neighbours know, so that was a major thing. I just wanted to leave Northern Ireland, and I want to leave my town, my really small town. I wanted to come somewhere where nobody knows me, and I could be my own person... Dave doesn't have a place where he can call home, you know, because he was born and raised in Dubai…his heritage is South African, but he grew up in Dubai. Now, he's moved to England, and his

> parents have moved to England. So, Dubai is not really home neither. Yeah, neither is South Africa, neither is really England....I think for myself long term, we've talked about where I'd like to settle, where I'd like to bring up a family. And so far, I think that would be in the South of Ireland. I wouldn't do it in the North because the North is too much, you know…Protestant, Catholic… for me there's too much trouble going on.... It's passed down generation to generation, and your friends influence you what you think of other people and religion. So, I think the South would be a better option for long term settlement.

For both Maya and Cara, although university or employment may be the contexts for their moves, they both cite broader issues related to the lifecycle and subjective notions of freedom, whether it be freedom from narrow gender roles or freedom from sectarianism. The excerpt from Cara also brings into sharp relief the inherent difficulty of defining what 'home' is for students, whilst also demonstrating how conceptions of home are bound up in many different layers of identity. Cara feels estranged from Northern Ireland and hopes to build a life in another country, albeit still on the island of Ireland and within driving distance of her family. For Maya, becoming the person she wants to be – and living where she wants to live – is a multi-generational story connecting Pakistan, Nottingham, and Manchester.

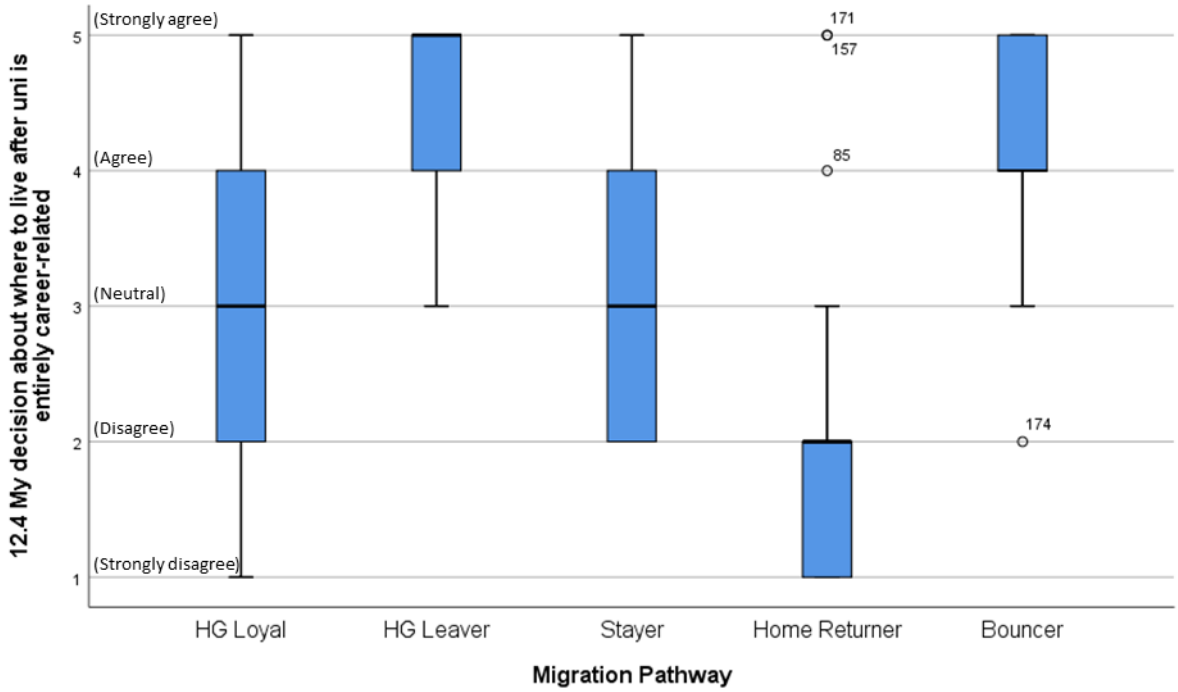
When the survey responses to Question 12.4 are analysed further to see if there was a difference between prospective stayers or leaver, no statistically significant difference was found. However, the results of a KW test show that there is a statistically significant difference between the prospective migration pathways and responses to this question, and this difference has a moderate effect size. [5] The median scores are 3 (neither agree nor disagree) for HG loyals and stayers, 5 (strongly agree) for HG leavers, 3, 2 (disagree) for home returners, and 4 (agree) for bouncers, and this information is shown graphically in Figure 5.3. This statistical test demonstrates that there is statistically significant evidence that more mobile graduates in our sample (HG leavers and bouncers) take a more 'career orientated' approach to locational choice than less mobile graduates (home returners) and those who stay Manchester (HG loyals and stayers).

To get additional insight into this phenomenon, we can turn to accounts from students who had secured or who were hoping to secure a placement on a highly coveted graduate scheme. These students mention their willingness to relocate anywhere required by the job since many of the schemes are organised on a national rather than a local or regional basis. Anne, who is a final year student at the University of Manchester from Denton in Greater Manchester (i.e., a prospective HG leaver), was in the process of interviewing for a place on a Civil Service graduate scheme at the time of our discussion. She explains that moving to any specific location is a secondary concern to the job itself, although she would prefer a city in the North of England over London:

> I was just planning on going where I felt like the job takes me really so if I got the [Civil Service] graduate job in Manchester, I'd stay here, but if they want to move me somewhere else, I'd be fine with that. I don't mind going anywhere. I prefer somewhere a bit closer. I don't want to move to London, that's too expensive, but somewhere up North where it's cheaper to live….

[5] The Kruskal-Wallis test showed the difference between groups to be statistically significant, $H(4) = 28.05$, $p < .01$. The epsilon-squared estimate of effect size of 0.206 shows this to be a moderately strong effect. See Appendix 10.5.

Figure 5.3 - Boxplot of median 'career-orientation' scores by prospective migration pathway



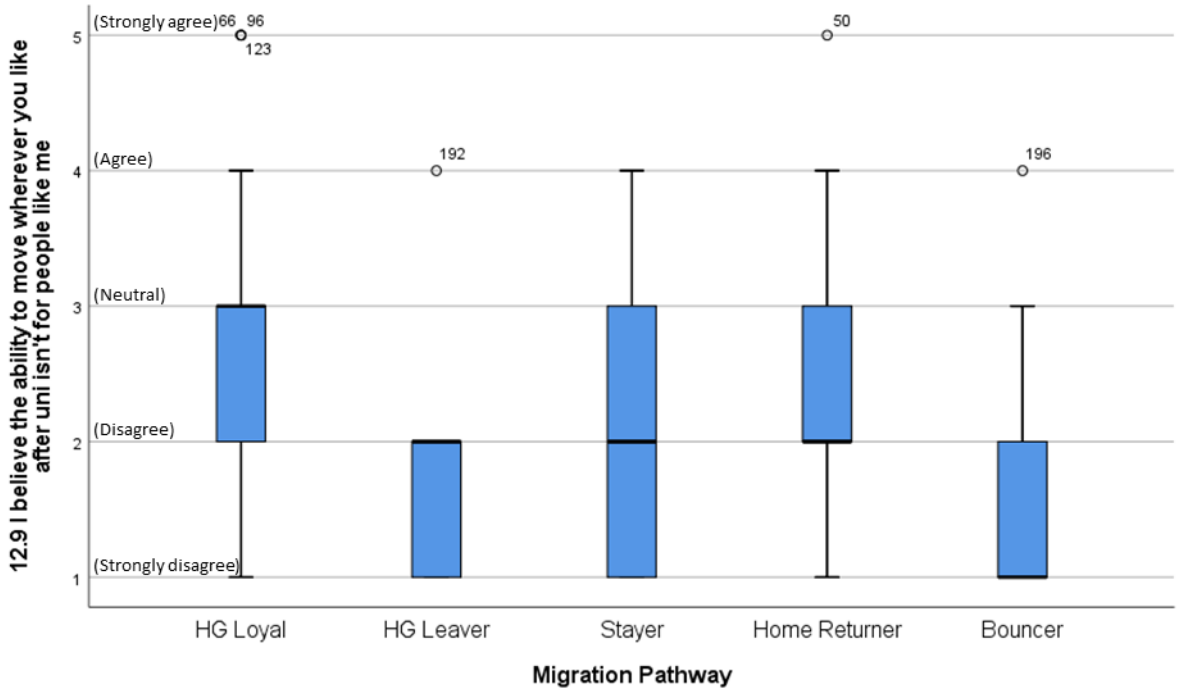
Here, Anne also alludes to themes related to the cost of living in London and the 'North/South divide' that recur throughout the interviews. The literature, particularly the mobilities literature, is very concerned about questions related to agency and structure as it relates to experiences of migration. When asked the question, "I believe the ability to move wherever you like after uni isn't for people like me", nearly two-thirds of the respondents disagreed with the statement, including nearly 30 per cent who strongly disagreed with the statement. This result suggests that most students feel they have an element of control or choice in where to live.

However, a MW test found a statistically significant difference in responses between prospective leavers and stayers.[6] When further tests were conducted, no additional statistically significant differences were found based on geographic origin, gender, social class or ethnicity. It should be stressed that because of the small sample sizes, it is possible that differences do indeed exist and would be found if a larger sample was used in the analysis. When responses to this question were analysed based on the prospective mobility pathways using the KW test, however, a statistically significant difference was found, and this difference has a moderate-sized effect.[7] The boxplot in Figure 5.4 summarises these findings using median scores: 3 (neither agree nor disagree) for HG loyals, 2 (disagree) for HG leavers, stayers, and home returners, and 1 (strongly disagree) for bouncers.

[6] The Mann-Whitney Test found the difference to be statistically significant: U = 3769.0, p = 0.01. The effect size, *r*, was calculated to be 0.234, which can be interpreted as being a small effect. See Appendix 10.3.

[7] The Kruskal-Wallis test showed the difference between groups to be statistically significant: H (4) = 14.73, p < .01. The epsilon-squared estimate of an effect size of 0.108 shows this to be a moderate-sized effect. See Appendix 10.5

Figure 5.4- Boxplot of median 'mobility ability' scores by prospective pathway



What this result demonstrates is that the most mobile group (prospective bouncers) also hold the strongest opinion that the ability to move wherever they like is for people like them. Conversely, members of the least mobile group (prospective HG loyals) are neutral as to whether migration is open to people like them. There are any number of possible explanations for why prospective HG loyals are ambivalent about their perceived access to mobility, but narrative data from three of the interviews present some possible causes. Lucy is a mature student doing a business and management course at MMU. Originally from Didsbury in Greater Manchester, Lucy explains that she plans to stay in Greater Manchester (i.e., a prospective HG loyal) partly because of personal history with insecure housing and the needs of her children:

> I've previously gone through homelessness when my daughter was born, and it sounds really horrible, but it was actually the only way for us to get out of a situation that we were in…Now we've got a social housing property. So, where we are now, the rent is sort of capped, it's manageable, but it's offered opportunities… like returning to education. It's such a big safety net, our rent, because you can take more risks...like going to university, but I think everything I need is here [in Manchester]. I'm relatively comfortable. I've got a secure home. And so that would be one of the main reasons to stay. And, also, I don't want to have to find two new schools [for the kids]…

We can contrast Lucy's experience with that of Chelsea from Portsmouth, who plans to stay in Manchester (i.e., a prospective stayer) after completing her biology degree at the University of Manchester:

> I think quite a bit of it is within my control because I have worked part-time throughout my whole degree, which meant I have managed to save up. It's not a lot, but I still have a little bit of money that means that I can pay for four months or five months' rent if I need to…I think the other thing is that I am privileged in the fact that my parents…support me both in an emotional way but in like financially as well…they've been paying my rent whilst I've been at university because…I get the minimum student loan. So, I've been very privileged that

> throughout my part-time jobs, I could save. But obviously, now that I'm leaving uni… I've said to them, I want to do this by myself. So, they do still help out, like they've given me some money for food in the summer, which means that the money that I have coming in now, again, I can use that for rent or for savings, which a lot of people can't do. So, I do definitely think that it is a privilege to be able to do that. And I'm very aware of that. But at the same time, there are other things that I have done in order to like to be able to boost myself up to make sure I can stay.

For our purpose, both Lucy and Chelsea are counted as prospective stayers, an HG loyal in the former instance and a prospective stayer in the latter. However, they are both staying on in Manchester for vastly different reasons. Lucy is staying on because she has secure housing after experiencing homelessness with her children, and Chelsea is staying on because she both wants to and has the financial resources to do so. This difference illustrates why top-line retention figures are problematic since they only measure who stays and leaves in a given area, masking a complex set of causes for retention or attrition. These figures are unable to distinguish those who experience the disadvantages of immobility (e.g., some HG Loyals like Lucy) from those who enjoy the benefits of mobility (e.g., some stayers like Chelsea).

Another possible explanation for the ambivalence to mobility recorded by HG loyals can be found in an excerpt from the interview with Will, the home-grown Salford native who was introduced previously. Will explains why he answered this question with a neutral response:

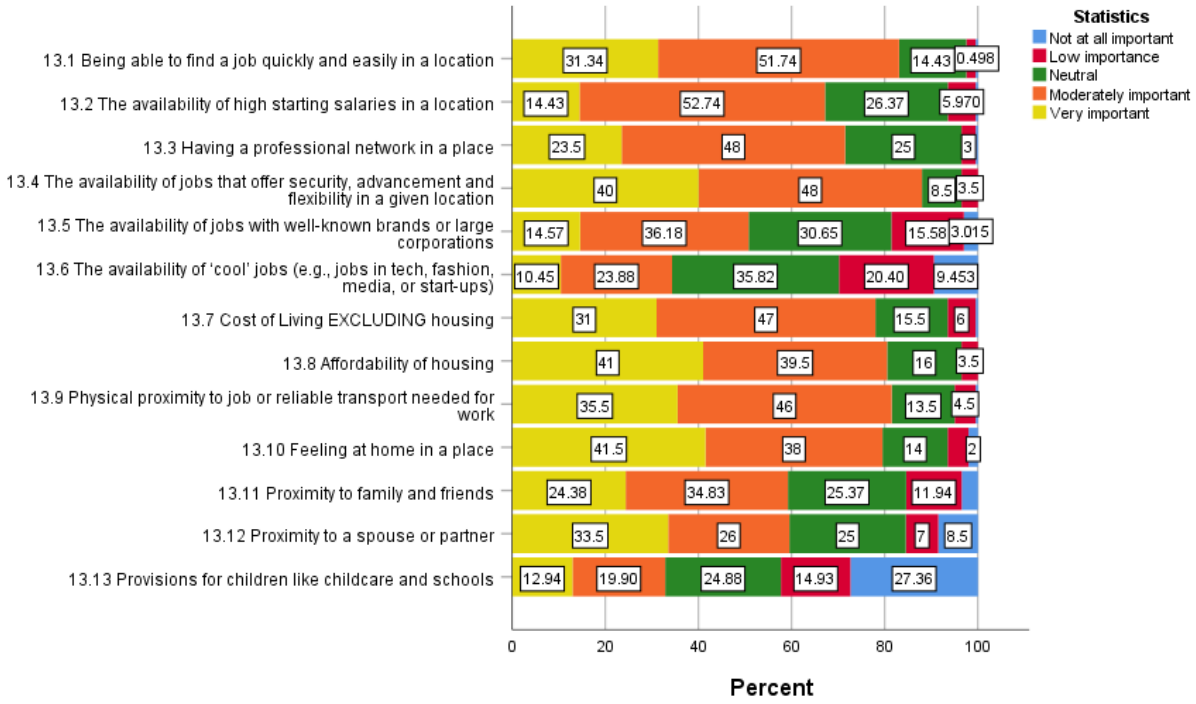
> It's not something that's really ever crossed my mind to go away from Manchester at all ever… You just sort of have it in your head where it's like, 'I'm happy at home. I have a good life here… I get on with everybody at my local pub, get on with my mum and dad'…

Will reveals a prevailing attitude of contentment and being happy with his life, whilst the previous excerpt shows that he is also proud of his city and where he comes from. Although he might be ambivalent to the statement of whether 'moving anywhere if for people like him', he is far from uncertain about what keeps him local: family, friends, and what could be described as a form of place attachment.

5.2 Careers, place and lifestyle

This section attempts to understand respondents' attitudes of many of the place quality dimensions theorised by Richard Florida by assessing the relative importance of place-based attributes related to employment, cost of living, housing affordability, and transport. The section also seeks to measure attitudes related to living near to family, friends, childcare, as well as 'feeling at home' in a place. Attitudes to these dimensions were assessed using thirteen Likert-type items, and respondents were asked to rate the importance of each item in choosing where to live after university. 1 means the item is 'not at all important', 3 is 'neutral', and 5 means the item is 'very important' in choosing where to live. The frequency of response categories as percentages is provided in Figure 5.5 below.

Figure 5.5 - Career, community, and social attitudes as percentages



When deciding about where to live, the single most important criteria is the availability of jobs that offer security, advancements, and flexibility, with 88 per cent saying this is very or moderately important. Being able to find work quickly was also rated as being moderately or very important by over 83 per cent of respondents. Having a professional network in place was moderately or very important for over 71 per cent of respondents. Less important, however, is high starting salaries, with only 67 per cent of respondents rating this as moderately or very important. In fact, only slightly more than 14 per cent rated high starting-salaries as being very important in deciding where to live. Even less important than starting salaries, however, is the availability of jobs with big brands, with only 50.8 per cent viewing this to be important or very important. Jobs in 'cool' sectors like tech or start-ups were the least important factor for respondents, with only 34.3 per cent rating cool jobs as being important or very important. Hanna, who is a 'prospective stayer' from outside of Leeds in West Yorkshire, touches on some of these themes:

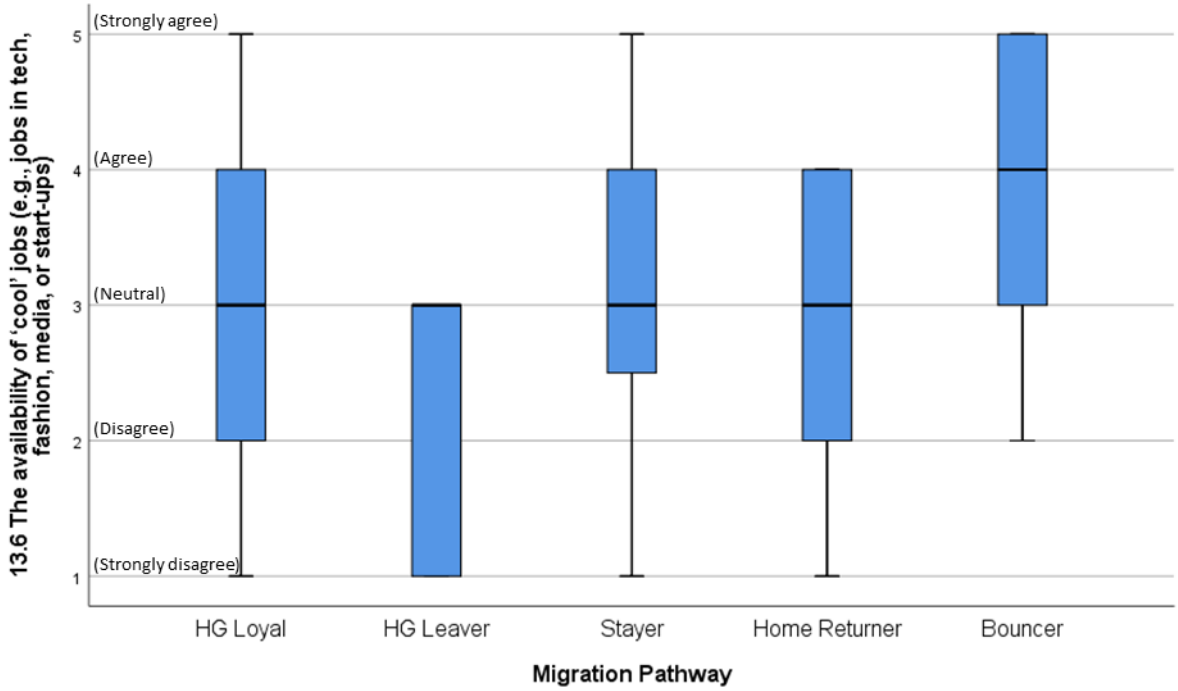
> A lot of companies in Manchester… do take on postgrad students, undergrad students, and I think it's really student-oriented in terms of career progression as well. Whereas you don't really get that anywhere else. They want someone who's already been there, done that, who've got like ten years' experience in that field. I feel like with Manchester, you do get the opportunity to [say] 'I'm a student. I need the experience. Can you please give me a job?'… cool companies, I feel like that's not too important. It's just getting that experience first and…seeing where it's at… I'm not too bothered if it's not like a trendy company or anything.

Hanna is describing what is in her view is a unique employment ecosystem in Greater Manchester, one which caters to recent graduates. It may not be coincidental that this graduate-centric ecosystem has developed in Greater Manchester since it is one of the largest student centres in the UK, as well as Europe more broadly.

Although there is not a statistically significant difference in scores related to the 'availability of 'cool' jobs' between stayers and leavers, there is a statistically significant difference for the five different

migration pathways, and this difference has a medium-sized effect.[8] Bouncers have a median score of 4 (moderately important), whilst all other groups have a median score of 3 (neutral). The boxplot of the results by migration pathways (Figure 5.6) helps to illustrate these differences.

Figure 5.6 - Boxplot of 'cool jobs' median scores by prospective migration pathways



The results of the KW test suggest that prospective bouncers view 'cool' jobs as being more important than the other pathways, which might indicate that they are leaving because of a perception that these jobs are not available in Manchester. In a previous quote, London-bound bouncer Georgina mentions that she is partly attracted to London because of the "job opportunities and the large companies out there".

Housing, cost of living, and transport are also significant factors for most students. Over 81 per cent of respondents rated proximity to reliable transport as being moderately or very important, and over 80 per cent rated cost of housing to be moderately or very important. Additionally, 78 per cent of respondents rated cost of living factors (other than housing) as moderately or very important. Other attributes were rated as being even less important, including living in proximity to a spouse or a partner (59.5 per cent), proximity to family and friends (59.2 per cent), and childcare provisions (32.8 per cent). It is interesting that over 83 per cent of respondents previously agreed or strongly agreed that they are family orientated, but only 59 per cent see living near to family and friends as being moderately or very important. This difference suggests that proximity to family may be distinct from being family orientated for some respondents.

Finally, 'feeling at home in a place' is rated as being moderately important or very important by nearly 80 per cent of respondents. As the literature demonstrates, 'belonging' or 'feeling at home' in a place are contested and fluid concepts. The interviews suggest that these are mostly subjective experiences that combine many of the place quality attributes from the Florida thesis with what the interviewees describe as indeterminate 'gut feelings'. Many of the students from BAME backgrounds related the concept of belonging to subjective perceptions of diversity and tolerance in a given place. Hanna

[8] The results of a Kruskal-Wallis test show that there was a significant effect of migration pathways on the 'cool jobs' median score, H (4) = 11.58, $p < .05$. The epsilon-squared estimate of effect size of 0.085 shows this to be a moderate effect. See Appendix 10.5

describes her experience of attending university open days in what she describes as the less ethnically diverse Northern cities of Hull and York:

> I feel like Manchester's really diverse…and diversity is really important, especially being someone of colour...But I feel like although England is super inclusive, but you always get that thing...people are always going to look at you different no matter where you are…I went to visit York… and I didn't feel at home at York like I did in Leeds. Leeds is so diverse. Lots of different kinds of faces everywhere. But when I went to York, and I visited Hull University as well, and it was a predominantly white area, and you do get funny looks sometimes, and it does make you feel like you don't belong… well, I've lived here all my life. I was born here. But I do like the fact that it [Manchester] is super diverse here.

For Hanna, 'belonging' also means not being subjected to "funny looks" because of her ethnicity, but the visible diversity of places like Leeds and Manchester does make her feel like she does, in fact, belong. Chelsea describes belonging to a "gut feeling", but we can interpret this gut feeling as an aesthetic judgement based on interconnected and overlapping features, attitudes, and perceptions that ultimately draws her to Manchester:

> It was just the gut feeling, which I think like I can't necessarily put down to one thing or another. But then there were other factors that played into it…I liked the accommodation. I liked how friendly the people are. I liked how well connected it is in the sense that there's a lot of opportunities…There's a lot of large businesses…and the charity sector, there's a lot of their headquarters here…I liked that it is a big city, but you could easily get out of the city…I very much like being outdoors…I'd made the decision to stay in Manchester before I met my partner, so that's kind of secondary...I think you can kind of get a job anywhere at the end of the day. I think it's mainly like, just like the feeling of Manchester as a whole, like, I don't know if it's like a community thing…I think you just know when something's right.

Many of the interviewees describe the perception of place and judgements of taste in terms that are similar to the 'Goldilocks principle' (Capps, 2020) that has been observed in a wide range of contexts, including the cognitive sciences and economics. Like the eponymous character's preference for porridge that is neither too hot nor too cold, our students' preferences for places are based on subjective conceptions of "just the right amount" of amenities, features, feelings, people, etc. that a place offers. For Chelsea, her *desire* to stay on in Manchester is also distinct from her *ability* to stay, and the latter is partly underwritten by the proverbial 'bank of mum and dad' that she described previously. Harry from Carlisle, whom we met at the beginning of this chapter, views belonging somewhere as a process of developing a connection with a place:

> I feel that belonging comes out of many things, that many things factor into feeling like you belong somewhere, like, if you get on with the place. I suppose if like sort of the way you think, I think quite a lot of the time, Manchester is such a really forward-thinking city… Everything's acceptable here, you know, no one's ever going to say 'no, that's not right. You can't think like that.' And I feel like if you have that mentality, then automatically… you connect with something, and if you connect with something, then you belong. You have something. It's a process, I'd say, but it's important. It takes time to develop that, I think.

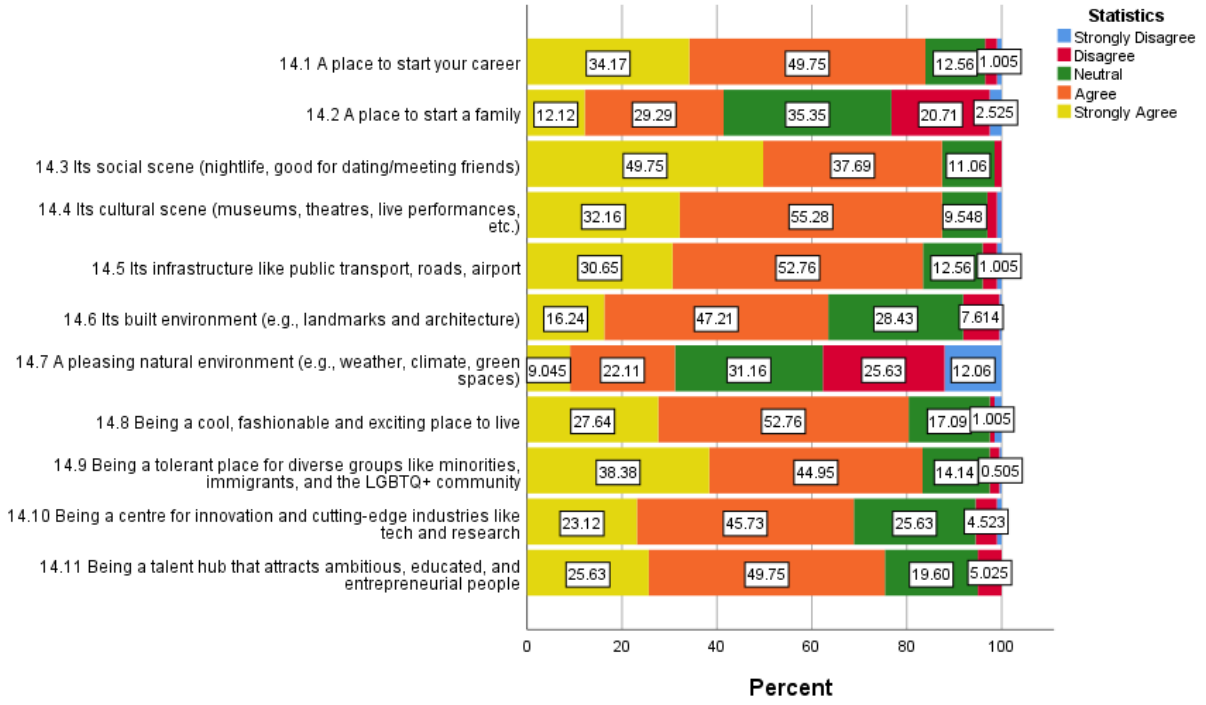
Although the perspectives provided by the students demonstrate that perception of place is ultimately complex and multi-faceted, perception of place is also irreducibly subjective. These findings also show that most of the dimensions of place quality listed in this section are important to students in aggregate, but the picture at the individual level is nuanced.

5.5. Perceptions of Greater Manchester

This section includes responses to two different questions. First, students were asked to rate Greater Manchester's reputation for various dimensions of place quality. Secondly, they were asked how important these dimensions are in their plans about where to live and work. Likert-items for both were informed by Florida's (2014) 'place quality' markers and subsequent development on the thesis by Esmaeilpoorarabi et al. (2016), Insch and Sun (2013), and Wesselmann (2018).

The first set of results can be thought of as 'satisfaction scores' for Greater Manchester (Figure 5.7), where a score of 1 means respondents strongly disagree that Manchester has a good reputation for the place quality dimension, and 5 means they strongly agree that Manchester has a good reputation for the place quality dimension.

Figure 5.7 – Greater Manchester 'satisfaction scores' as percentages



Overall, over 60 per cent of respondents agreed or strongly agreed that Greater Manchester has a good reputation for nine of the eleven dimensions of place quality that were used in this survey, which is a positive picture for any city. Tellingly, over 80 per cent of respondents either agreed or strongly agreed that Greater Manchester has a good reputation for its social scene (87.4 per cent), its cultural scene (87.4 per cent), as being a good place to start a career (83.9 per cent), being a tolerance place (83.3 per cent), the quality of its infrastructure (82.4), and being 'cool and fashionable' (80.4 per cent). Other highly ranked items include its reputation for attracting educated and ambitious people (73.4 per cent), being a centre for innovation (68.8 per cent), and the quality of its built environment (63.4 per cent). The evaluation of responses based on migration pathways uncovered two statistically significant results. The first is related to Greater Manchester's reputation for being a good place to

start one's career[9], and the second is related to the quality of its infrastructure (e.g., public transport, roads, airport). [10]

There are two areas, however, where there is evidence that Manchester does not enjoy a good reputation. Only 41.4 per cent of respondents agreed that Greater Manchester is a good place to start a family, and even fewer (31.2 per cent) agree that it has a pleasing natural environment. Before the positively and negatively viewed attributes will be discussed in detail, we can turn our attention to how these perceptions of place influence decisions about staying or leaving the local area after the conclusion of their studies.

If the scores in the preceding section can be described as 'satisfaction scores' for Greater Manchester, then the scores in this section can be thought of as place-based 'importance scores' for decision making. The results are summarised in the below bar charts (Figure 5.8). What is noticeable about the importance scores when compared to the satisfaction scores is that the importance scores have fewer high-ranking dimensions. The highest-ranking dimensions are Manchester's reputation as a good place to start a career, with nearly 85 per cent of respondents saying that this was moderately or very important in their decision making. The second-highest ranked dimension is the city-region's infrastructure, with nearly 79 per cent saying this was moderately or very important in their decision making.

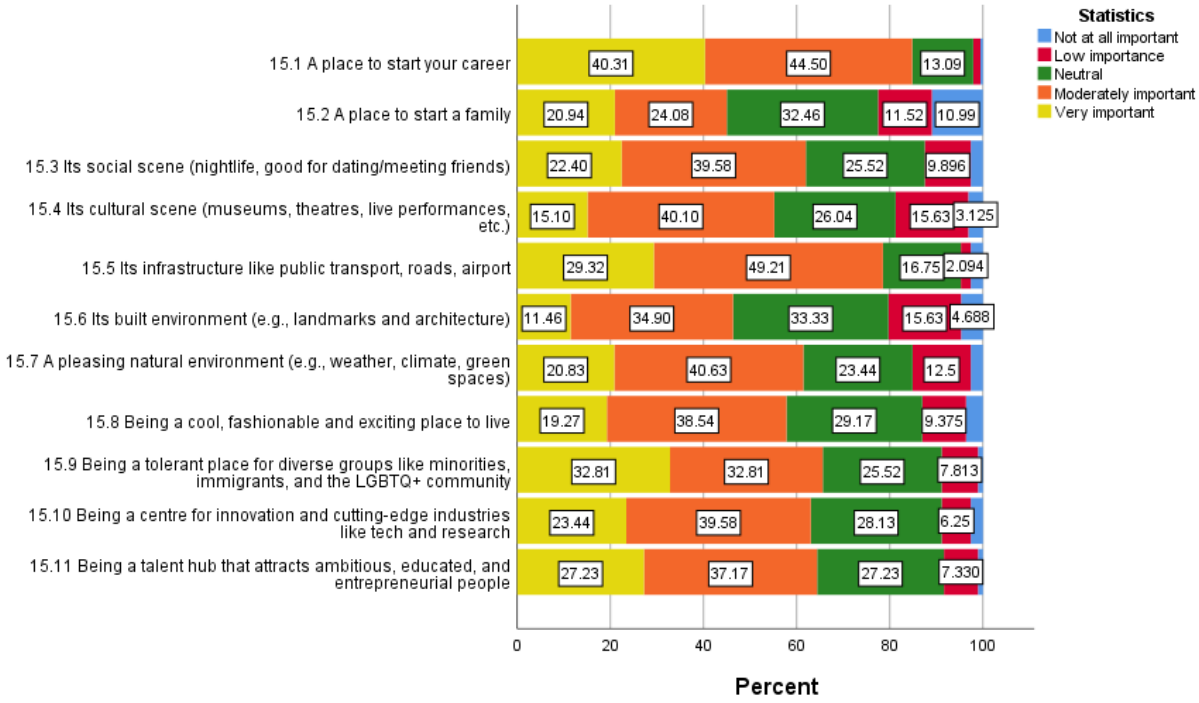
Otherwise, when moderately and very important scores were combined, the remaining ranked in descending order of importance are tolerance (65.6 per cent), being a talent hub, (64.4 per cent), being a centre for innovation (63.0 per cent), the social scene (62.0), the natural environment (61.5 per cent), being a cool and fashionable place (58.8 per cent), the cultural scene (55. 2 per cent), the built environment (46.4 per cent), and a good place to start a family (45. 0 per cent). What these results suggest is that career-related concerns are the single most important criteria for students when deciding about whether to stay or leave Greater Manchester. However, with the exception of childcare provisions and the built environment, all of the other dimensions are rated as moderately important to very important.

Although Greater Manchester has an overwhelmingly positive reputation based on the survey responses, it is clear that not everyone who studies in Manchester intends to stay on after university. Drawing upon additional narrative data can provide added context as to why some students chose to stay, and some chose to leave. One of the most consistent themes to emerge inductively from the interview data is that Manchester is seen most of the students as the urban alternative to London, what the interviewees describe as a "mini London" or the "London of the North". To help explain why Manchester is viewed as the alternative to London, we can draw on the words of our third prospective home-grown loyal, Billy from Prestwich in North Manchester.

[9] The results of a Kruskal-Wallis test show that there was a statistically significant difference between prospective migration pathways and scores for 'good place to start a career' scores, $H(4) = 10.6$ $p < 0.05$. The epsilon-squared estimate of an effect size of 0.078 shows this to be a moderate-sized effect. Although, the interpretation of this difference is that stayers strongly agree that it is (5) whilst and all others merely 'agree' that it is (4). See Appendix 10.5

[10] The results of a Kruskal-Wallis test show that there was a significant effect of migration pathways on infrastructure scores ($H(4) = 9.6$ $p < 0.05$). Stayers strongly agree that Greater Manchester has good infrastructure (5), and all others merely 'agree' that it does (4). See Appendix 10.5

Figure 5.8 – 'Importance scores' for migration decisions as percentages



Billy has been building a career as an Instagram 'influencer' while studying marketing full-time at MMU. With tens of thousands of Instagram followers, Billy reviews restaurants, bars, and nightclubs in Manchester and throughout the North of England. He describes his plans to stay in Manchester as being related to his career, the quality of life, and location-specific social capital. He also takes a 'Goldilocks' view of Manchester's competitive edge over London, where Manchester offers the right balance of amenities, accessibility, and 'scenes' that match his varied tastes. In the below excerpt, he describes the recently redeveloped Spinningfields area and the Northern Quarter known for its bohemian shops, cafes, and restaurants:

> Well, it is the one of the biggest cities, but absolutely tiny compared to London, but London is just too fucking big... in Manchester, you can walk pretty much everywhere within like forty minutes max. I just like how compact it is. It sort of hit the balance, and then it's also got all the different quarters. If I'm feeling bougie [slang for 'bourgeois'], I can go Spinningfields, and if I'm feeling edgy, I can go to Northern Quarter. Like, if I'm feeling green, I can go to Heaton Park, which is a quick Metrolink ride away…It has the fastest-growing restaurant market in the country… And it's just the fact that almost like every week it feels like there's another festival happening somewhere in Manchester…you've obviously got all like the big ones like Park Life and Pride and things like that. Then you've also got like, I don't know how to describe it, but it just feels like every Saturday or Sunday if I walk in a different part of town, there'll be like a march, like a positive thing, not like a protest, but just like 'we're from Ireland, and it's Happy Irish Day' or whatever…

Aside from enjoying the quality of life, Billy also mentions that the success of his Instagram presence is dependent on knowing the right people and getting on the right PR lists, which he ultimately sees as a function of being emplaced in Manchester:

> …with an Instagram based on food and drinks in Manchester… it quickly became apparent to me that I can't leave this city now. Like, I'm trapped for the rest of my life here because…marketing is all about who you know, and getting the right contacts… And if I was to leave, I'd have to start a contact list over again. I've been really fortunate with the people

> that I've met so early on. I've got onto a fair few PR list which has gotten me to like know people that I know for a fact no one else on my uni course could meet within the next 3-4 years. I landed myself a job at a local food and drinks magazine that is very well aligned to what I was doing already on Instagram, but... it's just the sort of the thing where If I was to leave, I'd be taking so many steps back that it would just mean that I'd have to have an amazing opportunity to take me away…

It should be noted that from the tone of Billy's voice and the general light-hearted conduct of this interview, he intended the statement of being "trapped" in Manchester to be taken in a tongue-in-cheek manner. When it comes to Manchester's reputation, Maya, who originally comes from Nottingham in the East Midlands, has this to say:

> If you go on social media…people will compare the best places to live. People from London really love to talk about being from London., and then they sort of like talk bad about everywhere else. People from Manchester…are the only people that get away with not being talked bad about…if you're from Birmingham, everyone's slates [insults] it... So, you don't want to be from there. And then the Midlands, everyone just sort of ignores it…Manchester is the only place that doesn't get slated [insulted]…So, it is considered cool…it literally is like a mini London…It's like London in the North, but just better because London's just too expensive...a lot of people just don't see any point going to London anymore…where for my older siblings, everyone wanted to go to London. Like it used to be like the big thing with people…but now everyone is going North because it's just cheaper…I think Manchester is popular for where I am in the [East] Midlands. I would say for the West Midlands…everyone goes to Birmingham… but for like the majority of the people from the East Midlands and a lot of people from London, they come here…The nightlife's good. It's cheaper than living in London or Birmingham. And I guess it's big without being like too big.

Both Maya and Billy demonstrate the Goldilocks principle in action, where Manchester "hit the balance" for Billy, and for Maya the city is "big without being too big". For many of the interviewees, Manchester offers an urban experience that is comparable to London in terms of amenities, 'cool factor', and nightlife, but it is viewed as being more affordable and on a smaller scale.

The only result in this section where there is a statistically significant difference in attitudes between stayers and leavers is related to whether Greater Manchester is a good place to start a family, with stayers agreeing that it is a good place (4) and leavers being neutral (3) on the statement.[11] When further tests were conducted for this same item using geographic origin, gender, social class and ethnicity (see Appendix 10.4), two additional statistically significant results emerged.

It was found that local students have a more positive attitude (4, agree) than non-local students (3, neutral) that Manchester is a good place to start a family, and the difference is statistically significant[12]. In fact, the effect size for this difference is the largest detected between stayers and leavers. Secondly, the results show that the difference in median scores for white students (3 - neutral) is lower than students from a non-white background (4 - agree), and the difference is also statistically significant.[13] The findings suggest that non-local and white students view Greater Manchester as a less suitable for raising a family than their local and non-white counterparts, and these differences are statistically significant.

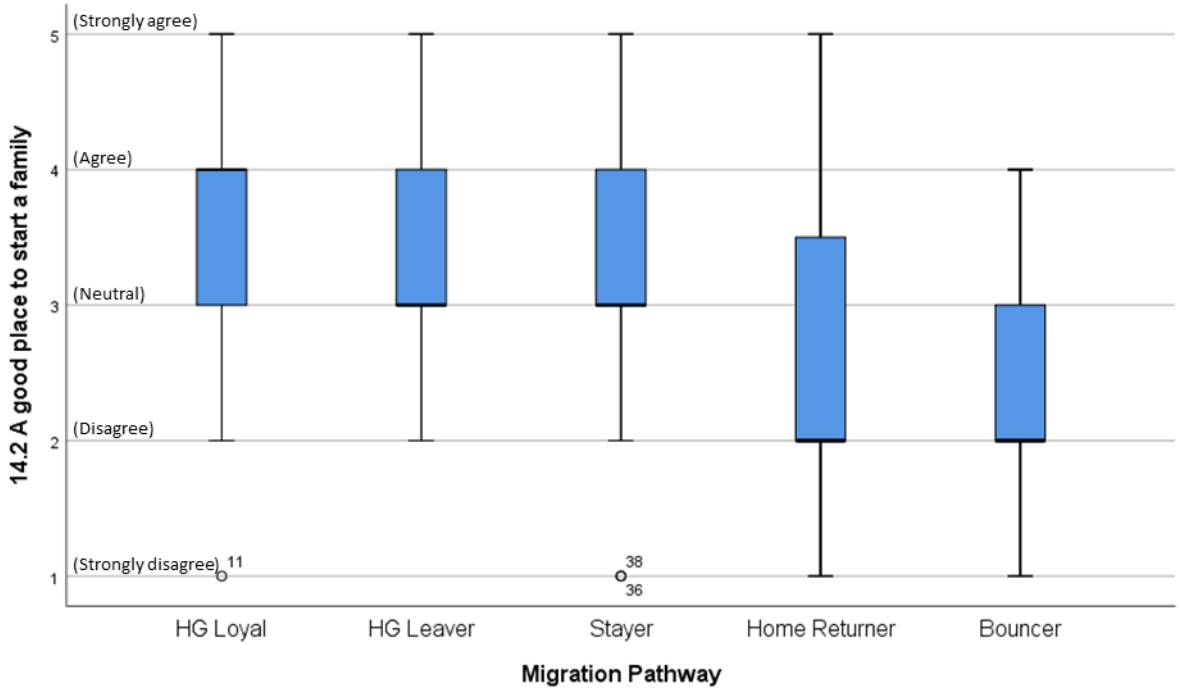
[11] The Mann-Whitney Test found this difference to be statistically significant: $U = 3214.5$, $p < 0.01$. The effect size, *r*, was calculated to be 0.304 which can be interpreted as being a medium-sized effect. This is the largest effect size to emerge from Mann-Whitney tests of stayers and leavers.

[12] $U = 3543.5$, $p = 0.002$. The effect size of this result is small, $r = 0.220$.

[13] $U = 2895$, $p = 0.002$. The effect size of this result is small, $r = 0.219$.

Since geographic origin also returned statistically significant results, it is expected that prospective migration pathways will also show variance for this item. The results of KW test show that there is a statistically significant difference in attitudes of whether the city is a suitable place to raise a family based on prospective migration pathways, and this is a moderate-sized effect (Figure 5.9). [14] Unsurprisingly, HG loyals (i.e., locals who plan to stay local) have the most favourable attitudes of Greater Manchester (4 - agree), with both HG leavers and stayers neutral (3), and home returners and bouncers disagreeing that Greater Manchester is a good place to start a family (2 - disagree).

Figure 5.9 – Boxplot of median 'good place to start a family' scores by prospective migration pathway



To better understand these differences, we can rely on accounts from a home-grown student and a non-local student. Georgina, who is non-local and who is planning to move to London (i.e., a prospective bouncer), explains why she thinks Manchester is not necessarily a good place to raise a family, particularly given her experience of living Fallowfield neighbourhood that is a popular residential area with students:

> The homelessness is so bad in Manchester, and that does put me on edge slightly. The amount of shouting and screaming and fights that you see in the city centre and the obscene amount of terrorist attacks. There was a stabbing the other day; there was a stabbing on a bus as well that didn't get in the news very much. The terrorist attacks and stuff like that, and don't get me wrong. I know that happened in London. And violence happens in London, but I just felt like it's so much worse up here…I lived in Fallowfield last year, and everyone was getting robbed. Everyone was getting stabbed in Fallowfield. People getting jumped all the time.

[14] The results of a Kruskal-Wallis test show that there was a significant effect of migration pathways on 'good place to start a family' scores ($H(4) = 11.5$, $p < .05$). The epsilon-squared estimate of an effect size of 0.085 shows this to be a moderate-sized effect, which is also an important result.

> People getting mugged all the time. Everyone's houses were being broken into… That also made me have this view of Manchester that is just so unsafe.

Homelessness, crime, and terrorism were mentioned by a majority of respondents as some of the downsides of Manchester life, but many of the students also mentioned that these are facets of urban living in general. Anne Stubbs, a home-grown local, had this to say on the subject:

> There is a big problem of homelessness in Manchester... So, I feel like if you're new to the city, that might be a bit daunting. I'm used to it because I've always lived here. And there is a lot of knife crime as well, but I imagine there's knife crime in London... It doesn't really bother me... I've never been attacked or anything, so it probably would bother me if I was, and then I probably would want to live somewhere a bit more peaceful.

Although some people may understandably want to leave a city because of crime or terrorism as Anne says, but some of our interviewees describe the local tragedies as formative moments in their personal identity and their identification with Manchester the place. The terrorist attack on the 22nd of May 2017 that killed 23 and wounded hundreds at an Ariana Grande concert at the Manchester Arena still looms large in the public consciousness, particularly for young people who were the target of the attack. At the time of these interviews in 2019-2020, the attack was still current in the sense that the human cost was still being felt by the community, the closure and restoration of the Area was still visible, and Ariana Grande's return performance at the August 2019 Manchester Pride was an event of global interest. The public inquiry into the attack began on the 7th of September 2020 and is expected to last until the spring of 2021. So, in many ways, the events of May 2017 are still current events. One of the most visible symbols of remembrance and solidarity for the people of the city has become the Manchester worker bee, which has been a symbol of the city and its hard working people since the height of the Industrial Revolution in the nineteenth century. Will, our now familiar born-and-bred local from Salford, describes how the visibility of the Manchester Bee became prominent after the Area attack, "I never really noticed too much of the Manchester Bee around...but now every kind of cafe, bar, everything really is making the use of that bee symbol. So that sense of identity…I've never really noticed that until more recently."

The identity that Will speaks of can be developed over time by locals and non-locals alike, and Harry, our prospective stayer from Carlisle, mentions how the Manchester Bee has come to represent his love for the city. He explains why he decided to get a tattoo of the Manchester Bee for his twentieth birthday, thereby making his emotional attachment to the city a visible – and permanent - form of place identity:

> The bee is a symbol of Manchester…That's the reason I got it because I thought from day one…I adore Manchester so much, and I want to live here. And I've been like, well, I want to get a tattoo that means something to me…, and I love it so much here, and I decided to do it… the bee has always been the symbol [of Manchester] … It's always been there, but it's never really became the symbol of Manchester until after what happened at the Arena… everything stemmed from that one tragedy almost. It's brought the whole area, but quite a lot like whole country together... It was just so awful. But it's definitely done radical changes to Manchester… It's just feel like Manchester has always been overlooked quite a lot because it's up North… I think that was sort of a turning point where it was like, 'now you have to pay attention to Manchester because you haven't got a choice'….

Harry, who comes from a non-professional background in rural Cumbria, does not fit into a neat category like 'somehwheres' or an 'anywheres' described by Goodhart (2017), nor does fit the ideal profile of a student who 'goes away to university' described by sociologists like Christie (2007) and Holdsworth (2009). He does illustrate, however, the complexity of the phenomenon of graduate migration once you delve beneath the top-line figures and you start to consider the inner lives of the students themselves.

5.6 Conclusion

The final chapter of this thesis will attempt to synthesise and discuss the findings presented here, but a tremendous amount of data has been given about the attitudes, tastes, and subjectivities of our Greater Manchester students. Therefore, the reader may find a brief summary to be useful. We have shown that most students have positive attitudes toward mobility, but these attitudes differ according to geographic origin, tastes, lived experience, socioeconomic status, gender, and personality. We have also shown that the students in our sample generally value the attributes of place quality described by Florida (2014), and that Greater Manchester has an overwhelmingly positive reputation, with a few notable exceptions. Despite having a positive reputation for most dimensions of place quality, students make decisions to stay or leave for reasons that might include perceptions of Manchester's place quality, but there are factors of equal or greater importance at play as well. Therefore, let us conclude this chapter with a quote from Chelsea, our erstwhile prospective stayer:

> … I think a lot of [my friends] are confused as to why you would want to stay in the same place you went to university… and I think a lot of people assume that you go to university and then you move home. That's just the done thing for a lot of people. And I think as well, because of where I'm from, a lot of people haven't been to Manchester. So, they think that it sounds cool and nice and like well connected. But then they also say to me, 'well, why don't you just go to London?' Because I don't like London! I'll visit London, but I don't ever want to live there. And I appreciate that everyone has different tastes…but it's just not it's not my taste…

So, we end these findings with the idea that graduate locational choice can, ultimately, be described as a matter of tastes. In doing so, we find ourselves agreeing with Stigler and Becker (1977) that *there is accounting for tastes* in places at least, that is, if you account for tastes as being subjective judgments.

…here we are, with the immensely difficult task before us of getting to know the beautiful world we live in, and ourselves; and fallible though we are we nevertheless find that our powers of understanding, surprisingly, are almost adequate for the task – more so than we ever dreamt in our wildest dreams…Thus we can learn, we can grow in knowledge, even if we can never know – that is, know for certain. Since we can learn, there is no reason for despair of reason; and since we can never know, there are no grounds here for smugness…

Karl Popper, *The Open Society and Its Enemies* (1945, p. 434)

6. Discussion

The thesis opened with the themes of outer worlds and inner lives and the divergent scholarly traditions of foxes and hedgehogs. At last, the time has come for the fox to reveal once and for all the many things that he knows about the attraction and retention of graduates to Greater Manchester. Such a discussion will be organised according to the three principle research questions that were presented at the beginning of this thesis: Who stays in Greater Manchester after their undergraduate studies? What factors influence the retention of locally produced graduates beyond the obvious reasons of work and why? How is Manchester viewed by students studying there and what impact do these perceptions have on decisions about where to live and work?

As was mentioned previously, economists often make a distinction between positive economics and normative economics, where the former is concerned with the description and explanation of social phenomena and the latter is concerned with values. Although this thesis is not a work of economics *per se*, positive and normative statements are a helpful way to think about the two types of claims that will be made in this chapter. The positive statements made about graduate retention and onward migration are based on compelling evidence from the varied sources of data used in this thesis. The normative statements made, however, will be based on values and what *ought to be done* given the demonstrable evidence provided. The positive-normative distinction in economics is ultimately derived from Hume's *is-ought* problem in moral philosophy, but the economic conception is a convenient shorthand. Although some of the values that underpin this thesis have been declared explicitly, the general line of argumentation, philosophy, and the sources used are also implicit value statements that should be carefully considered by the reader. The basic normative standard applied to the following discussion is the principle of equality that underlies a just society. Ultimately, the normative standard against which the evidence will be discussed in this chapter is the same goal of the Social Mobility Commission (2017) of "becoming a less divided society" (p. 1).

6.1 Outer worlds: modelling the attraction and retention of graduates

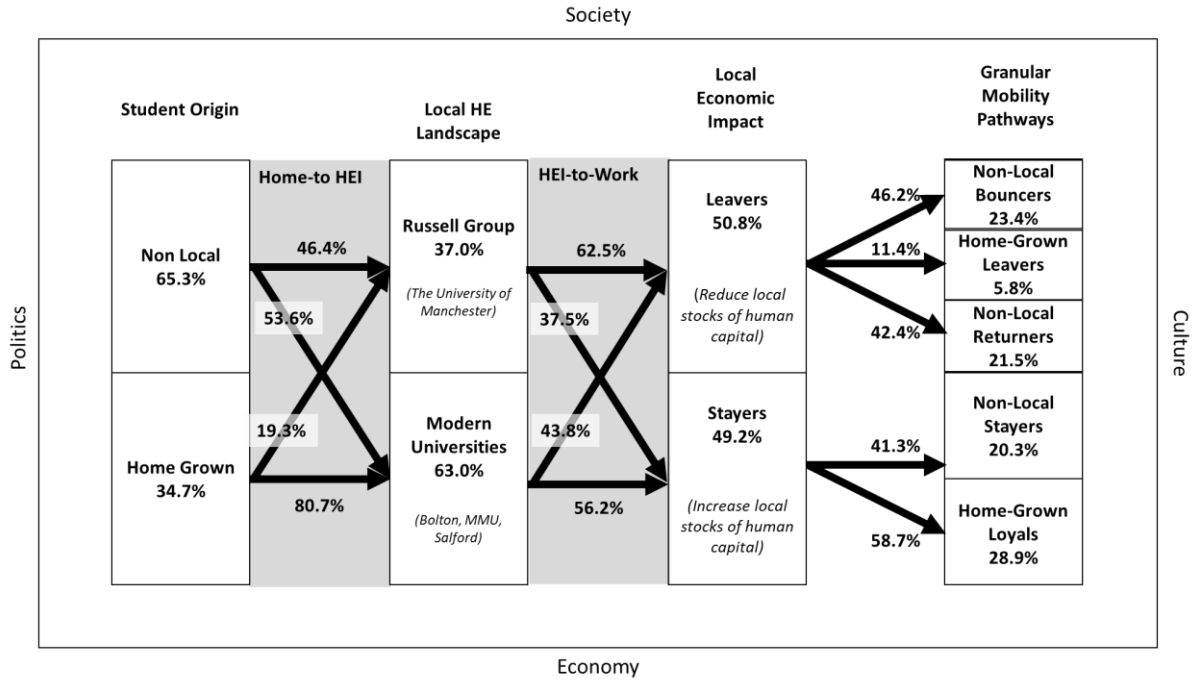
The conception of outer worlds borrowed from Isaiah Berlin corresponds to the flows of graduates from home, to university, and onto employment, which are flows that can be counted, modelled, and made into neat bar charts. This outer world principally links to the first two research questions about who stays in Greater Manchester, who leaves, and the quantitative data may allow us to speculate reasons as to why. This section will discuss some of the key attributes of stayers and leavers, and these key attributes will demonstrate that structural factors form an important part of the answers to these questions.

Figure 6.1 below represents a summary of what is now known about the outer world of graduate retention and onward migration in a Greater Manchester context. This Figure is the 'filled in' version of the first conceptual framework that was presented in Chapter 2. Nearly two-thirds of graduates

from local universities are non-local and originate outside the city region. Conversely, nearly one third are home grown, originating from the city region itself. Since nearly half of all employed graduates from local universities are working in the city-region six months after leaving university, we can say that Greater Manchester experiences net brain gain that is a function of retention of both home-grown and non-local graduates. The overall retention rate for Greater Manchester was found to be 49.2 per cent for the years 2012/13 to 2017/18, a figure which is largely in line with the rate of 51.5 per cent published by the Centre for Cities for the two-year period of 2013/14 – 2014/15 (Swinney & Williams, 2016). Recall also that Greater Manchester's retention rate is second highest in the UK, only behind Greater London's rate of over 70 per cent (ibid.), which is above the national average of 38.1 per cent (Azmat et al., 2018).

Recall from the typology developed for this thesis that stayers are composed of both home-grown loyals and non-local stayers, and our analysis demonstrates that loyals represent nearly 60 per cent of retained graduates, with stayers making up nearly 40 per cent. Graduates who left Greater Manchester after their studies make up slightly more than 50 per cent of the sample, and about one-fifth of which are home-grown leavers, with the remaining evenly spread across the non-locals who return to the home domicile (returners) and the non-locals who go elsewhere in the UK (bouncers).

Figure 6.1 - Graduate migration flows and their impact on local economic development



It has been argued in this thesis that taking a place-based approach versus a people-based approach matters, and it will now be demonstrated why it matters for answering the first research question. Recall that the binomial logistic regression (BLR) represents a place-based metric that measures the attraction and retention of graduates in reference to Greater Manchester, and the multinomial logistic regression (MLR) represents a people-based metric that views migration from the perspective of the graduate herself – from her origin, to her place of study, and on to her 'final' destination.

The results of the BLR demonstrate that those who stay are more likely to be from Greater Manchester, white, a graduate of a modern university, and with only minor differences based on gender and employment outcomes. However, the interaction terms indicate that females from a minority ethnic background are more likely to stay than white females. Conversely, the interaction

between geography and university demonstrate conclusively that home grown graduates from modern universities have a probability of over 85 per cent of staying local. With this analysis, it could be claimed that the first research question has been answered with rigorous, statistically significant, and externally valid findings. Indeed, these findings provide evidence that white students are more likely to say in Greater Manchester, which could be interpreted as novel evidence that white students are *less mobile* than those from ethnic minority backgrounds. This finding would contradict much of the literature that shows white graduates are *more mobile* than those from ethnic minority backgrounds.

However, a people-based analysis using MLR of the same data reveals a different picture altogether. The people who stay in Manchester are composed of two distinct groups based on their geographic origin: home grown loyals and non-local stayers. The largest group, the home-grown loyals, are more likely to be female, from an ethnic minority background, a low-participation background, a graduate from a modern university, working in a non-professional occupation, and in part-time work. On the other hand, non-local stayers are more likely to be white, not from a low participation background, a graduate of the University of Manchester, in professional employment, and working full time. Non-local stayers also have an equal probability of being male or female. The results of the regression analyses are externally valid with important caveats mentioned previously, which is to say that these findings can be generalised to all employed graduates of Greater Manchester's universities. It can be said with confidence that *scale matters* when analysing retention rates and taking a place-based approach of graduate retention may not give us the best understanding of the phenomenon. Therefore, it is necessary to challenge top-line retention figures – figures which cities are actively seeking to raise as a matter of policy – and seek a more granular understanding of the phenomenon. Until this change in perspective is taken, cities and regions will continue to chase higher retention figures without addressing the inequalities that may be buried within these top-line figures.

It has also been argued previously that although Greater Manchester includes pockets of what the Social Mobility Commission (Buzzeo et al., 2020; Milburn et al., 2016) refers to as "cold spots" of deprivation and lack of education provision, the patterns of inflows and outflows are not characteristic of other cold spots in England due to the high concentration of HEIs and non-local students in the local area, many of whom stay on after university as we have demonstrated. Therefore, there is agreement concur with the SMC (Milburn et al., 2016) that Manchester – like London – serves as a hub of graduate attraction and retention. Unlike the SMC, however, we have provided demonstrable evidence that Greater Manchester may act as a hub for non-local stayers, but such a characterization for home grown graduates may not be appropriate. Therefore, the 'loyals' terminology borrowed from the literature (Ball et al., 2015; Perryman et al., 2003) may be too celebratory a term, and perhaps 'home grown locals' is a more appropriate representation of this group who may not be staying local out of a sense of loyalty.

These findings will now be discussed in detail, but since this is one of the first city-based analyses of its type using HESA data, the discussion of these findings will rely on a wide body of literature that can help us make sense of these findings.

6.1.1 Geography and higher education

If universities are to the 21st century what steel mills and coal mines were to the 19th and 20th centuries as Harding and Laske (2016) claim, then the results of this study demonstrate that some of Greater Manchester's universities produce for local consumption and some produce for the export market. The place-based analysis using BLR clearly demonstrates that graduates from the 'modern' universities of Bolton, MMU, and Salford are more likely to stay than graduates from the University of Manchester.

Both the BLR and MLR results further support the findings of Mosca and Wright (2010), whose national and inter-regional analysis of HESA data found that graduates from Russell Group universities have a higher probability of migrating than those from Post-92 universities. Furthermore, Greater Manchester's modern universities perform a different role in local labour markets when compared to the city-region's only Russell Group university, the University of Manchester. Goddard and Vallance (2013) claim that the production of graduates is one of the most direct ways universities contribute to the economic development of nations, regions, and cities, but it is clear different types of universities perform different functions in the case of GM. This finding agrees with Faggian & McCann's (2008) study on graduate mobility that also used HESA data, which found that post-92 and glass plate universities have the greatest impact on local labour markets because their graduates tend to stay local. As figure 6.1 demonstrates, the modern and Russell group universities have different proportional impacts on local human capital stocks, which, in turn, has knock-on effects on local economic development based on theories of agglomeration economies (Duranton & Puga, 2004) and endogenous growth (E. Glaeser, 2000; Holland et al., 2013; Romer, 1994).

This analysis demonstrates that a student's geographic origin is the most important factor in determining whether a graduate stays or leaves the local area, but the interaction between geographic origin and higher education is even more important. The results of the BLR show that home-grown locals have nearly a substantially greater likelihood of staying in Greater Manchester than non-locals, and that there is only a small probability that locals will leave the area within 6 months of graduation. However, when interaction effects for geographic origin and HEI are factored into the BLR model, a more nuanced picture emerges where home-grown graduates from modern universities have an 85 per cent or higher probability of staying local, which is ten per cent higher than home-grown graduates from the University of Manchester. The interaction of geography and HEI suggests that the stratified higher education landscape may contribute to the social practice of mobility, and perhaps, positively impact the employment outcomes for the more mobile and negatively impacting the outcomes for the less mobile as suggested by Brooks and Waters (2018), Findlay et al. (2012), and Tindal et al. (2015).

Although the probability that home-grown graduates that range between 75 and 85 per cent seem high, we lack comparable figures from other UK cities to determine how high relative to other places. However, Donnelly and Gamsu's (2018) analysis of students entering higher education using HESA data demonstrates that a student's 'home' region is the most important factor driving (im)mobility even when social, ethnic and educational differences are held constant. Therefore, further research is needed to determine what average retention rates for locals for UK cities. This speaks to our limited understanding of graduate migration, as well as the need to better appreciate the local dimensions of the phenomenon.

6.1.2 Gender and ethnicity

The novel statistical analysis used in this thesis demonstrates that migration patterns and retention rates for Greater Manchester's graduates differ according to gender and ethnicity. When the retention of graduates is evaluated from a place-based perspective using BLR, it has been shown that both females and males have almost an equal probability of either staying or leaving Greater Manchester. However, when a people-based approach using MLR is taken using the five mobility pathways, a more nuanced picture suggests that gender does indeed play a role in the mobility of Greater Manchester's graduates. Whereas the probability for males and females are relatively equal for stayers and returners, females have a higher probability of being in the least mobile category and a lower probability of being in the most mobile category. These findings indicate that females from Greater Manchester universities are *less* mobile than males. These results on gender run counter to Faggian

et al.'s (2007) analysis of HESA data, which finds that women are consistently *more* mobile than men, as well disagreeing with similar findings from the Netherlands (V. Venhorst et al., 2011) and Italy (Coniglio & Prota, 2008). However, these findings are consistent with more recent work from Mosca and Wright's (2010) HESA analysis and Kidd et al. (2017), whose study of the impact of UK graduate mobility on earnings also relied on HESA data. This finding is also in broad agreement with the migration and mobilities literature which speaks of migration being a gendered experience (Bélanger & Silvey, 2019; W. A. V Clark & Maas, 2015; D. Massey, 2013). Reduced mobility may have long-term impacts on employment opportunities and wages for females, and there is also a moral case to be made that the differing rates of mobility based on gender and ethnicity are unacceptable in 21st century Britain. This presents an opportunity for policymakers and universities to empower female graduates to become more mobile in their aspirations.

The statistical techniques used in this study do allow for a more sophisticated analysis using interaction terms for gender and ethnicity. Existing studies on ethnicity and graduate migration using HESA data (Faggian et al., 2006; Kidd et al., 2017; Mosca & Wright, 2010) and findings from census data (Finney, 2011) are unanimous that young migrants in the UK are less mobile than their white peers. The place-based analysis of ethnicity using BLR found that graduates from a BAME background are less likely to be working in Greater Manchester after leaving university, but this finding does not tell us whether BAME graduates are more or less mobile, only that they are less likely to stay in Manchester than white graduates. However, when interaction terms are considered in the place-based analysis, Asian females have much lower incidences of mobility than Asian men as well as lower rates of mobility than their white counterparts. This finding agrees with Faggian et al.'s (2006) study using HESA data that found Asian graduates experience reduced initial mobility when compared to white graduates. This finding is also in line with those of Donnelly and Gamsu (2018), who found that students from a Bangladeshi and Pakistani background entering university are less mobile than their white peers, at least on the home-to-HEI part of the migration process. Additionally, Finney's (2011) analysis of census data shows that Pakistani and Bangladeshi young adults migrated least within Britain when compared to other groups and that Pakistani female students are less likely to migrate than their male counterparts. Additionally, the narrative data from the interviews with Pakistani female students provide evidence that broadly agrees with the findings from Bhobal (2011) that the traditional gender roles of females in Pakistani households may result in them staying in the family home rather than moving away for university, and eventually work. Like the figures related to gender, the implications are that reduced initial mobility after university might have long-term employment and wage implications for Asian females.

On the other hand, the people-based analysis using MLR found that BAME graduates have a higher chance of falling into the least-mobile category (i.e., HG loyals) and a lower chance of falling into the most mobile category (i.e., bouncers) than whites. Non-local stayers are also more likely to be white, which suggests that mobility – particularly the ability to stay on in Manchester after university – is experienced differently because of ethnicity. This helps to explain the earlier findings from the BLR results because non-local stayers are more likely to white, but home-grown loyals are more likely to come from a BAME background. Overall, these findings have practical implications in light of what recent work suggesting that reduced mobility for BAME grads impacts their future earnings potential (Kidd et al., 2017), and qualitative studies that the reduced mobility of UK ethnic minorities might have negative impact on employment outcomes (Finn & Holton, 2019; Finney, 2011). Taken together, these findings are in line with Finney's (2011) findings that our understanding of mobility needs to differentiate between the experiences of White British graduates and other ethnic groups. Like the case of relative female immobility, the relative immobility of BAME graduates presents an opportunity for institutions – universities, employers, and government – to empower the mobile aspirations of BAME students and graduates.

6.1.3 Socioeconomic status

The results of the regression analyses provide strong evidence that mobility rates differ according to socioeconomic status, specifically where being from a disadvantaged background is a strong predictor of both staying in Manchester and overall lower rates of mobility when compared to more advantaged graduates, *ceteris paribus*. For example, those graduates from a low participation neighbourhood are over 1.5 times as likely to stay in Greater Manchester than other graduates. For home-grown students, there is 14 per cent greater chance that graduates from a low participation background will stay local. Otherwise, non-local students from a low participation background are also more likely to return to their parental domicile after university and are less likely to be retained in Greater Manchester or move elsewhere in the UK other than their parental home domicile. Those non-locals who stay in Greater Manchester are also more likely to not be from a low-participation background. The use of POLAR data is conspicuously absent from many the quantitative studies on graduate migration that use HESA data (e.g., Comunian et al., 2010; Faggian et al., 2006, 2007; Faggian & McCann, 2008, 2009; Kidd et al., 2017; Mosca & Wright, 2010). Given the scant attention paid to POLAR data in the extant graduate migration literature, these findings can be considered a unique contribution it their own right.

However, there is a large body of literature that examines socio-economic status and migration more broadly. For example, Donnelly and Gamsu (2018) find that incoming undergraduate students whose parents come from the highest National Statistics Socio-Economic Classification (i.e., higher managerial, administrative and professional occupations) have the highest probability of attending university farther away from their home region than all other groups. Holdsworth (2009) argues that the ability to 'go way to uni' is a long-standing elite practice, which may also be the first physical step in capturing what Champion et al. (2014) refer to as the "migration premium".

In a non-HE context, Miles and Leguina's (2018) study on socio-spatial mobility using data from the 1958 Birth Cohort Study generally supports the escalator effect and that Northerners from a working-class background who migrate to the South have much higher rates of social mobility than their regionally static peers. Additionally, a recent report by the SMC (Buzzeo et al., 2020) provides compelling empirical evidence that those who stay put tend to be from less advantaged backgrounds and often end up in lower-paid jobs. Buzzeo et al. also show that those from a working-class background are less likely to migrate to London or other 'escalator' cities like Manchester, but those from a higher socioeconomic background are. One such recommendation for addressing the differencing experiences of graduate mobility based on socioeconomic status can be taken from the SMC (ibid.) that asks employers to embrace more geographically diverse workforces and remote working, which means changing recruiting practices by hiring beyond their traditional head office catchment, as well as flexible and remote working that would diversity the geography of their talent pools.

The use of POLAR markers as a predictor of social deprivation is not without criticism, however. Harrison and McCaig (2015) provide compelling evidence that POLAR markers are poor predictors of socioeconomic status and other markers of disadvantage largely because most neighbourhoods are heterogeneous. However, the Higher Education Policy Institute, an independent think tank, maintains that POLAR remains the "best measure on equity of participation in the UK." (Martin, 2018, p.1)

6.1.4 Employment

The results also demonstrate that the probability of being in professional employment differs substantially for different groups of migrants. Although the place-based BLR analysis suggests that

those who left Manchester were slightly more likely to be in professional employment, the MLR results are more dramatic. Those that are geographically static (HG loyals) are more likely to be in work that is both non-professional and not full time. Non-local stayers are also more likely to be both in professional employment and full-time work. Bouncers, the most mobile, are more likely to be in professional and full-time employment. Based on an analysis of longitudinal HESA data for the 2002/03 leavers cohort, Kidd et al. (2017) find that greater mobility is associated with superior earnings outcomes in the long-term. Importantly, they claim that it is through extending their job search horizon farther afield that students are able to realise the greatest increases in earnings. This finding is largely in agreement with Human Capital Theory's central tenant that people move to maximise earnings (G. S. Becker, 1964a; Comunian & Jewell, 2018; Sjaastad, 1962). Kidd et al. rightly highlight a conundrum for policymakers who must balance the health of regions and the wealth of individuals. Although the cities and regions have a vested interest in retaining graduates, there is an individual incentive to move for the financial rewards available. However, what this analysis demonstrates is that retention and onward migration is not simply characterised by wage maximising behaviour; rather, there are important issues related to socioeconomic status, gender, and ethnicity to consider as well. In other words, social structures do appear to matter in this analysis.

Regarding the escalator phenomenon, Champion et al. (2014) find that Manchester acts as "mini-London" for career advancement, but home grown locals in cities like Manchester do worse than non-local stayers in the long run. Although this analysis only examines the first jobs that graduates take after leaving university and not their long-term employment outcomes, non-local stayers in this analysis are also more likely to be white, a graduate of the University of Manchester, and *not* from a low-participation background. So, these incomers who tend to do better in the long run also have an early advantage over the stayers in terms of employment and other factors associated with higher earnings (being white, male, and a graduate of a Russell Group university). Therefore, it should not come as a surprise that incomers might do better in the long run, as Champion et al. found. The emerging picture is that the relative rates of mobility and immobility reflect existing hierarchies and inequalities in society, which ultimately impacts who stays and who leaves Greater Manchester. Although employability tends to be the traditional measure used to assess the value of higher education, the conclusion will discuss some possible approaches for using alternative success criteria that honours the 'whole person' approach that has been advocated throughout this thesis.

6.2 Inner Lives

Unlike the HESA results, the findings from the survey and interviews do not aspire to the standard of external validity. Rather, these findings aspire to Yin's (in Mills et al., 2010) conception of analytic generalisation, or making inferences to other *studies* rather than to other *populations*. Coming to know the inner lives of graduates is also a way of explaining the trends emerging from the HESA data described above. In addition, learning about the tastes, experiences and subjectivities of our students may also provide answers to the remaining research questions related to the role of perception of place and other factors in locational choice. As Clifton (2008) noted in his study of the creative class in the UK, quantitative results may be able to show the strength of associations for a given phenomenon, but they are not very good at drawing inferences about actual intentions. This is very much an effort of coming to know what Berlin refers to as the "ultimate data of subjective experience" (1994, p. 451) as it relates to students who are considering where to live and work after university. This section will first describe the main findings related to the perception of place quality before discussing attitudes and subjective experiences of migration and mobility.

6.2.1 Perception of Place Quality

If we return to the question posed by Chisholm in 1964 at the beginning of this thesis about what people want – or think they want - from UK cities, then there is evidence that the majority of students from the sample want cities that have the features, amenities, and general milieu that conform to Florida's (2014) quality of place thesis. The survey respondents want to live in cities that are good places to start their post-university careers, while also offering good infrastructure, tolerance of diversity, act as hubs for attracting other talented and ambitious people, are innovative, have a good social scene, a pleasing natural environment, are cool and fashionable, and provide a vibrant cultural scene. In short, these findings corroborate Florida's (2014) suggestion that the highly educated are attracted to cities because of the multidimensional experience of *what's there*; *who's there*, and *what's going on.* Since the survey results are in agreement with Florida, they can be said to differ from Darchen and Tremblay's (2010) survey findings that place quality does not have a major impact on the attraction and retention of graduating students in Canadian cities. However, the disagreement with Darchen and Tremblay is subtle since their subsequent interview findings found that quality of life factors are indeed important in student's post-university decisions about where to live.

A novel process was developed in this thesis to analyse the survey results according to stay/leave intentions, pathways based on geographic origin/prospective destination, gender, ethnicity, and social class using the Mann-Whitney and Kruskal–Wallis tests. The results of these analyses show that perceptions of place quality differ according to gender, ethnicity, and future residential plans. These results agree with the Mellander et al.'s (2011) large scale study in the US, which found satisfaction with various dimensions of place quality are important factors in locational choice. However, due to the small sample size, the results should be interpreted cautiously. Although these findings support Florida's place quality thesis, these findings should not be interpreted as an endorsement of his larger concept of the creative class, which has its critics (E. Glaeser, 2005; Peck, 2005; Storper, 2013), as well as those who find empirical support for the concept in the case of UK graduate migration (Comunian et al., 2010; Faggian et al., 2014). Much like the findings of Wesselmann (2018), the survey results suggest that planning to leave Greater Manchester after graduation, however, is not necessarily an expression of dissatisfaction with the city region. Since we now have evidence that students do indeed care about place quality when deciding about where to live and work, local policymakers should likewise still care about developing amenities and pleasing urban environments to lure this class of highly educated worker, much like the recommendations offered by Imeraj et al. (2018) that are targeted at the evolving preferences of young adults as they move through the life course and accumulate more and more financial resources.

The results of the survey also demonstrate that career-related concerns are the most important factors for the students in the sample when it comes to deciding about where to live and work, a finding which is consistent with the main arguments of Human Capital Theory and the findings of Darchen and Tremblay (2010). However, the results of the survey are not clear-cut since both quality of place and quality of life factors were also found to be extremely important, as was mentioned earlier. Furthermore, the results of the survey also show that attitudes to mobility, perceptions of place quality, and the importance of quality of life factors differ according to demographic factors and the five different mobility pathways. What these seemingly muddled results do indicate, however, is that the motivations for graduate migration are more complex than is suggested by Human Capital Theory. This finding is in broad agreement with a growing body of literature that is problematising the human capital model of migration (W. A. V Clark & Maas, 2015; Crescenzi et al., 2016; Sebastien Darchen & Tremblay, 2010; Imeraj et al., 2018; Javorcik et al., 2011; Kerr et al., 2017; Morrison & Clark, 2011). To conclude, the survey results provide support for Clark and Maas's (2012), assertion that "life style, family, housing and community are increasingly the reason for migration, jobs are essentially the context within which migration takes place…" (2012, p. 2) The next section will discuss some of these additional factors that emerged from the interviews.

6.2.2 Mobility Attitudes & Student Subjectivities

Rigorous and externally valid evidence has demonstrated that graduate retention patterns differ according to geographic origin, gender, ethnicity, socioeconomic status, higher education characteristics, and employment outcomes. The survey findings also suggest that jobs, quality of place, and quality of life factors also matter in student decisions about where to live and work. The question remains, however, if there are any additional factors that influence the retention of graduates beyond the reasons of work and perceptions of place quality. The interview data suggest that if there is a single answer for why our students select a location for the post-university life, then the answer is 'it depends on the student in question'. In other words, locational choice appears to be a subjective judgement involving tastes, practicalities, and constraints. Despite this somewhat anticlimactic answer, a few notable themes stand out from the primary data that can add to the robust picture that has already been described.

Most students do not see jobs as the primary reason for the choices; instead, they describe issues related to identity, the life course, and tastes as being the important motivators. For home grown locals, there is evidence for two of the place attachment relationships described by Barcus and Brunn (2010): 'tied to place' and 'rooted in place'. As for being tied to place, at least one of the interviewees described how a past history of homelessness had led her to prioritise secure housing in Manchester over mobile aspirations. Being tied to place can also be understood in terms of what Cresswell (2006) sees as mobility practices differing based on an individual's position in social hierarchies. Likewise, being tied to place can also be explored in terms of social embeddedness where there is evidence that people who exhibit high social embeddedness tend to emphasise the constraints of place in their locational choice (Parkinson et al., 2020). The multi-step process developed in this thesis to analyse the survey results (i.e., the Mann-Whitney U and Kruskal–Wallis tests) also found that home-grown locals have an ambivalent attitude to mobility, which could also be explained by conceptions like embeddedness and being tied to place. On the other hand, other home grown local describe attitudes to Manchester that resemble Barcus and Brunn's (2010) notion of being 'rooted in place', where personal identity is bound up in place attachment, a sense of 'home', family, friends, and places like the local pub. Being rooted in place also bears similarities to Gustafson's (2001; 2009) conception of 'roots', where the psychological concept of place attachment is built up over time and is a function of long-time residence, strong sense of community, and local knowledge. Conversely, Cunningham and Christie (2019) have found that graduates from the wider North West region do exhibit pride in the area, and they suggest that we need to reassess views of stasis as being a disability or somehow *less than* idealised versions of mobility. They suggest using the term 'stability' as the static alternative to 'mobility'.

Other home grown locals describe how their careers are largely tied to the unique ecosystem of contacts and the dining and entertainment scene of Manchester, which is reminiscent of concepts of location-specific capital described by DaVanzo's (1983) and the concepts of social capital described by Bourdieu (1982) and Putnam (1993). The interviewees describe embeddedness and roots in terms that are related to the 'psychic costs' of moving on that were first described by the early theorists of Human Capital Theory like Becker (2009) and Sjaastad (1962), as well as the 'location-specific capital' described earlier. These economic concepts are still discussed in the contemporary literature of UK graduate migration (see Abreu et al., 2015; Faggian et al., 2007a; Faggian & Franklin, 2014; Gibbons & Vignoles, 2012), but few of these studies have been designed to understand what the concepts might mean to students and graduates themselves. It has also been argued that it is only through combining these diverse traditions and bodies of literature that we can arrive at a fuller picture of the phenomenon of graduate retention and onward migration.

Identity is also related to the concept of place attachment, or the ‘’bonding of people to places’’ to use the words of Low and Altman (1992, p. 2). Particularly for those non-local stayers, there is evidence of Savage et al.'s (2005) concept of ‘elective belonging’ where individuals attach their own sense of self to their chosen residential location. It should come as no surprise to us that those who actively chose to live in a place – like the non-local stayers – do so because they may like the place, as well as liking the lives that they may be building in Manchester. This raises the question as to whether the non-local stayers in study have attitudes that resemble either Goodhart’s (2017) conceptions of ‘somewheres’ or ‘anywheres’. Although many of these stayers exhibit attitudes and characteristics that resemble ‘anywheres’, attitudes which make them “comfortable and confident with new places and people.” (ibid., p. 3). However, many of the stayers are also ‘somewheres’ in the sense that they are choosing to start a life in a particular place, Greater Manchester. Perhaps a better characterisation of non-local stayers in this study is what Taylor (2012) describes as the “‘optimising self’, who is future-oriented and self-regulating…” and who uses her “range of networks and capitals in order…to ‘come forward’ and claim space as theirs” (p. 2). The results of the HESA analysis demonstrate that stayers are whiter, more male, of a higher socioeconomic status, and more likely to be a graduate from a Russell Group university, which does suggest a greater assemblage of networks and capitals. However, further research would be needed with a larger sample of home-grown locals and non-local stayers to better understand these identities. As King, (2018) suggested, the evidence from this study supports the notion that students – irrespective of socioeconomic status – have similar aspirations for a ‘better’ lifestyle when making choices about where to live and work as older and more affluent prospective migrants. This finding suggests that the motivations for graduate migration are also more complex than is suggested by Marxist or post-Marxist theories of tastes and aesthetics.

One of the key findings to emerge from Savage et al.'s (2005) study of belonging in Manchester over fifteen years ago was the sense of "ambivalence of urban identity” expressed by their participants where they “do not see Manchester as the centre of their lives, or feel they belong – even in a relatively detached way – to the city.” (p. 129). The interviews from this study provide evidence that locals and non-locals do indeed feel like they do belong in Manchester for either concrete reasons like diversity or more nebulous and subjective concepts like ‘gut feelings’ or the Goldilocks principle (Capps, 2020). Although Miles (2015) interprets Savage et al.’s concept of ambivalence as pertaining mainly to Manchester’s middle classes, this thesis has provided evidence that a strong sense of identity with Manchester – for home grown locals and non-locals alike – cuts across a variety of personal characteristics. Part of the explanation may lie in the fact that Manchester has high ratings for most dimensions of place quality as measured by the survey. Manchester’s resurgence over the past thirty years to becoming a ‘cool’ and ‘hip’ city has been well documented (Degen, 2008; Young et al., 2006), and Manchester is seen by many as epitomising the post-industrial urban cool (Ortiz-Moya, 2015). The results from the survey and interviews support the view that many students chose Greater Manchester because of its place quality, as well general milieu that includes diversity, tolerance, vibrancy, affordability, buzz, cool, and openness. Some of the attitudes expressed by interview participants exhibit qualities of ‘love of place’, or what Tuan (1990) refers to as ‘topophilia’. The most visible symbol of elective belonging from was the Manchester worker bee, a symbol which came to the fore after the Arena terrorist attack. Van Hauwaert and Huber (2020) report that communities that experience terrorist attacks often exhibit “in-group solidarity” characterised by “social cohesion, societal integration, and institutional trust,” (p.4) which might engender a greater sense of pride and identity with Manchester in the wake of the attack.

The life course also seems to be an important factor in locational choice, particularly the structures and sequences of events involved with university students who are transitioning into graduate employment and adulthood. In the case of the students in this study, there is evidence that the city – and moving away from home more generally – means freedom and self-actualisation in various idiosyncratic forms. Evidence has been presented where self-actualisation means freedom from intergenerational sectarianism, freedom from gender roles of conservative communities, and

freedom to enjoy all that urban life and young adulthood has to offer. Arnett (2006) calls this stage in the life course variously as “age of identity explorations”, the “age of instability”, the “self-focused age”, and the “age of possibilities” (p. 114), all of which can be found in some form in the interviews. The mediating role of place is also key to understanding the interview subjects as suggested by Bailey (2009) because these different conceptions of the life cycle are often discussed in reference to places: origins, destinations, and stopovers along the way. As described earlier, there is also evidence that experiences of migration and transitions to adulthood differ for students from an ethnic minority background, particularly for females from a Pakistani ethnic background in line with the findings Bhopal (2011) and Finney (2011). Scholarly interest over the past twenty years in life course explanations for internal migration is partly driven by a desire to critically examine non-economic explanations and as an acknowledgment of the complexity of the phenomenon (A. J. Bailey & Boyle, 2004; Finney, 2011; Imeraj et al., 2018).

Although there is evidence that the life course is relevant to understanding graduate locational choice of students, its explanatory power faces the same limits when confronted with subjectivities of the graduates themselves. The intersections of migration experiences, perception of place, and identity are fluid and never fixed, and these results agree with Bonifacio’s (2019) observations of youth migration by saying that “we can only approximate certain experiences through…studies, and build on other cases that may find similarities with them.” (p. 13) Despite the inherent subjectivity of the experiences of mobility recounted in this thesis, this thesis has been able to build on previous evidence drawn from diverse – and sometimes competing – bodies of literature. The humanistic approach taken in this thesis means that subjects –students and graduates - are viewed as whole persons navigating constraints, privileges, hopes, dreams, chance, and circumstance. Therefore it is this ‘lifeworld’, to borrow a term from Husserl ([1920] 1970), of the invariant structures of subjective experience like spatiality, temporality, embodiment, intentionality, and aesthetics that factor into locational choice, and not necessarily satisfaction or dissatisfaction with Greater Manchester. It should be emphasised that the postpositivist approach taken in this thesis that combines elements of realism and a constructivism should not be viewed as part of the postmodern project and its more extreme forms of relativism. The view taken to subjectivity here is firmly within the humanistic interpretive paradigm, which is broadly compatible with the different ways of knowing phenomenon in the venerable tradition of Hume, Kant, and subsequent thinkers like Dewey, Popper, and Berlin (see Ferrell, 2008). Above all, this is an approach recognises that, as Berlin says, “[h]uman history…has no libretto: the actors must improvise their parts.” (1990, p. 201) So, we meet again the personifications of the scholarly divide: our hedgehogs who know one big theory or one method, and our foxes who embrace different ways of knowing the multifaceted phenomenon of graduate retention and onward migration.

πόλλ' οἶδ' ἀλώπηξ, ἀλλ' ἐχῖνος ἓν μέγα [The fox knows many things, but the hedgehog knows one big thing]

Archilochus, 7th century BCE (in Berlin, 1994, p. 436)

7. Conclusions

This thesis has endeavoured to answer three principal research questions: the characteristics of who stays in Greater Manchester after university, the factors that influence their locational choice, and how the perception of Greater Manchester itself influences these decisions. These conclusions will also offer the main contributions of this work to knowledge, theory, policy, and practice.

7.1 Understanding graduate retention in Greater Manchester

Regarding the first question about who stays in Greater Manchester after the completion of their undergraduate studies, it is a tale of two cities and two types of graduates. Home-grown locals are more likely to have the characteristics of the least mobile in society: female, from an ethnic minority background, a low-participation background, a graduate from a modern university, working in a non-professional occupation, and in part-time work. The non-local stayers are more likely to have the characteristics of the more mobile in society: white, not from a low participation background, a graduate of the University of Manchester, in professional employment, and working full time These rigorous and externally valid findings demonstrate that mobility patterns for Greater Manchester's graduates reflect existing hierarchies and inequalities in society. If we apply the moral standard of becoming a less divided society borrowed from the SMC, we can conclude that the effective practice of mobility falls short of our society's professed ideal. For the individual graduates who remain less mobile relative to their peers, they face a possible future of persistent lower earnings. Therefore, practical financial support is needed to allow all graduates to access a mobile future and the better employment outcomes that mobility may make possible. This practical assistance could take the form of extending the student loan provision into the year of post-university life, a relocation allowance, or accommodation subsidies, many of which are proposed by Cunningham and Christie (2019). It should also be noted that the choice to focus this thesis on the study of a single city is not an assertion that Greater Manchester is not an exceptional case or one that can be used to generalise to other contexts or settings. However, the assertion that place and location do indeed matter in the study of human geography need be construed as an cause to revisit the so-called 'locality studies debates' of the late twentieth century.

This thesis has also argued that policymakers often view the attraction and retention of graduates as being key to the economic success of cities based on the empirically compelling benefits of agglomeration economies and endogenous growth theory. However, since retention rates and onward migration patterns, policymakers need to balance the tension that exists between empowering young people to become more mobile and the policies targeted at the attraction and retention of the highly skilled and educated. This recognition obliges policymakers and universities to empower students, particularly those who are homegrown locals and from widening participation backgrounds, to become more mobile in their aspirations early on in their university careers.

This thesis has also argued that the study of graduate retention and onward migration at the local and city level is under-conceptualised and under-theorised. The definitions and conceptual framework developed in this work have sought to advance a clearer understanding of the phenomenon at the

local level, which has implications for both the study of inter-regional graduate migration and policy as well. Indeed, the framework developed in this thesis can be applied to the analysis of graduate retention for other cities and regions where there is an interest to understand the relationship between geography and higher education and graduate migration.

To uncover what exactly is going on in our cities and localities, policymakers need to dig down to deeper levels of their graduate retention figures, which is to say, they need to analyse the flows of the highly skilled and educated at a more granular level. The two-step analytic process consisting of (1) the place-based analysis using BLR and (2) the people-based analysis using MLR developed in this thesis is one such way to go about the more granular investigation. The two-step process developed in this thesis represents conceptual and methodological contributions in their own right, both of which have advanced the field of the study of graduate migration in the UK. The use of marginal effects in this analysis also represents an innovation in the use of HESA data in the study of graduate migration, and it is strongly recommended that future quantitative studies relying on HESA data consider using marginal effects in their analyses. Marginal effect calculations will allow for a better basis of comparison between studies, especially since traditional reporting of logit results using odds ratios or coefficients do not allow for direct comparison of results between studies. The two-step analytical process was only made possible by the rigorous conceptualisation of the phenomenon at the local level.

The findings from the HESA analysis should be qualified based on the limitations discussed in the method chapter. The most important of these, however, is that the results can only be generalised to the larger population of graduates from the four universities in Greater Manchester, which is to say that these results do not apply to other cities or contexts. A natural progression of this work is to analyse retention rates and onward migration routes for other UK cities, which would allow for a basis of comparison between cities and a better overall understanding of the phenomenon. A related limitation is that incoming graduates moving to Manchester, and who attended universities outside of the city, are not considered in this thesis even though they represent a sizable and important part of the local stocks of human capital. An important limitation of using HESA data to model graduate movements is that only *employed* graduates are included in the analysis, and this study, therefore, does not examine the attraction, retention, or onward migration of unemployed graduates. Further research might explore the experiences of unemployed graduates as it relates to Greater Manchester or another UK city-specific context. Furthermore, as this study was limited only to UK undergraduate students, further research on both postgraduate and international students would make for additional lines of inquiry.

7.2 Graduate retention and graduate outcomes

The second research question is concerned with the factors that influence the retention of graduates from local universities. Although Scott and Storper (2009) refer to this phenomenon as one of the most complex problems in contemporary social sciences, the survey and interview findings demonstrate that jobs, quality of place, and quality of life factors are important criteria for students when deciding where to live and work. However, it is often difficult to separate the priorities of jobs, place, and quality of life from subjective tastes, practicalities, and constraints. These results suggest that the motivations for locational choice are more complex than Human Capital Theory would suggest and that graduate migration implies a doubly transitory experience —migration itself and young adult transitions. The implications of this finding for the future study of graduate migration is

that researchers ought to take a more expansive view of the phenomenon instead of narrow focus according to disciplinary or theoretical constraints. The expansive approach taken in this work has been to use mixed methods research and the humanistic interpretive tradition, both of which have allowed for a fuller picture of the phenomenon of graduate retention and onward migration than mono-method or mono-theory approach might allow. Although other researchers might find this to be a useful template for further research, the complexity of the phenomenon should give all researchers pause to reflect on the possible limitations to understanding posed by theoretical, ideological, or disciplinary concerns.

Just as this thesis has sought to provide a more-than-economic approach to the understanding of graduate migration, it bears mentioning that the instrumental view of graduate migration itself is part of the larger instrumental view of higher education in general. The notion that a university education is purely a means to employment largely coincides with the massification of higher education since the last quarter of the twentieth century and the rise of the 'value-for-money' and 'accountability' culture that comes with public investment. The care and education of the whole student was the distinguishing characteristic of higher education in Britain for centuries, drawing upon such diverse inspirations as the Greek tradition of *paideia* and the ideals expressed by John Henry Newman in *The Idea of a University.* This vision of higher education encompassed the moral, intellectual, and aesthetic education of students, which implied the benefits of a well-rounded education were not viewed as solely pecuniary in nature. Whereas the ancients and Oxbridge dons of previous eras were primarily concerned with an aristocratic ideal of education, our tradition since the expansion of the higher education provision in the post-war period has largely been a democratic ideal. However, the implied elitism of the argument that a well-rounded university experience that is only the concern of the middle and affluent classes needs to be challenged. Working-class students ought to be viewed in terms that go beyond employability, and society too might benefit from a higher education system that contributes both to both economic ends as well as the intellectual, moral, and aesthetic cultivation of young people. This argument is relevant to this thesis because the recognition that the benefits to higher education go beyond employability could lead to changes in how the success of universities, cities, and individuals are measured. Much like how the OECD has developed the alternatives to economic performance metrics like Regional Well-Being index, HESA now includes two types subjective measures: wellbeing measures in the Graduate Outcomes Survey for life satisfaction, happiness, and anxiety and Graduate Voice questions assessing perceptions of the value of their degree as it relates to employment. Subjective wellbeing measures can provide important insights about non-pecuniary graduate outcomes whilst also complementing existing employability indicators used for monitoring and benchmarking the performance of HEIs and the sector as a whole. Further study could evaluate these subjective measures to understand better the link between higher education, migration, and subjective wellbeing.

All subjective data, including the survey and interviews included in this thesis, should be examined alongside non-subjective aspects of wellbeing to provide a more well-rounded picture of graduate outcomes. This study combined subjective attitudinal and narrative data with the analysis of large secondary data to provide such a well-rounded picture. However, the small sample sizes of the survey and the interviews in this study means that caution must be applied since the findings may not be generalised beyond their samples, which is to say that these results should be interpreted according to the principle of 'analytic generalisation'. (Yin in Mills et al., 2010)

7.3 Perceptions of place and locational choice

Regarding the third research question about perceptions of Greater Manchester and the impact these perceptions have on locational choice, we have provided evidence that perception of place quality

does indeed matter to students when considering where to live and work after leaving university. Furthermore, we have demonstrated that Greater Manchester scores highly on most of the dimensions of place quality theorised by Florida (2014) and operationalised by Esmaeilpoorarabi et al. (2016), Insch and Sun (2013) and Wesselmann (2018). Like Wesselmann (2018), however, the survey findings are not able to make a definitive determination as to whether decisions to stay or leave Manchester are attributable to satisfaction or dissatisfaction with the city itself. This thesis attempts to apply Florida's place quality theory to a novel context in the study of the attraction and retention of graduates to a UK city.

This study also builds on Florida's theory by going beyond his original conception of 'what's there, who's there, and what's going on' to incorporate concepts related to social structures, identity, and subjectivities. The inclusion of social structures, identity, and subjectivities in the evaluation of the perception of place attends to many of the criticism of Florida's ideas by Peck (2005), whilst also incorporating many of the recent findings from literature coming from the 'mobilities turn' in the social sciences. Taking a more expansive view of place quality is in line with the general thrust of this work, which is to view the attraction, retention, and onward migration of graduates in all of its multiplicities.

The inter-urban competition for the highly-skilled and educated needs to be properly contextualised with various market-driven and policy-driven initiatives, but this thesis has provided evidence that perceptions of place do matter to students who are deciding about where to live and work. Therefore, stakeholders who are interested in attracting highly mobile graduates – like employers and local government – should be concerned about maintaining areas where Greater Manchester has a good reputation (e.g., jobs, nightlife, amenities) and improving areas of opportunity (e.g., homelessness and crime). It is a matter for speculation as to what direction devolution, the Northern Powerhouse, the levelling up agenda, or even COVID-19 may take, but it is likely that graduates will still value pleasing, safe, and prosperous communities in the future. The contemporary 'town and gown' divide for cities with large student populations means balancing the priorities valued by highly mobile graduates and with the needs of locals and the local community. Adopting recommendations from the inclusive growth agenda, which prioritises more equitable economic development that creates opportunities for all, may provide a balance between incomers and locals. A recent report from the Inclusive Growth Analysis Unit at the University of Manchester has made specific recommendations for the future growth and shared prosperity of Greater Manchester (Lupton et al., 2019), some of which are being studied by the local government.

7.4 Final Thoughts

Firstly, this thesis represents the first study of graduate migration to use HESA data for multinomial and binomial logistic regression at the level of a city (combined authority). This advances our knowledge of graduate migration from beyond an international, national, or inter-regional basis to the city level. This original contribution is of intrinsic scientific value, offering important insights into our understanding of the attraction and retention of graduates to cities. The demonstration that retention rates vary according to geographic origin, gender, ethnicity, socioeconomic status, and employment outcomes also contributes to current debates on social mobility and local economic growth. This evidence also has implications for scholars interested in the sociology of higher education.

Secondly, this thesis has developed a framework for the analysis of graduate migration and its impact on local economic development, which can be used to investigate the role of geography and universities in structuring flows of graduates and their impact on local stocks of human capital. This framework expands the typical method of measuring local graduate retention by considering

migration pathways that extend beyond the geographic boundaries of the locality in question. This thesis has also proposed that the additional demographic, higher education, and employment attributes of graduates can also be used to gain a better understanding of the complex phenomenon of local graduate retention and onward migration. This framework seeks to benefit two main audiences. The first group is scholars who interested in understanding how universities contribute to their host city's local economic development through the retention (or loss) of graduates and their human capital. The second is policy makers who have an interest in attracting and retaining graduates to their localities and who have an interest in addressing the underlying inequalities that effect the differing experiences of graduate mobility.

Thirdly, this thesis offers an application of Richard Florida's place quality theory by relating locational choice to social structures and subjectivities. This application may appeal to scholars who are interested in taking a more-than-economic approach to the study of graduate retention and onward migration. Lastly, it has been argued that the study of graduate retention itself suffers from being under-conceptualised and under-theorised, and this thesis has brought greater clarity to the issue by making linkages between higher education, human capital, migration, and local economic development. Because of the greater conceptual clarity developed here, this thesis has offered a new two-step analytic process to model graduate retention within cities. This process has established that how we measure graduate retention has important policy implications, and policymakers should consider a mix of metrics when developing graduate retention targets for cities.

A central limitation of this thesis is the use of cross-sectional data, and the omission of appropriate longitudinal data means the understanding of graduate retention and onward migration presented here is incomplete. Further investigation into city-level retention using longitudinal HESA data is, therefore, strongly recommended. In addition, the successor to the DLHE survey used in this thesis, HESA's Graduate Outcomes Survey, will provide locational data fifteen months after leaving university, which may provide greater insights into graduate retention and onward migration. Another limitation of this study is that international and postgraduate students were not included in this analysis, nor are the international destinations of home students. Future studies investigating either international students, home students who migrate internationally, or postgraduate would add to our understanding of both graduate retention and onward migration. Future research might use secondary HESA data that is national in scope to understand if the same patterns of graduate retention found in Manchester applies to other UK cities (e.g., The Core Cities Group).

Finally, a spirit of ecumenism pervades this work. It can be found in the mixed methods that combine econometrics, survey research, and interviews. This spirit is also present in the use of a humanistic interpretive lens and a literature review that seeks to integrate the divergent fields of public policy, economics, geography, marketing, and sociology. Although a humanistic approach is open to Marxist or post-Marxist critiques of being overly voluntarist in nature, great care has been taken to include in this analysis constraints to migration arising from social hierarchies and existing inequalities. This thesis has actively resisted the procrustean temptation to fit the multifaceted phenomenon of graduate migration into a singular vision. Rather than claim one big thing, this thesis has modelled the outer world of graduate migration as robustly as possible, whilst also shining a light on the inner lives of students facing decisions about the future. A secondary aim of this thesis was to illustrate how limited our understanding of graduate migration is at the city level, and, consequently, how little has been done to solve the conceptual and practical problems for cities seeking to attract and retain graduates. To the extent that some of this can be attributed to disciplinary, methodological, and ideological divides, seems wilfully counterproductive in an era of pandemic and economic hardship. Writing about need to understand the history of ideas, Isaiah Berlin (1990) famously said that humanity has a duty to know "about where they come from, how they came to be where they are, where they appear to be going, whether they wish to go there, and if so, why, and if not, why not." Much the same can be said about the lives that are contained in these pages, and we as a society have

a duty to understand where young people are going, why they are going there, and just as importantly, why not.

Appendix 1: Menu of place and non-place attributes

Place-Related Attributes			**Source**
	Economy		
	Built environment	Buildings, architecture, landmarks	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Landmarks	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
	Infrastructure	Public transport	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Roads	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Connectivity	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
	Affordability of housing	Rental properties: cost and availability	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Buying: mortgage, deposits, costs	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
	Job opportunities	Labour market conditions	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Availability of jobs	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Cool companies'	(Esmaeilpoorarabi et al., 2016; Florida, 2002, 2014; Insch & Sun,

			2013; Pedersen & Gram, 2018; Wesselmann, 2018; Zimmerman, 2008)
	Job quality	Flexibility of timetables	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Flexible work conditions	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Job security	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Organisational culture	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Cool jobs	(Esmaeilpoorarabi et al., 2016; Florida, 2002, 2014; Insch & Sun, 2013; Pedersen & Gram, 2018; Wesselmann, 2018; Zimmerman, 2008)
	Wages	High pay	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
	Human Capital	Centre for innovation	(Esmaeilpoorarabi et al., 2016; Florida, 2014; Insch & Sun, 2013; Wesselmann, 2018)
		Attracts talent	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Social & Community Characteristics		
	Cultural scene	Cultural institutions & venues	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Cultural and musical events/festivals	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		buzz/'cool' factor	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Social scene	Professional networks	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Dating scene	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Social communities & affinity groups	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Diversity & tolerance	People like me	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Ethnic/religious/linguistic diversity	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		LBGTQ+ community	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
		Acceptance/tolerance	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al.,

			2004; Insch & Sun, 2013; Wesselmann, 2018)
	Creative/Bohemian factor	Artist & bohemians	(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Welfare & Social Cohesion		
	Health		(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Education		(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Safety & Security		(Esmaeilpoorarabi et al., 2016; Florida, 2014; E. L. Glaeser et al., 2004; Insch & Sun, 2013; Wesselmann, 2018)
	Geography		
	North/South	Elite geographies	(N. Cunningham & Savage, 2015; D. Massey, 1995)
	Embeddedness		(Carlson, 2013; Gustafson, 2009; Low & Altman, 1992)
	Hierarchies		(D. Massey, 1995)
Non-place Characteristics	**Embodied characteristics**		
	Capital	Human	(G. S. Becker, 1962a; Schultz, 1961)
		Economic, Cultural, Social	(Pierre Bourdieu, 1982)
		location-specific	(DaVanzo, 1983)
	Sense of place		(Gustafson, 2009; D. Massey, 2013)
	Lifestyle	Pace of life	(W. A. V Clark & Maas, 2015; S. A. Cohen et al., 2015)
		Urban lifestyle	(Florida, 2014)
	Personal Safety		(Florida, 2014)
	Identity	Image-credibility, 'cool factor'	(Pedersen & Gram, 2018)
		Place attachment	(Gustafson, 2009; Low & Altman, 1992)
		Feeling at home	(Gustafson, 2009; Low & Altman, 1992)
		Ableism	(T. Cresswell & Uteng, 2016)
		Gender	(D. Massey, 2013)
		Ethnicity	(Finn & Holton, 2019; Florida, 2014; Taylor, 2012)
		Class	(N. Cunningham & Savage, 2015; King et al., 2010, 2011; A. Miles & Leguina, 2018)
	Individual goals, aspirations, hopes		(Finn & Holton, 2019; Taylor, 2012)
	Family, friends, partners		(Finn & Holton, 2019; Taylor, 2012)
	Caring responsibilities		(Finn & Holton, 2019; Taylor, 2012)
	Attitudes toward mobility & immobility		(Finn & Holton, 2019; Gustafson, 2009; Low & Altman, 1992; Taylor, 2012)
	Higher education		
	Hierarchies	Russell group	(Faggian et al., 2007; A. Findlay et al., 2009, 2010, 2018;)
	Career services	Job matching	(Ingram et al., 2000)
	Course	finding work related to course	(Faggian et al., 2014, 2017; Faggian & McCann, 2009)

	Life course		(A. M. Findlay et al., 2012; Marcu, 2015)

Appendix 2: Research design procedure

	Phase	Procedure	Product	Begin Date	End Date
Phase 1	Quant 1: secondary data collection	Accessing HESA datasets for incoming students 2016/17	Numeric student data	09/2018	11/2018
	Quant 1: secondary data analysis	Use of descriptive and inferential statistics	Demographic profile & meaningful measures of the student population of Greater Manchester for the incoming class of 2016/17 (Research Question 1)	10/2018	2/2018
	Connecting secondary quantitative analysis and quantitative survey phase	Define survey objectives, develop methods (sample, survey protocol, data analysis method)	Survey protocol	11/2019	01/2019
Phase 2	Quant 2: survey data collection	Web-based questionnaire	Numeric and text data	01/2019	06/2019
	Quant 2: survey data analysis	Use of descriptive and inferential statistics	Meaningful measures of perceptions of Greater Manchester & attitudes of "newcomer students" (Research Question 2)	02/2019	08/2019
	Connecting quantitative survey analysis and qualitative interview phase	Selection of participants purposely and interview question development	Interview protocol	02/2019	02/2019
	Qual 1: Interviews in Year 3 of studies	Semi-structured interview	Textual data	02/2019	05/2019

	Qual 1: Analysis of interviews in Year 3 of studies	Coding and thematic analysis	Explanations of why newcomers stay or leave (Research Question 1) and the role of institutions in decision making (Research Question 3)	03/2019	08/2019
	Qual 2: Interviews post graduation	Semi-structured interview	Textual data	10/2019	02/2020
	Qual 2: Analysis of interviews post graduation	Coding and thematic analysis	Explanations of why newcomers stay or leave (Research Question 1) and the role of institutions in decision making (Research Question 3)	11/2019	03/2020
	Integration of the Quant and Qual results	Interpretation and explanation of quantitative and qualitative results	Discussion, implications, and future research	03/2020	06/2020

Apendix 3: Esmaeilpoorarabi et al. (2016)'s indicators of place quality

The indicators highlighted in yellow were used to inform the survey questions in sections 2, 3, 4, and 5.

Table 1: Esmaeilpoorarabi et al. (2016)'s indicators of quality of region

Quality of Region (Measured by quality of capital systems)		(Bontis, 2004)	(Carrillo, 2006)	(Carrillo et al., 2014)	(Deas & Giordano, 2001)	(Greene et al., 2007)	(Kitson et al., 2004)	(Sotarauta & Linnamaa, 2001)	(Turok, 2004)
Instrumental Capital	**Environment capital**		*	*	*	*	*	*	
	Measured by: Natural environment (existing before the settlement, e.g., soil, air, water, climate, geography, ecological sustainability), constructed amenities (artificial capital which is created by settlers, e.g., infrastructures, landscapes, urban structures, transportation)								
	Knowledge capital	*	*	*		*	*		
	Measured by: Intellectual properties (generating knowledge as the wealth of a country, e.g., developing research and development centres and universities), brands (creating reputable brands for regions and cities, e.g., creative city, knowledge city, and innovative regions)								
Articulation Meta Capital	**Financial capital**		*	*	*	*	*	*	*
	Measured by: Financial institutions and resources available to people, financial states, economic sustainability								
	Relational capital		*	*	*			*	*
	Measured by: Management, governance, institutions and networks that interact and collaborate for orchestration of development, social integration and cohesion, equality and legality								
Collective-Based Human Capital	**Social capital**		*	*	*	*	*	*	
	Measured by: Civic initiatives, community centres, diversity, tolerance, participation, social networks								
	Cultural capital		*	*			*		
	Measured by: Historical and archaeological sites, handicrafts, cuisine, ethnography, cultural diversity, openness								
Individual-based Human Capital	**Human capital**		*	*		*	*	*	
	Measured by: People's capacity and skills to work, education and training centres, thickness of the labour market								
	Identity capital		*	*					
	Measured by: Personal identity, clarity and differentiation, personal asset, individualization of life								

Source: Esmaeilpoorarabi et al. (2016, p. 7)

Table 2 – Esmaeilpoorarabi et al. (2016)'s iindicators of quality of city

Quality of City (Measured by quality of life)		(Brown et al., 2015)	(De Noni et al., 2014)	(Doi et al., 2008)	(Graymore et al., 2008)	(Kamp et al., 2003)	(Malkina & Pykh, 2008)	(Marans, 2003)	(McCann, 2004)	(Morais & Camanho, 2011)	(Nurick & Johnson, 1998)	(Pacione, 2003)	(Preuss & Vemuri, 2004)	(Rogerson, 1999)	(Santos & Martins, 2007)	(Wadley, 2010)
Environment	**Natural environment**	*	*	*	*	*		*		*	*	*	*	*	*	*
	Measured by: Green spaces (public green spaces per capita, length of leafy streets), climate (days of rainfall, average of hours of sunlight per day), air quality (days with a good air quality)															
	Built environment	*	*	*	*	*	*				*	*	*		*	*
	Measured by: Landmarks, heritage preservation, building stock, image of the city (perceptions of city-region as a place to live and work)															
	Accessibility and infrastructure	*		*	*	*			*	*	*			*	*	
	Measured by: Basic infrastructure, sports facilities, trade and services, transportation and mobility, connectivity, international accessibility															
Economy	**Affordability of properties**	*			*	*		*	*	*	*		*	*	*	
	Measured by: Housing market (average acquisition cost, average rent, issue of reconstruction permits), commercial property costs (renting/purchasing), living space per capita															
	Occupation opportunities	*	*		*	*	*			*			*	*	*	
	Measured by: Labour market (jobs per 1,000 inhabitants, medium and highly qualified directors and workers, registered unemployment)															
	Wages and finance	*			*	*	*						*	*	*	
	Measured by: Income and consumption (average monthly wage, ATM withdrawals), expenses (cost of living, overheads, other expenses, taxation system), savings of residents per capita, gross domestic product															
Com muni t	**Population characteristics**				*	*		*				*			*	
	Measured by: Statistical population (live births per 1,000 inhabitants, foreign residents per 1,000 inhabitants), median age															
	Cultural opportunities	*	*	*	*	*								*	*	
	Measured by: Cultural facilities (public libraries/art galleries/ museums per 1,000 inhabitants), heritage (multiple events), cultural dynamism (users of public libraries, museum visitors)															
	Social life	*	*		*	*				*	*	*		*	*	
	Measured by: Sense of community, civic participation (vote in the past four elections, sports/recreational and cultural associations per 1,000 inhabitants, voluntary associations per 1,000 inhabitants)															
Welfare	**Health**		*		*	*	*	*	*	*				*	*	*
	Measured by: Health facilities (capacity of kindergartens/homes for the elderly, day centres and in-house care per 1,000 inhabitants, hospital beds/healthcare centres and annexes/doctors per 1,000 inhabitants)															
	Education	*	*	*	*	*	*	*	*	*				*	*	*
	Measured by: Educational facilities (primary and secondary schools/universities per 1,000 inhabitants), academic education (students in higher education, students pursuing postgraduate studies)															
	Safety and security		*		*	*		*	*	*	*			*	*	*
	Measured by: Health safety (premature death rate, road accidents resulting in death or serious injury), crime rate (suicide, drug addicts), social problems (homeless population)															

Source: Esmaeilpoorarabi et al. (2016, p. 8-9)

Table 3 - Esmaeilpoorarabi et al. (2016)’s iindicators of quality of cluster

	Quality of Cluster (Measured by quality of place)	(Bereitschaft & Cammack, 2015)	(Brown & Mczyski, 2009)	(Clifton & Cooke, 2009)	(D'Mello & Sahay, 2007)	(Darchen & Tremblay, 2010)	(Durmaz, 2015)	(Florida, 2005)	(Frenkel et al., 2013)	(Grant & Buckwold, 2013)	(Heebels & Van Alst, 2010)	(Kim & Kaplan, 2004)	(Kloosterman & Trip, 2011)	(Ling & Dale, 2011)	(Scott, 2010)	(Smith et al., 1997)	(Trip, 2007)	(Wedemeier, 2009)
Spatial Characteristics	**Location**		*				*							*			*	
	Measured by: Centrality (inner city precincts, suburban precincts), spatial proximity (riverfront, close to airport and so on), accessibility (public transportation, traffic), quality of the environment (quality of the landscape; parks, green and open public spaces																	
	Urban form and scale						*						*		*			
	Measured by: Urban form (walkability, spatial proximity, small-scale, interactive micro urban public places, permeability, and compactness/boundaries), scale-grain (quality of the area is related to its scale or grain)																	
	Design						*	*					*					
	Measured by: Quality of architecture, appearance, shape, size, well-made details, altitude, built heritage, the convergence of old and new, streetscape, landmarks, spatial diversity, quality of residential blocks, and quality of commercial offices																	
	Services and amenities		*					*	*				*		*	*	*	
	Measured by: Quality of public spaces, recreational amenities (outdoor sports, cycling, jogging, well-equipped sport grounds, café, restaurant, bars), commercial services (well-served stores, providing a wide range of products), education service (schools can be easily reached on foot, schools are located in good-quality buildings, having good school facilities), universities and colleges, health service (access to adequate hospitals facilities and elderly/child care)																	
Economic Characteristics	**Land use**						*						*					
	Measured by: mixed-use development (a combination of residential, commercial, cultural, institutional, or industrial uses, where those functions are physically and functionally integrated)																	
	Property values														*			
	Measured by: Properties (residential and commercial) cost, availability of residential properties, availability of commercial properties																	
	Work conditions					*				*					*			
	Measured by: Thick labour market (offering many and varied employment opportunities), flexibility of timetables, friendly colleagues, attractiveness of work-place-environment, job security																	
	Technology		*	*				*			*						*	
	Measured by: Patents per capita; relative percentage of high-tech output, percentage of people with a bachelor's degree and above (talents), employment in technology-intensive manufacturing and service sectors																	
Social Characteristics	**Cultural milieu**		*	*			*	*		*							*	
	Measured by: Public places (meeting places, cinemas, libraries), cultural and musical events, live performance venues per capita, events and festivals, cultural venues, local culture; 'buzz'																	
	Social interaction			*			*	*		*			*					
	Measured by: Professional networks (work-related peer networks, spillover of knowledge), the mating market (a place where you might find people to date), social communities (residential community, film communities and so on), relationships (it is easy to get to know people)																	
	Tolerance and diversity	*	*	*		*		*							*	*	*	*
	Measured by: Concentration of bohemians (percentage of gay householders, percentage of artistically creative people), racial diversity, linguistic diversity, income diversity, religious and sexual diversity, acceptance of different lifestyles, percentage of foreign-born people																	
	Openness and creativity		*	*		*	*	*		*							*	
	Measured by: Percentage of artist (in the field of arts and antiques, design and designer fashion, crafts, video, film and photography, music and visual and performing arts, publishing), size of the creative class measured by employment in creative and knowledge-intensive sectors, human capital measured by percentage of the population																	
	with a degree																	
Personal Characteristics	**Sense of place**		*			*		*			*					*	*	
	Measured by: Monuments, capacity of the urban milieu to offer a variety of opportunities in terms of entertainment, nightlife, and cultural activities, historic buildings, established neighbourhoods, distinctive music scene, specific cultural attributes																	
	Lifestyle					*		*	*	*								
	Measured by: Pace of life (peaceful and quiet, boring or active), quality of a creative environment and possibility of access to cultural and social activities, and to a diverse array of restaurants and urban amenities in general, nightlife																	
	Personal safety		*										*			*	*	
	Measured by: Control (feeling controlled by others, feeling watched, feeling free to behave as you like), safeness and convenience for pedestrians and cycling, security (risk of going around late evening, street safety, and noise level)																	
	Identity				*		*	*				*						
	Measured by: Image-credibility, the atmosphere-context, place attachment, sense of place, tradition/nostalgia, feeling that a good fit exists between you and the place																	

Source: Esmaeilpoorarabi et al. (2016, p. 10-11)

Appendix 4: Survey Questionnaire

Graduate Mobility Attitude Survey

Survey Overview

You are being invited to participate in a research study titled ''Perception of Place: Its Role in the Attraction and Retention of Graduate Talent to Greater Manchester.'' The goal of this research study is to understand the factors driving graduate mobility.

This study is being conducted by Sean Brophy from Manchester Metropolitan University, and the survey should take you approximately 10 minutes to complete. **For the purposes of this study, Greater Manchester is said to include the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan.**

Any data that you provide through this research will be treated in confidence and any research outputs will be anonymised so that individuals will not be identifiable. Any personal information that you provide will be held and used in accordance with the General Data Protection Act (2018) and the UK Data Protection Act (2018) and only for the purposes for which it was collected. Participation in the research is voluntary.

Section 1: Post-University Plans

This section asks you questions about your anticipated career, living, and location plans six months after you finish your current course.

1. Which of the following best describes you? *Required*

- ○ An undergraduate first year student
- ○ An undergraduate intermediate year student (e.g., a 2nd year student)
- ○ An undergraduate final year student
- ○ A postgraduate taught student
- ○ A postgraduate research student
- ○ A recent graduate
- ○ Other

If you selected Other, please specify:

2. Please select your university from the list below. *Required*

- ○ Manchester Metropolitan University
- ○ Royal Northern College of Music
- ○ University of Bolton
- ○ University of Manchester
- ○ University of Salford
- ○ Other

If you selected Other, please specify:

3. Were you living in the UK prior to entry of your course? *Required*

- Yes
- No

If you answered yes, please enter the postcode of your residence prior to entry of your course (or as much as you can remember). This helps us with geographic analysis and is kept completely confidential

Your answer should be no more than 8 characters long.

4. Were you living inside or outside of the EU?

- In a EU country
- In a non-EU country
- Not sure

5. Rounding to the nearest whole number, how many years have you lived in Greater Manchester? For example, if you've lived in Greater Manchester for 2.5 years, please write 3 in the box below.

6. When do you expect to complete your current course? Dates need to be in the format 'DD/MM/YYYY', for example 01/06/2020

7. Please select the region that best describes where you anticipate living 6 months after completing your current course. *Required*

- Greater Manchester (includes the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan)
- Greater London
- South East
- North West excluding Greater Manchester
- East of England
- West Midlands
- South West
- Yorkshire and the Humber
- East Midlands
- North East
- Northern Ireland
- Scotland

(continues on next page)

- Wales
- International – EU Country
- International – Non-EU Country
- Don't know

8. If known, please enter the postcode of where you anticipate living six months after completing your current course (or as much as you know).

Your answer should be no more than 8 characters long

9. Which of the following best describes what your anticipated primary career status will be six months after completing your current course? *Required*

Please select no more than 2 answer(s).

- Working full-time
- Working part-time
- Due to start a job within the next 3 months
- Engaged in full-time further study or training
- Engaged in part-time further study or training
- Unemployed and looking for work
- Other Activity (e.g. engaged in home duties, retired from employment, not able to work due to sickness or disability, travelling, volunteering etc.)

If you selected Other, please specify:

10. When considering the jobs that you have applied to or jobs that you anticipate applying to, please select all the regions that were or will be included in your job search:

- Greater Manchester (includes the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan)
- Greater London
- South East
- North West excluding Greater Manchester
- East of England
- West Midlands
- South West
- Yorkshire and the Humber
- East Midlands

(continues on next page)

- [ ] North East
- [ ] Northern Ireland
- [ ] Scotland
- [ ] Wales
- [ ] International – EU Country
- [ ] International – Non-EU Country
- [ ] Don't know/Not Applicable

11. If known, which of the following best describes the industry in which you will be employed six months after completing your current course? *Optional*

- ○ Accommodation and food service activities
- ○ Administrative and support service activities
- ○ Agriculture, forestry and fishing
- ○ Arts, entertainment and recreation
- ○ Construction
- ○ Education
- ○ Electricity, gas, steam and air conditioning supply
- ○ Financial and insurance activities
- ○ Human health and social work activities
- ○ Information and communication
- ○ Manufacturing
- ○ Mining and quarrying
- ○ Professional, scientific and technical activities
- ○ Public administration and defence; compulsory social security
- ○ Real estate activities
- ○ Transportation and storage
- ○ Water supply; sewerage, waste management and remediation activities
- ○ Wholesale and retail trade
- ○ Don't know/Not Applicable
- ○ Other

If you selected Other, please specify:

12. Which of the following best describes the write of work that you anticipate doing six months after completing your current course? *Required*

- Professional occupation, including managers, directors and senior officials, associate professional, and technical occupations.
- Other occupations, including administrative, secretarial, skilled trades, caring, retail, and customer service
- Further Study
- Don't know/Not Applicable
- Other

If you selected Other, please specify:

13. If you know the name of your job title, please write it here:

14. Which of the following best describes your anticipated living arrangements six months after completing your current course? *Required*

- A hall of residence or other building specially built for students
- Rented flat/house
- In social housing
- In a property you fully/jointly own
- With parents, guardians or relatives other than a spouse or children
- Don't know
- Other

If you selected Other, please specify:

Section 2: Mobility Attitudes
This section asks you about your attitudes towards certain aspects of mobility

This section asks you to what extent do you agree with the following statements, where 1 means you strongly *disagree* and 5 means you strongly *agree*.

Please don't select more than 1 answer(s) per row.

	1 – Strongly disagree	2 – Disagree	3 – Neither agree nor disagree	4 – Agree	5 – Strongly agree
I consider myself a career-minded person	☐	☐	☐	☐	☐
I consider myself a family-oriented person	☐	☐	☐	☐	☐
I would move anywhere for the ideal job	☐	☐	☐	☐	☐
My decision about where to live after uni is entirely career-related	☐	☐	☐	☐	☐
I strongly identify with my home town/city	☐	☐	☐	☐	☐
I'm proud of the place I come from	☐	☐	☐	☐	☐
I'd prefer to live in a place where I fit in rather than relocate for the perfect job	☐	☐	☐	☐	☐
I have had positive experiences with moving in the past	☐	☐	☐	☐	☐
I believe the ability to move wherever you like after uni isn't for people like me	☐	☐	☐	☐	☐

Do you have any another comments about your attitudes toward mobility?

Section 3: Career and Community Attitudes

This next section asks you about how factors related to careers and community impact upon your decisions about where to live after leaving university.

Please rate how important the following factors are to selecting where to live after leaving university, where 1 means that this factor is *not at all important* and 5 means the factor is *very important* in your decision-making.

Please don't select more than 1 answer(s) per row.

	1 - Not at all important	2 - Low importance	3 - Neutral	4 - Moderately important	5 - Very important
Being able to find a job quickly and easily in a location	☐	☐	☐	☐	☐
The availability of high starting salaries in a location	☐	☐	☐	☐	☐
Having a professional network in a place	☐	☐	☐	☐	☐
The availability of jobs that offer security, advancement and flexibility in a given location	☐	☐	☐	☐	☐
The availability of jobs with well-known brands or large corporations	☐	☐	☐	☐	☐
The availability of 'cool' jobs (e.g., jobs in tech, fashion, media, or start-ups)	☐	☐	☐	☐	☐
Cost of Living EXCLUDING housing	☐	☐	☐	☐	☐
Affordability of housing	☐	☐	☐	☐	☐
Physical proximity to job or reliable transport needed for work	☐	☐	☐	☐	☐
Feeling at home in a place	☐	☐	☐	☐	☐
Proximity to family and friends	☐	☐	☐	☐	☐
Proximity to a spouse or partner	☐	☐	☐	☐	☐
Provisions for children like childcare and schools	☐	☐	☐	☐	☐

Is there anything else related to your career or personal life and mobility that you'd like to share?

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Section 4: Perception of Greater Manchester

This section asks you to what extent do you agree with the following statements about Greater Manchester's reputation, where 1 means you strongly disagree and 5 means you strongly agree.

Greater Manchester has a good reputation for

Please don't select more than 1 answer(s) per row.

	1 - Strongly Disagree	2 - Disagree	3 - Neutral	4 - Agree	5 - Strongly Agree
A place to start your career	☐	☐	☐	☐	☐
A place to start a family	☐	☐	☐	☐	☐
Its social scene (nightlife, good for dating/meeting friends)	☐	☐	☐	☐	☐
Its cultural scene (museums, theatres, live performances, etc.)	☐	☐	☐	☐	☐
Its infrastructure like public transport, roads, airport	☐	☐	☐	☐	☐
Its built environment (e.g., landmarks and architecture)	☐	☐	☐	☐	☐
A pleasing natural environment (e.g., weather, climate, green spaces)	☐	☐	☐	☐	☐
Being a cool, fashionable and exciting place to live	☐	☐	☐	☐	☐
Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	☐	☐	☐	☐	☐
Being a centre for innovation and cutting-edge industries like tech and research	☐	☐	☐	☐	☐
Being a talent hub that attracts ambitious, educated, and entrepreneurial people	☐	☐	☐	☐	☐

Do you have any other comments related to Greater Manchester's reputation that will influence your post-university location?

Section 5: Your Mobility Decisions

This next section asks you how important certain aspects of Greater Manchester's reputation are in your decision (or potential decision) to stay or leave.

When considering your decision to stay or leave Greater Manchester, how important are the below attributes of Greater Manchester's reputation to you, where 1 means that this factor was *not at all important* and 5 means the factor was *very important.*

Please don't select more than 1 answer(s) per row.

	1 - Not at all important	2 - Low importance	3 - Neutral	4 - Moderately important	5 - Very important
A place to start your career	☐	☐	☐	☐	☐
A place to start a family	☐	☐	☐	☐	☐
Its social scene (nightlife, place for dating/meeting friends)	☐	☐	☐	☐	☐
Its cultural scene (museums, theatres, music, live performances, etc.)	☐	☐	☐	☐	☐
Its infrastructure like public transport, roads, airport	☐	☐	☐	☐	☐
Its built environment (e.g., landmarks and architecture)	☐	☐	☐	☐	☐
A pleasing natural environment (e.g., weather, climate, green spaces)	☐	☐	☐	☐	☐
Being a cool, fashionable and exciting place to live	☐	☐	☐	☐	☐
Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	☐	☐	☐	☐	☐
Being a centre for innovation and cutting-edge industries like tech and research	☐	☐	☐	☐	☐
Being a talent hub that attracts ambitious, educated, and entrepreneurial people	☐	☐	☐	☐	☐

Do you have any other comments related to Greater Manchester's reputation that will influence your post-university location?

Section 6: Demographics

We would like to ask some questions about you. The information you provide will be kept entirely confidential and will never be traced back to you as an individual. The information you provide will be used for statistical and research purposes only and will be stored securely. If there are any questions you do not wish to answer, move on to the next question.

1. What is your gender?

- Male
- Female
- Other

2. What is your age?

- Under 16
- 16-17
- 18-19
- 20-24
- 25-29
- 30-34
- 35-39
- 40+

3. What is your country of birth?

- England
- Wales
- Scotland
- Northern Ireland
- International – EU
- International – Non-EU

4. What is your ethnicity?

- Arab or North African
- Asian or Asian British
- Black or Black British
- Chinese, Japanese, or other Southeast East Asian
- Mixed / Multiple ethnic groups
- White
- Other

If you selected Other, please specify:

10

5. Thinking back to when you were aged about 14, which best describes the sort of work the main/ highest income earner in your household did in their main job?

- Professional occupation, including managers, directors and senior officials, associate professional, and technical occupations.
- Other occupations, including administrative, secretarial, skilled trades, caring, retail, and customer service
- Don't know/Not Applicable
- Other

If you selected Other, please specify:

6. Which of the following best describes your course of study?

- Agriculture & related subjects
- Architecture, building & planning
- Biological sciences
- Business & administrative studies
- Combined
- Computer science
- Creative arts & design
- Education
- Engineering & technology
- Historical & philosophical studies
- Languages
- Law
- Mass communications & documentation
- Mathematical sciences
- Medicine & dentistry
- Physical sciences
- Social studies
- Subjects allied to medicine (e.g., nursing, pharmacology, nutrition)
- Veterinary science
- Other

If you selected Other, please specify:

7. Do you plan to live with a spouse or partner six months after completing your current course?

- ○ Yes
- ○ No
- ○ Maybe/Don't know

8. Will you be living with your children or those of your spouse/partner six months after completing your current course?

- ○ Yes
- ○ No
- ○ Maybe/Don't know

Section 8: Final Section

Do you have any another comments about what will influence your post-university location?

This questionnaire is part of a larger study on graduate mobility. Are you happy to be contacted about participating in a follow-up interview?

- ○ Yes
- ○ No

If you answered yes, please supply

Name: _____

Email Address: _____

Thank you for completing this important questionnaire. Your responses will be used to inform policy and practice.

Please contact the lead investigator Sean Brophy (sean.r.brophy@stu.mmu.ac.uk) at Manchester Metropolitan University if you have any questions or concerns regarding this study.

Appendix 5: Interview Guide

Name: Date:

Interview Location:

Gender: Ethnicity:

Year: Course:

Domicile: Destination:

Migration Code:

1. Can you tell me about your journey to MMU, where you can from, what you're studying, and what you hope to do after uni?

2. What factors are you taking into consideration when deciding about where to live after uni?
    a. Jobs
    b. Family/Friends
    c. Community
    d. Safety
    e. Housing costs
    f. Is Manchester cool?
    g. Identity/Attachment/Belonging
    h. Specific neighbourhoods
    i. Anything specific about the physical place?
        i. Built Environment/ Natural Environment/Amenities
    j. Tolerance
    k. Costs: housing versus others
    l. Jobs, e.g., salary, quality of jobs, cool jobs, well-known companies, fit with your course

3. If you had to prioritise any of the above, which of the factors would be the most important? Why?

4. How much of the decision do you think is within your control and how much it outside of your control? (place dependence and being stuck)

5. Who or what would you say has had the most influence on your future plans? Was the place ever specifically mentioned or discussed? If so, what about the place?

6. What are your views about Manchester as a destination for your post-university life? What about it makes you want to stay or what about it makes you want to leave?
    a. Is there anything that Manchester could improve to make you stay?
    b. Is there anything about Manchester that if it were it was missing, you'd leave?

7. How important is feeling like you 'belong' somewhere to your decision? What does 'belonging to a place' mean to you?
8. Is staying here a good thing? How is this viewed? Is it seen as a failure?

9. Would it be different about moving to a different place if you…
    a. Went to another university
    b. Studied in another city
    c. Studied a different subject
    d. Were in a different financial position
    e. Had a different family situation

Post-Interview Reflection (Bryman, 2012, p. 476):

- How the interview went (was interviewee talkative, cooperative, nervous, well-dressed/scruffy, etc.?)

- any other feelings about the interview (did it open up new avenues of interest?)

- the setting (busy/quiet, many/few other people in the vicinity)

Other Thoughts:

Appendix 6: Survey Marketing Material

Figure 1: Flyer 1

Figure 2: Twitter Ad

Figure 3: Poster

ARE YOU AN UNDERGRADUATE STUDENT IN GREATER MANCHESTER?

We would like to invite you to take part in a research study about the retention of graduates in the local area conducted by a PhD researcher at Manchester Metropolitan University Business School.

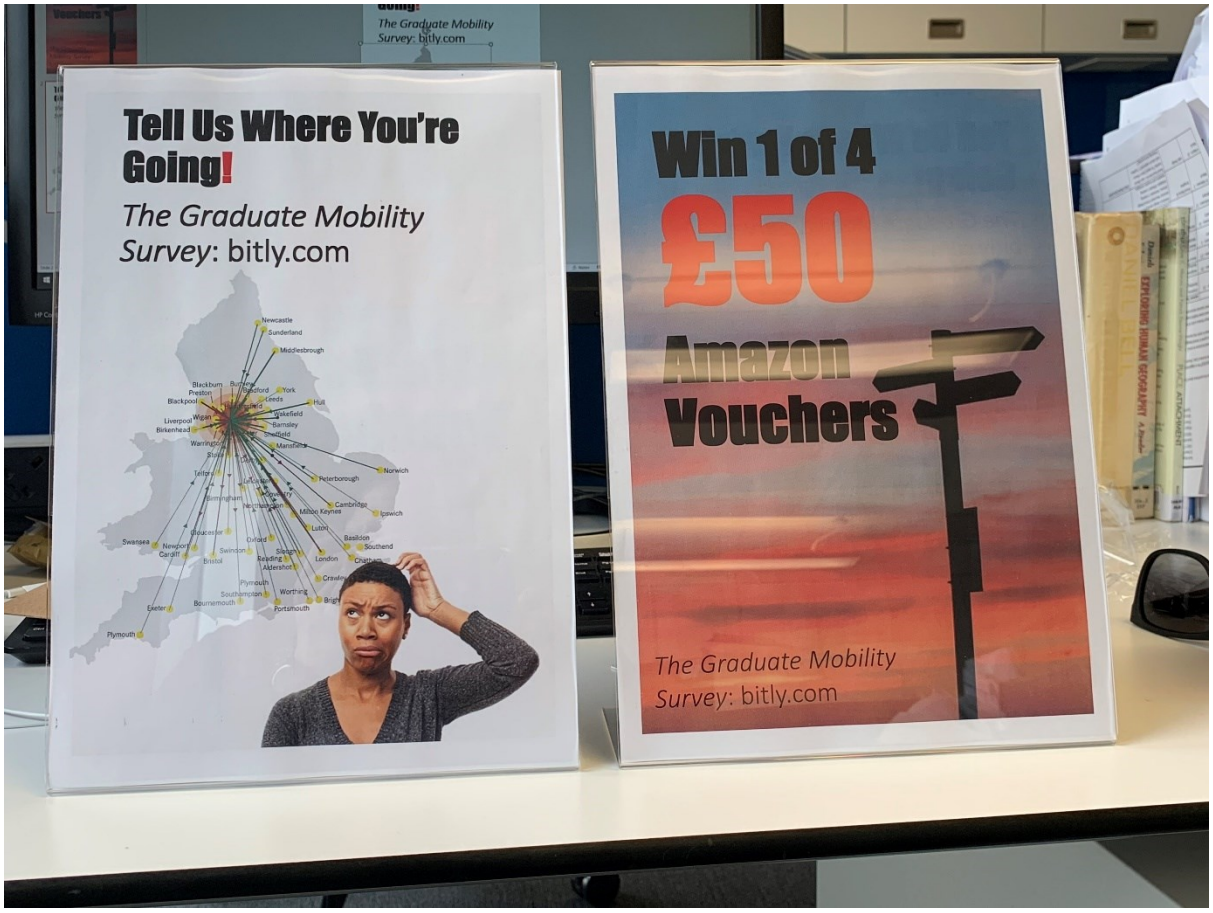
The research will explore students' attitudes to Greater Manchester and the impact these attitudes may have on choices about where to work and live.

We are looking for undergraduate students at the Universities of Bolton, Salford, Manchester, and Man Met who are willing to take part in a confidential interview.

The interview will take about one hour and can be scheduled at a time and place that is convenient for you (including via phone/Skype).

Research findings will be made available to participants. If you are interested in taking part or would like more information, please contact Sean Brophy at sean.r.brophy@stu.mmu.ac.uk or on 074 933 66370.

Figure 4: Table-top signage


The Graduate Mobility Survey: bitly.com
Tell Us Where You're Going!
The Graduate Mobility Survey: bitly.com
Newcastle
Sunderland
Middlesbrough
Blackburn
Preston
Blackpool
Bradford
York
Leeds
Hull
Liverpool
Wigan
Birkenhead
Sheffield
Barnsley
Warrington
Manchester
Norwich
Peterborough
Cambridge
Ipswich
Milton Keynes
Luton
Basildon
Southend
Swansea
Newport
Cardiff
Swindon
Bristol
Reading
London
Aldershot
Plymouth
Worthing
Southampton
Bournemouth
Portsmouth
Exeter
Plymouth
Win 1 of 4
£50
Amazon
Vouchers
The Graduate Mobility Survey: bitly.com

Appendix 7: Participant Information Sheet

Participant Information Sheet

Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to the Manchester City Region

1. Invitation to research

The attraction and retention of graduates to Greater Manchester has been given renewed attention because of the devolution and the Northern Powerhouse initiatives, and both policy-makers and commentators alike have high expectations about the contribution of graduate human capital to Greater Manchester's regional economic development. However, the understanding of the attractiveness of specific regions of the UK to highly-skilled workers and graduates is largely confined to the London and the South East. The aim of this project is to contribute to the academic debates about the factors driving graduate mobility, and specifically, how a peripheral city, as represented by Greater Manchester, is perceived by students studying there as a destination when compared to Greater London.

2. Why have I been invited?

You have been invited because you are a third-year student Manchester Metropolitan University, the University of Bolton, University of Manchester, and the University of Salford. Inclusion criteria are third-year university students in Greater Manchester. Exclusion criteria include those students who are not UK citizens.

3. Do I have to take part?

It is up to you to decide. We will describe the study and go through the information sheet, which we will give to you. We will then ask you to sign a consent form to show you agreed to take part. You are free to withdraw at any time, without giving a reason.

4. What will I be asked to do?

If you are happy to take part in the study, you will be asked to participate in one 60-minute interview. The study will take place via phone or video conference. There will not be any follow-up interviews. This study will involve video/audio recording. Your responses, including any direct responses, will be anonymised and used for research that may appear in a PhD dissertation and/or publications.

5. Are there any risks if I participate?

This study will anonymise both individuals and institutions. Even when institutions are anonymised, it may be possible for their identities to be uncovered based upon their unique characteristics.

6. Are there any advantages if I participate?

You will be offered a gift voucher in recognition for your participation.

8. What will happen with the data I provide?

When you agree to participate in this research, we will collect from you personally-identifiable information.

The Manchester Metropolitan University ('the University') is the Data Controller in respect of this research and any personal data that you provide as a research participant.

The University is registered with the Information Commissioner's Office (ICO), and manages personal data in accordance with the General Data Protection Regulation (GDPR) and the University's Data Protection Policy.

We collect personal data as part of this research (such as name, telephone numbers or age). As a public authority acting in the public interest we rely upon the 'public task' lawful basis. When we collect special category data (such as medical information or ethnicity) we rely upon the research and archiving purposes in the public interest lawful basis.

Your rights to access, change or move your information are limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained.

If your data is shared this will be under the terms of a Research Collaboration Agreement which defines use, and agrees confidentiality and information security provisions. It is the University's policy to only publish anonymised data unless you have given your explicit written consent to be identified in the research. **The University never sells personal data to third parties.**

We will only retain your personal data for as long as is necessary to achieve the research purpose. The research data and personal information will be stored confidentially using password protected devices. All research data and records will be stored for a minimum retention period of 3 years after publication or public release of the work of the research.

For further information about use of your personal data and your data protection rights please see the University's Data Protection Pages (https://www2.mmu.ac.uk/data-protection/).

What will happen to the results of the research study?

Manchester Metropolitan University is committed to the dissemination of its research for the benefit of society and the economy and, in support of this commitment, has established an online archive of research materials. This archive includes digital copies of student theses successfully submitted as part of a Manchester Metropolitan University postgraduate degree programme. Holding the archive online gives easy access for researchers to the full text of freely available theses, thereby increasing the likely impact and use of that research.

If you agree to participate in this study, the research will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

Who has reviewed this research project?

This study has been reviewed by, and received ethics clearance through Manchester Metropolitan University.

Who do I contact if I have concerns about this study or I wish to complain?

If you have a concern about any aspect of this study, please contact the researcher, Sean Brophy at +44 (0)7493 366370 or sean.r.brophy@stu.mmu.ac.uk or Sean's supervisor, Professor Ben Lupton at +44 (0) 161 247 6460 or b.lupton@mmu.ac.uk.

If you have any concerns regarding the personal data collected from you, our Data Protection Officer can be contacted using the legal@mmu.ac.uk e-mail address, by calling 0161 247 3331 or in writing to: Data Protection Officer, Legal Services, All Saints Building, Manchester Metropolitan University, Manchester, M15 6BH. You also have a right to lodge a complaint in respect of the processing of your personal data with the Information Commissioner's Office as the supervisory authority. Please see: https://ico.org.uk/global/contact-us/

THANK YOU FOR CONSIDERING PARTICIPATING IN THIS PROJECT

Appendix 8: Participant Consent Form

Researcher: Sean Brophy, sean.r.brophy@stu.mmu.ac.uk, +44 (0)7493 366370

PARTICIPANT CONSENT FORM: Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to the Manchester City Region

1. I confirm that I have read and understand the information sheet version 2 dated 7th August 2019 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without any adverse consequences or academic penalty.
3. I understand that research data collected during the study may be looked at by designated individuals from the Manchester Metropolitan University where it is relevant to my taking part in this study. I give permission for these individuals to access my data.
4. I understand that this project has been reviewed by, and received ethics clearance through Manchester Metropolitan University.
5. I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.
6. I understand how this research will be written up and published.
7. I understand how to raise a concern or make a complaint.
8. I consent to being audio recorded
9. I consent to being video recorded
10. I understand how audio recordings / videos / photos will be used in research outputs
11. I agree to take part in the above study.

Name of Participant	Date	Signature
Name of person taking consent	Date	Signature

Appendix 9: Online Survey SPSS Codebook

URN	Unique Response Number		SPSS Label
Q1	Which of the following best describes you?		Year of study
1	An undergraduate first year student		
2	An undergraduate intermediate year student (e.g., a 2nd year student)		
3	An undergraduate final year student		
4	A postgraduate taught student		
5	A postgraduate research student		
6	A recent graduate		
7	Other		
Q1_a	If you selected Other, please specify:		
Q2	Please select your university from the list below		University
1	Manchester Metropolitan University		
2	Royal Northern College of Music		
3	University of Bolton		
4	University of Manchester		
5	University of Salford		
6	Other		
Q2_a	If you selected Other, please specify:		
Q3	Were you living in the UK prior to entry of your course?		Living in UK
1	Yes		
2	No		
Q3_a	If you answered yes, please enter the postcode of your residence prior to entry of your course (or as much as you can remember). This helps us with geographic analysis and is kept completely confidential		Pre Postcode
Q3_b	Were you living inside or outside of the EU?		
1	In a EU country		
2	In a non-EU country		
3	Not sure		
Q4	Rounding to the nearest whole number, how many years have you lived in Greater Manchester? For example, if you've lived in Greater Manchester for 2.5 years, please type 3 in the box below.		Number of years living in MCR
Q5	When do you expect to complete your current course?		Graduation date
Q6	Please select the region that best describes where you anticipate living 6 months after completing your current course.		Destination region
1	Greater Manchester (includes the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan)		
2	Greater London		
3	South East		
4	North West excluding Greater Manchester		
5	East of England		
6	West Midlands		
7	South West		
8	Yorkshire and the Humber		
9	East Midlands		
10	North East		
11	Northern Ireland		

12	Scotland		
13	Wales		
14	International – EU Country		
15	International – Non-EU Country		
16	Don't know		
Q6_a	If known, please enter the postcode of where you anticipate living six months after completing your current course (or as much as you know).		Destination Postcode
Q7	Which of the following best describes what your anticipated primary career status will be six months after completing your current course?		Anticipated primary career status
1	Working full-time		
2	Working part-time		
3	Due to start a job within the next 3 months		
4	Engaged in full-time further study or training		
5	Engaged in part-time further study or training		
6	Unemployed and looking for work		
7	Other Activity (e.g. engaged in home duties, retired from employment, not able to work due to sickness or disability, travelling, volunteering etc.)		
Q7_a	If you selected Other, please specify:		
Q8	When considering the jobs that you have applied to or jobs that you anticipate applying to, please select all the regions that were or will be included in your job search:		
1	Greater Manchester (includes the local authority areas of Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford, and Wigan)		
2	Greater London		
3	South East		
4	North West excluding Greater Manchester		
5	East of England		
6	West Midlands		
7	South West		
8	Yorkshire and the Humber		
9	East Midlands		
10	North East		
11	Northern Ireland		
12	Scotland		
13	Wales		
14	International – EU Country		
15	International – Non-EU Country		
16	Don't know/Not Applicable		
Q9	If known, which of the following best describes the industry in which you will be employed six months after completing your current course?		
1	Accommodation and food service activities		
2	Administrative and support service activities		
3	Agriculture, forestry and fishing		
4	Arts, entertainment and recreation		
5	Construction		
6	Education		
7	Electricity, gas, steam and air conditioning supply		
8	Financial and insurance activities		
9	Human health and social work activities		
10	Information and communication		

11	Manufacturing		
12	Mining and quarrying		
13	Professional, scientific and technical activities		
14	Public administration and defence; compulsory social security		
15	Real estate activities		
16	Transportation and storage		
17	Water supply; sewerage, waste management and remediation activities		
18	Wholesale and retail trade		
19	Don't know/Not Applicable		
20	Other		
Q9_a	If you selected Other, please specify:		
Q10	Which of the following best describes the type of work that you anticipate doing six months after completing your current course?		
1	Professional occupation, including managers, directors and senior officials, associate professional, and technical occupations.		
2	Other occupations, including administrative, secretarial, skilled trades, caring, retail, and customer service		
3	Further Study		
4	Don't know/Not Applicable		
5	Other		
Q10_a	If you selected Other, please specify:		
Q10_b	If you know the name of your job title, please type it here:		
Q11	Which of the following best describes your anticipated living arrangements six months after completing your current course?		
1	A hall of residence or other building specially built for students		
2	Rented flat/house		
3	In social housing		
4	In a property you fully/jointly own		
5	With parents, guardians or relatives other than a spouse or children		
6	Don't know		
7	Other		
Q11_a	If you selected Other, please specify:		
Q12	This section asks you to what extent do you agree with the following statements, where 1 means you strongly disagree and 5 means you strongly agree.		
Q12_1	I consider myself a career-minded person		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_2	I consider myself a family-oriented person		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_3	I would move anywhere for the ideal job		
1	1 – Strongly disagree		
2	2 – Disagree		

3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_4	My decision about where to live after uni is entirely career-related		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_5	I strongly identify with my home town/city		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_6	I'm proud of the place I come from		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_7	I'd prefer to live in a place where I fit in rather than relocate for the perfect job		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_8	I have had positive experiences with moving in the past		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me		
1	1 – Strongly disagree		
2	2 – Disagree		
3	3 – Neither agree nor disagree		
4	4 – Agree		
5	5 – Strongly agree		
Q12_a	Do you have any another comments about your attitudes toward mobility?		
Q13	Please rate how important the following factors are to selecting where to live after leaving university, where 1 means that this factor is not at all important and 5 means the factor is very important in your decision-making.		
Q13_1	Being able to find a job quickly and easily in a location		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		

5	5 - Very important		
Q13_2	The availability of high starting salaries in a location		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_3	Having a professional network in a place		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_4	The availability of jobs that offer security, advancement and flexibility in a given location		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_5	The availability of jobs with well-known brands or large corporations		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_6	The availability of ‘cool’ jobs (e.g., jobs in tech, fashion, media, or start-ups)		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_7	Cost of Living EXCLUDING housing		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_8	Affordability of housing		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_9	Physical proximity to job or reliable transport needed for work		
1	1 - Not at all important		
2	2 - Low importance		

3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_10	Feeling at home in a place		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_11	Proximity to family and friends		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_12	Proximity to a spouse or partner		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_13	Provisions for children like childcare and schools		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q13_a	Is there anything else related to your career or personal life and mobility that you'd like to share?		
Q14	Greater Manchester has a good reputation for		
Q14_1	A place to start your career		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_2	A place to start a family		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_3	Its social scene (nightlife, good for dating/meeting friends)		
1	1 - Strongly Disagree		
2	2 - Disagree		

3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_4	Its cultural scene (museums, theatres, live performances, etc.)		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_5	Its infrastructure like public transport, roads, airport		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_6	Its built environment (e.g., landmarks and architecture)		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_7	A pleasing natural environment (e.g., weather, climate, green spaces)		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_8	Being a cool, fashionable and exciting place to live		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_10	Being a centre for innovation and cutting-edge industries like tech and research		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		

Q14_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people		
1	1 - Strongly Disagree		
2	2 - Disagree		
3	3 - Neutral		
4	4 - Agree		
5	5 - Strongly Agree		
Q14_a	Do you have any other comments related to Greater Manchester's reputation that will influence your post-university location?		
Q15	When considering your decision to stay or leave Greater Manchester, how important are the below attributes of Greater Manchester's reputation to you, where 1 means that this factor was not at all important and 5 means the factor was very important.		
Q15_1	A place to start your career		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_2	A place to start a family		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_3	Its social scene (nightlife, place for dating/meeting friends)		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_4	Its cultural scene (museums, theatres, music, live performances, etc.)		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_5	Its infrastructure like public transport, roads, airport		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_6	Its built environment (e.g., landmarks and architecture)		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		

Q15_7	A pleasing natural environment (e.g., weather, climate, green spaces)		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_8	Being a cool, fashionable and exciting place to live		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_10	Being a centre for innovation and cutting-edge industries like tech and research		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people		
1	1 - Not at all important		
2	2 - Low importance		
3	3 - Neutral		
4	4 - Moderately important		
5	5 - Very important		
Q15_a	Do you have any other comments related to Greater Manchester's reputation that will influence your post-university location?		
Q16	What is your gender?		
1	Male		
2	Female		
3	Other		
Q17	What is your age?		
1	Under 16		
2	16-17		
3	18-19		
4	20-24		
5	25-29		
6	30-34		
7	35-39		
8	40+		
Q18	What is your country of birth?		

1	England		
2	Wales		
3	Scotland		
4	Northern Ireland		
5	International – EU		
6	International – Non-EU		
Q19	What is your ethnicity?		
1	Arab or North African		
2	Asian or Asian British		
3	Black or Black British		
4	Chinese, Japanese, or other Southeast East Asian		
5	Mixed / Multiple ethnic groups		
6	White		
Q19_a	If you selected Other, please specify:		
Q20	Thinking back to when you were aged about 14, which best describes the sort of work the main/ highest income earner in your household did in their main job?		
1	Professional occupation, including managers, directors and senior officials, associate professional, and technical occupations.		
2	Other occupations, including administrative, secretarial, skilled trades, caring, retail, and customer service		
3	Don't know/Not Applicable		
4	Other		
Q20_a	If you selected Other, please specify:		
Q21	Which of the following best describes your course of study?		
1	Agriculture & related subjects		
2	Architecture, building & planning		
3	Biological sciences		
4	Business & administrative studies		
5	Combined		
6	Computer science		
7	Creative arts & design		
8	Education		
9	Engineering & technology		
10	Historical & philosophical studies		
11	Languages		
12	Law		
13	Mass communications & documentation		
14	Mathematical sciences		
15	Medicine & dentistry		
16	Physical sciences		
17	Social studies		
18	Subjects allied to medicine (e.g., nursing, pharmacology, nutrition)		
19	Veterinary science		
20	Other		
Q21_a	If you selected Other, please specify:		
Q22	Do you plan to live with a spouse or partner six months after completing your current course?		
1	Yes		
2	No		

3	Maybe/Don't know		
Q23	Will you be living with your children or those of your spouse/partner six months after completing your current course?		
1	Yes		
2	No		
3	Maybe/Don't know		
Q24	Do you have any another comments about what will influence your post-university location?		
Q25	We are offering survey respondents the chance to win 1 of 4 £50 Amazon gift vouchers. Would you like to be considered for one of the prizes?		
1	Yes		
2	No		
Q25_a	Email		
Q25_b	Name		
Q26	This questionnaire is part of a larger study on graduate mobility. Are you happy to be contacted about participating in a follow-up interview?		
1	Yes		
2	No		
Q26_a	Email Address:		
Q26_b	Name		
CompletionDate	Submission date		
Q27	GM Local		
1	Yes		
2	No		
Q28	Is GM included in the regions that were or will be included in your job search:		
1	Yes		
2	No		

Appendix 10: Non-parametric tests used in survey analysis

Two-sample statistical comparison is one of the most frequently used hypothesis tests in the field of social sciences, and particularly so for quantitative survey analysis (De Vaus, 2002).

10.1 The *Mann-Whitney U test* (MW) and effect size calculation

The *Mann-Whitney U test* (MW) is the non-parametric counterpart to the independent sample *t*-test (Greasley, 2007), and both the MW and the *t*-test are inferential statistical tests that determine whether there is a statistically significant difference between the central tendency of two unrelated groups (Bryman & Cramer, 2012). The main assumptions for conducting a MW are that the two groups must be independent and that the dependent variable is ordinal or numerical (continuous) (J. Gibbons, 1993), both of which conditions are met in this analysis.

In this analysis, the MW was used to compare each of the Likert-item outcomes for the independent 'stayers' and 'leavers' groups.

The test statistic is *U*, which is the smaller of

(Equation 1)

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1 \quad \textbf{and} \quad U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

where R_1 and R_2 are the sums of the ranks in groups 1 and 2, respectively. The decision rule to reject the null hypothesis, H_0, if there is if there is a statistically significant difference in the population at the 5% level of significance (i.e., α=0.05).

H_0: The two populations – stayers and leavers - are equal versus

H_1: The two populations – stayers and leavers - are not equal.

For those statistically test results between Likert scores and 'stayers' and 'levers', then this Likert-item will further be tested using the MW test against the following dichotomous variables:

- Geography: 'locals' are those respondents who provided either a Greater Manchester postcode for their domicile prior to course entry (Question 1.3A) or have been living in Greater Manchester for four years or more (Question 1.5). Non-locals are those who do not meet either two criteria.
- Gender: a dichotomous dummy variable of male or was created based on responses to Question 6.1, and those who answered 'other' were not included since the *Mann-Whitney test* can only be used for dichotomous variables.
- Ethnicity: a dummy dichotomous variable of 'white' and 'non-white' was created based on responses from Question 6.4. A potential limitation to this approach is that the variance across the heterogenous non-white groups will be lost in the analysis.
- Social Class: a dummy dichotomous variable of 'professional background' and 'nonprofessional background' was created based on responses from Question 6.5, and those who answered 'other' or 'don't know' were not included in the *Mann-Whitney test*.

Effect size estimates will also be reported for statistically significant results of the MW test for both the test of stayers and leavers and the further investigation tests of geography, gender, ethnicity, and social class. Effect size (*r*) is determined by estimating the distributions of the test statistics (*U*) to the

z distribution (Fritz et al., 2012). The *z* value can be used to estimate an effect size, such as the *r* proposed by Cohen (1992b):

(Equation 2)

$$r = \frac{z}{\sqrt{N}}$$

Cohen's guidelines for *r* are that a small effect is 0.1, a medium effect is 0.3, and a large effect is 0.5. So, the results of the MW can be discussed according to statistical significance as well as the size of the effects.

10.2 The *Kruskal–Wallis test* (KW) and effect size calculation

The final step in the process is to analyses is to evaluate whether there is any variance in responses to the Likert items according to the five prospective migration pathways developed for use in the HESA data, which are 'Home Grown Leavers', 'Home Grown Loyals', 'Stayers', 'Home Returners', and 'Bouncers'. This step last stage is being undertaken to go beyond the place-centric stayer-leaver binary and broaden the analysis of attitudes, preferences, and perceptions of alternate migration pathways. This analysis, however, can be thought of as an addition to the main 'stay-leave' analysis because of a fundamental weakness related to sample size. Then the number of independent groups increases from two (stay-leave) to five (migration pathways), the power of nonparametric tests is reduced significantly. Despite these limitations, there is still merit in hypothesis testing the Likert responses against the five pathways. The process of allocating respondents to the five pathways was done by matching postcodes from their pre-course domicile (Question 1.3A) and their anticipated destination postcode w (Question 1.8). For certain responses with missing destination postcode data, migration categories could be allocated based *on their anticipated destination region (Question 1.7).* This involved determining if their domicile postcode was outside their anticipated destination region and allocation migration pathways accordingly. Median scores will first be presented in bar chart form, but the *Kruskal–Wallis* test will be used instead of the MW since the five pathways are more than the two independent groups permitted by the *Mann-Whitney*. The *Kruskal–Wallis test* (KW) is the nonparametric equivalent of the One Way ANOVA test for parametric data, and it is also known as the '*Kruskal–Wallis H test*' or the 'one-way ANOVA on ranks'.

Much like the MW test, the KW test looks for differences in the distributions of data between groups (Harpe, 2015), and the test can determine whether the medians of groups are different. The test statistic is called the *H* statistic, and the equation for calculating the *H* statistic is

(equation 3)

$$H = \left[\frac{12}{n(n+1)} \sum_{j=1}^{c} \frac{T_j^2}{n_j} \right] - 3(n+1)$$

where

n = sum of sample sizes for all independent samples,

c = number of samples,

T_j = sum of ranks in the j^{th} sample

n_j = size of the j^{th} sample (J. Gibbons, 1993).

The decision rule to reject the null hypothesis, H_0, if there is if there is a statistically significant difference in the population at the 5% level of significance (i.e., α=0.05).

H_0: The five pathway populations are equal versus

H_1: The five pathway populations are not equal.

Once the *H* statistic has been computed, the epsilon-squared estimate of effect size can be calculated where:

(Equation 4)

$$E_R^2 = \frac{H}{(n^2 - 1)/(n+1)}$$

H = the valued obtained in the *Kruskal–Wallis test,*

n_j= the total number of observations

E_R^2 = – coefficient assumes the value from 0 (indicating no relationship) to 1 (indicating a perfect relationship) (Tomczak & Tomczak, 2014).

To interpret the effect size, we can use the following guidance from Rea and Parker (2014):

0.00 < 0.01 – Negligible

0.01 < 0.04 – Weak

0.04 < 0.16 – Moderate

0.16 < 0.36 – Relatively strong

0.36 < 0.64 – Strong

0.64 < 1.00 – Very strong

The KW test is bound by the same assumptions as the MW test, and it has similar limitations. There will be no further quantitative analysis performed after this step for two main reasons. Given the sample size (*N*=204) used for the analysis of 5 independent samples, any more granular analysis is unlikely to yield statistically significant results. More importantly, however, this final analysis of graduate pathways and attitudes/perceptions could shed light on the main goals of the quantitative portion of this study.

10.3 Mann-*Whitney* results for 'stayers' and leavers

		Total Sample		Independent Samples (Stay/Leave)									Kruskal–Wallis Test			
12. Mobility Attitudes		*N*	Median Score (*N*)	HG Loyal (*n*)	HG Loyal (median score)	HG Leaver (*n*)	HG Leaver (median Score)	Stayer (*n*)	Stayer (median score)	Home Returner (*n*)	Home Returner (median Score)	Bouncer (*n*)	Bouncer (median Score)	*H* statistic	df	*p*- value	E_R^2
Q12_1	I consider myself a career-minded person	137.0	4.0	57.0	4.0	5.0	5.0	43.0	4.0	23.0	4.0	9.0	4.0	5.60	4.000	0.231	0.041185
Q12_2	I consider myself a family-oriented person	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	5.0	4.24	4.000	0.374	0.031209
Q12_3	I would move anywhere for the ideal job	134.0	3.0	54.0	3.0	5.0	4.0	43.0	4.0	23.0	3.0	9.0	4.0	14.26	4.000	0.007**	0.107208
Q12_4	My decision about where to live after uni is entirely career-related	137.0	3.0	57.0	3.0	5.0	5.0	43.0	3.0	23.0	2.0	9.0	4.0	28.05	4.000	0.000**	0.206287
Q12_5	I strongly identify with my home town/city	137.0	4.0	57.0	4.0	5.0	4.0	43.0	3.0	23.0	4.0	9.0	4.0	5.57	4.000	0.234	0.04094
Q12_6	I'm proud of the place I come from	135.0	4.0	55.0	4.0	5.0	5.0	43.0	4.0	23.0	4.0	9.0	4.0	2.43	4.000	0.657	0.018162
Q12_7	I'd prefer to live in a place where I fit in rather than relocate for the perfect job	137.0	3.0	57.0	4.0	5.0	3.0	43.0	3.0	23.0	3.0	9.0	2.0	6.98	4.000	0.137	0.051354
Q12_8	I have had positive experiences with moving in the past	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	3.0	9.0	4.0	13.27	4.000	0.010*	0.097546
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	137.0	2.0	57.0	3.0	5.0	2.0	43.0	2.0	23.0	2.0	9.0	1.0	14.73	4.000	0.005*	0.108293
13. Career & Community Attitudes																	
Q13_1	Being able to find a job quickly and easily in a location	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	0.844	4.000	0.932	0.006207
Q13_2	The availability of high starting salaries in a location	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	3.493	4.000	0.479	0.025687
Q13_3	Having a professional network in a place	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	4.829	4.000	0.305	0.035508
Q13_4	The availability of jobs that offer security, advancement and flexibility in a given location	136.0	4.0	57.0	5.0	5.0	5.0	43.0	4.0	22.0	4.5	9.0	4.0	3.742	4.000	0.442	0.027719
Q13_5	The availability of jobs with well-known brands or large corporations	137.0	4.0	57.0	3.0	5.0	4.0	43.0	3.0	23.0	4.0	9.0	4.0	2.564	4.000	0.633	0.01885
Q13_6	The availability of 'cool' jobs (e.g., jobs in tech, fashion, media, or start-ups)	137.0	3.0	57.0	3.0	5.0	3.0	43.0	3.0	23.0	3.0	9.0	4.0	11.579	4.000	0.021*	0.085136
Q13_7	Cost of Living EXCLUDING housing	136.0	4.0	57.0	4.0	5.0	4.0	42.0	4.0	23.0	4.0	9.0	4.0	1.498	4.000	0.827	0.011093
Q13_8	Affordability of housing	135.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	0.276	4.000	0.991	0.002063
Q13_9	Physical proximity to job or reliable transport needed for work	136.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.709	4.000	0.789	0.01266
Q13_10	Feeling at home in a place	137.0	4.0	57.0	4.0	5.0	5.0	43.0	5.0	23.0	4.0	9.0	5.0	4.477	4.000	0.345	0.032917
Q13_11	Proximity to family and friends	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	3.095	4.000	0.542	0.022755
Q13_12	Proximity to a spouse or partner	137.0	4.0	57.0	4.0	5.0	3.0	43.0	4.0	23.0	4.0	9.0	4.0	3.484	4.000	0.480	0.025621
Q13_13	Provisions for children like childcare and schools	137.0	3.0	57.0	3.0	5.0	3.0	43.0	2.0	23.0	3.0	9.0	3.0	13.745	4.000	0.008*	0.101065
14. Greater Manchester Perceptions																	
Q14_1	A place to start your career	137.0	4.0	57.0	4.0	5.0	4.0	43.0	5.0	23.0	4.0	9.0	4.0	10.593	4.000	0.032*	0.077887
Q14_2	A place to start a family	136.0	3.0	56.0	4.0	5.0	3.0	43.0	3.0	23.0	2.0	9.0	2.0	15.140	4.000	0.004*	0.112151
Q14_3	Its social scene (nightlife, good for dating/meeting friends)	137.0	5.0	57.0	4.0	5.0	5.0	43.0	5.0	23.0	5.0	9.0	4.0	2.820	4.000	0.588	0.020736
Q14_4	Its cultural scene (museums, theatres, live performances, etc.)	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	7.051	4.000	0.133	0.051849
Q14_5	Its infrastructure like public transport, roads, airport	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	9.666	4.000	0.046*	0.071072
Q14_6	Its built environment (e.g., landmarks and architecture)	135.0	4.0	57.0	4.0	5.0	4.0	41.0	4.0	23.0	4.0	9.0	4.0	1.303	4.000	0.861	0.009722
Q14_7	A pleasing natural environment (e.g., weather, climate, green spaces)	137.0	3.0	57.0	3.0	5.0	3.0	3.0	3.0	23.0	3.0	9.0	3.0	0.615	4.000	0.961	0.004522
Q14_8	Being a cool, fashionable and exciting place to live	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	5.204	4.000	0.267	0.038268
Q14_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	136.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	5.0	9.0	4.0	3.868	4.000	0.424	0.028651
Q14_10	Being a centre for innovation and cutting-edge industries like tech and research	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.176	4.000	0.882	0.008648
Q14_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.423	4.000	0.840	0.010463
15. Perceptions & Decision Making																	
Q15_1	A place to start your career	133.0	4.0	55.0	4.0	5.0	4.0	42.0	5.0	22.0	4.0	9.0	4.0	5.924	4.000	0.205	0.04488
Q15_2	A place to start a family	133.0	4.0	56.0	4.0	5.0	4.0	41.0	3.0	22.0	4.0	9.0	3.0	3.679	4.000	0.451	0.027874
Q15_3	Its social scene (nightlife, place for dating/meeting friends)	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	4.0	9.0	3.0	2.098	4.000	0.718	0.015771
Q15_4	Its cultural scene (museums, theatres, music, live performances, etc.)	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	3.0	9.0	3.0	5.579	4.000	0.233	0.041947
Q15_5	Its infrastructure like public transport, roads, airport	133.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	31.0	4.0	9.0	4.0	1.863	4.000	0.761	0.014117
Q15_6	Its built environment (e.g., landmarks and architecture)	134.0	3.0	56.0	3.0	5.0	3.0	42.0	4.0	22.0	3.0	9.0	3.0	2.575	4.000	0.631	0.019362
Q15_7	A pleasing natural environment (e.g., weather, climate, green spaces)	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	2.174	4.000	0.704	0.016344
Q15_8	Being a cool, fashionable and exciting place to live	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	4.0	9.0	4.0	1.736	4.000	0.784	0.01305
Q15_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	1.676	4.000	0.795	0.012605
Q15_10	Being a centre for innovation and cutting-edge industries like tech and research	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	2.354	4.000	0.671	0.017702
Q15_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people	133.0	4.0	55.0	4.0	5.0	3.0	42.0	4.0	22.0	3.5	9.0	4.0	4.142	4.000	0.387	0.031382

*p<0.05; **p<0.01.

10.4 *Mann-Whitney* results for geography, gender, social class and ethnicity (stayers, leavers)

		Total Sample	Independent Samples (Origin)			Mann-Whitney Test			
		N	Median Score (*N*)	Local (*n*)	Local (median score)	Non-local (*n*)	Non-local (median Score)	*U* statistic	*p*-value	*z*	*r*
12. Mobility Attitudes											
Q12_3	I would move anywhere for the ideal job	200.0	4.0	79.0	3.0	121.0	4.0	3885.50	0.021*	-2.311	0.163
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	203.0	2.0	81.0	2.0	122.0	2.0	3753.00	0.002*	-3.034	0.213
13. Career & Community Attitudes											
Q13_1	Being able to find a job quickly and easily in a location	201.0	4.0	81.0	4.0	120.0	4.0	4661.00	0.589	-0.541	0.038
14. Greater Manchester Perceptions											
Q14_2	A place to start a family	198.0	3.0	80.0	4.0	118.0	3.0	3543.50	0.002*	-3.100	0.220
15. Perceptions & Decision Making											
Q15_1	A place to start your career	191.0	4.0	79.0	4.0	112.0	4.0	4339.00	0.806	-0.246	0.018
Q15_2	A place to start a family	191.0	3.0	80.0	3.5	111.0	3.0	3944.00	0.175	-1.357	0.098

*p<0.05; **p<0.01.

		Total Sample		Independent Samples (Gender)				Mann-Whitney Test			
		N	Median Score (*N*)	Male (*n*)	Male (median score)	Female(*n*)	Female (median Score)	*U* statistic	*p*-value	*z*	*r*
12. Mobility Attitudes											
Q12_3	I would move anywhere for the ideal job	196.0	4.0	79.0	4.0	117.0	3.0	3955.50	0.077	-1.767	0.126
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	199.0	2.0	80.0	2.0	119.0	2.0	4076.00	0.073	-1.796	0.127
13. Career & Community Attitudes											
Q13_1	Being able to find a job quickly and easily in a location	197.0	4.0	79.0	4.0	118.0	4.0	4500.00	0.652	-0.451	0.032
14. Greater Manchester Perceptions											
Q14_2	A place to start a family	195.0	3.0	77.0	3.0	118.0	3.0	4080.50	0.211	-1.251	0.090
15. Perceptions & Decision Making											
Q15_1	A place to start your career	189.0	4.0	74.0	4.0	115.0	4.0	3854.00	0.235	-1.188	0.086
Q15_2	A place to start a family	189.0	3.0	73.0	3.0	116.0	3.0	3997.50	0.505	-0.666	0.048

*p<0.05; **p<0.01.

		Total Sample		Independent Samples (Ethnicity)				Mann-Whitney Test			
		N	Median Score (*N*)	White (*n*)	White (median score)	Non-white (*n*)	Non-white (median score)	*U* statistic	*p*-value	*z*	*r*
12. Mobility Attitudes											
Q12_3	I would move anywhere for the ideal job	194.0	4.0	138.0	4.0	56.0	4.0	3416.50	0.192	-1.305	0.094
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	197.0	2.0	139.0	2.0	58.0	2.0	3881.50	0.668	-0.429	0.031
13. Career & Community Attitudes											
Q13_1	Being able to find a job quickly and easily in a location	196.0	4.0	138.0	4.0	58.0	4.0	3896.50	0.749	-0.320	0.023
14. Greater Manchester Perceptions											
Q14_2	A place to start a family	194.0	3.0	136.0	3.0	58.0	4.0	2895.00	0.002*	-3.056	0.219
15. Perceptions & Decision Making											
Q15_1	A place to start your career	189.0	4.0	132.0	4.0	57.0	4.0	3557.50	0.519	-0.645	0.047
Q15_2	A place to start a family	189.0	3.0	131.0	3.0	58.0	3.0	3619.50	0.593	-0.534	0.039

*p<0.05; **p<0.01.

		Total Sample		Independent Samples (Social Class)								Mann-Whitney Test Results (Prof, Non prof)			
		N	Median Score (*N*)	Prof (*n*)	Prof (median score)	Non Prof (*n*)	Non Prof (median Score)	Other (*n*)	Other median Score)	Don't know (*n*)	Don't know (median Score)	*U* statistic	*p*- value	*z*	*r*
12. Mobility Attitudes															
Q12_3	I would move anywhere for the ideal job	196.0	4.0	79.0	4.0	117.0	3.0	3.0	2.0	19.0	3.0	3512.50	0.895	-0.132331	0.009
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	199.0	2.0	80.0	2.0	119.0	2.0	3.0	3.0	21.0	3.0	3324.00	0.361	-0.913705	0.065
13. Career & Community Attitudes															
Q13_1	Being able to find a job quickly and easily in a location	197.0	4.0	79.0	4.0	118.0	4.0	3.0	4.0	21.0	5.0	3461.50	0.709	-0.373266	0.027
14. Greater Manchester Perceptions															
Q14_2	A place to start a family	195.0	3.0	77.0	3.0	118.0	3.0	2.0	3.0	21.0	4.0	3288.00	0.418	-0.809487	0.058
15. Perceptions & Decision Making															
Q15_1	A place to start your career	189.0	4.0	74.0	4.0	115.0	4.0	3.0	5.0	19.0	4.0	3262.00	0.844	-0.197119	0.014
Q15_2	A place to start a family	189.0	3.0	73.0	3.0	116.0	3.0	3.0	5.0	18.0	3.0	3153.00	0.475	-0.714134	0.052

*p<0.05; **p<0.01.

		Total Sample		Independent Samples (Stay/Leave)										Kruskal–Wallis Test			
12. Mobility Attitudes		*N*	Median Score (*N*)	HG Loyal (*n*)	HG Loyal (median score)	HG Leaver (*n*)	HG Leaver (median Score)	Stayer (*n*)	Stayer (median score)	Home Returner (*n*)	Home Returner (median Score)	Bouncer (*n*)	Bouncer (median Score)	*H* statistic	df	*p*- value	E_R^2
Q12_1	I consider myself a career-minded person	137.0	4.0	57.0	4.0	5.0	5.0	43.0	4.0	23.0	4.0	9.0	4.0	5.60	4.000	0.231	0.041185
Q12_2	I consider myself a family-oriented person	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	5.0	4.24	4.000	0.374	0.031209
Q12_3	I would move anywhere for the ideal job	134.0	3.0	54.0	3.0	5.0	4.0	43.0	4.0	23.0	3.0	9.0	4.0	14.26	4.000	0.007**	0.107208
Q12_4	My decision about where to live after uni is entirely career-related	137.0	3.0	57.0	3.0	5.0	5.0	43.0	3.0	23.0	2.0	9.0	4.0	28.05	4.000	0.000**	0.206287
Q12_5	I strongly identify with my home town/city	137.0	4.0	57.0	4.0	5.0	4.0	43.0	3.0	23.0	4.0	9.0	4.0	5.57	4.000	0.234	0.04094
Q12_6	I'm proud of the place I come from	135.0	4.0	55.0	4.0	5.0	5.0	43.0	4.0	23.0	4.0	9.0	4.0	2.43	4.000	0.657	0.018162
Q12_7	I'd prefer to live in a place where I fit in rather than relocate for the perfect job	137.0	3.0	57.0	4.0	5.0	3.0	43.0	3.0	23.0	3.0	9.0	2.0	6.98	4.000	0.137	0.051354
Q12_8	I have had positive experiences with moving in the past	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	3.0	9.0	4.0	13.27	4.000	0.010*	0.097546
Q12_9	I believe the ability to move wherever you like after uni isn't for people like me	137.0	2.0	57.0	3.0	5.0	2.0	43.0	2.0	23.0	2.0	9.0	1.0	14.73	4.000	0.005*	0.108293
13. Career & Community Attitudes																	
Q13_1	Being able to find a job quickly and easily in a location	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	0.844	4.000	0.932	0.006207
Q13_2	The availability of high starting salaries in a location	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	3.493	4.000	0.479	0.025687
Q13_3	Having a professional network in a place	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	4.829	4.000	0.305	0.035508
Q13_4	The availability of jobs that offer security, advancement and flexibility in a given location	136.0	4.0	57.0	5.0	5.0	5.0	43.0	4.0	22.0	4.5	9.0	4.0	3.742	4.000	0.442	0.027719
Q13_5	The availability of jobs with well-known brands or large corporations	137.0	4.0	57.0	3.0	5.0	4.0	43.0	3.0	23.0	4.0	9.0	4.0	2.564	4.000	0.633	0.01885
Q13_6	The availability of 'cool' jobs (e.g., jobs in tech, fashion, media, or start-ups)	137.0	3.0	57.0	3.0	5.0	3.0	43.0	3.0	23.0	3.0	9.0	4.0	11.579	4.000	0.021*	0.085136
Q13_7	Cost of Living EXCLUDING housing	136.0	4.0	57.0	4.0	5.0	4.0	42.0	4.0	23.0	4.0	9.0	4.0	1.498	4.000	0.827	0.011093
Q13_8	Affordability of housing	135.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	0.276	4.000	0.991	0.002063
Q13_9	Physical proximity to job or reliable transport needed for work	136.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.709	4.000	0.789	0.01266
Q13_10	Feeling at home in a place	137.0	4.0	57.0	4.0	5.0	5.0	43.0	5.0	23.0	4.0	9.0	5.0	4.477	4.000	0.345	0.032917
Q13_11	Proximity to family and friends	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	3.095	4.000	0.542	0.022755
Q13_12	Proximity to a spouse or partner	137.0	4.0	57.0	4.0	5.0	3.0	43.0	4.0	23.0	4.0	9.0	4.0	3.484	4.000	0.480	0.025621
Q13_13	Provisions for children like childcare and schools	137.0	3.0	57.0	3.0	5.0	3.0	43.0	2.0	23.0	3.0	9.0	3.0	13.745	4.000	0.008*	0.101065
14. Greater Manchester Perceptions																	
Q14_1	A place to start your career	137.0	4.0	57.0	4.0	5.0	4.0	43.0	5.0	23.0	4.0	9.0	4.0	10.593	4.000	0.032*	0.077887
Q14_2	A place to start a family	136.0	3.0	56.0	4.0	5.0	3.0	43.0	3.0	23.0	2.0	9.0	2.0	15.140	4.000	0.004*	0.112151
Q14_3	Its social scene (nightlife, good for dating/meeting friends)	137.0	5.0	57.0	4.0	5.0	5.0	43.0	5.0	23.0	5.0	9.0	4.0	2.820	4.000	0.588	0.020736
Q14_4	Its cultural scene (museums, theatres, live performances, etc.)	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	7.051	4.000	0.133	0.051849
Q14_5	Its infrastructure like public transport, roads, airport	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	9.666	4.000	0.046*	0.071072
Q14_6	Its built environment (e.g., landmarks and architecture)	135.0	4.0	57.0	4.0	5.0	4.0	41.0	4.0	23.0	4.0	9.0	4.0	1.303	4.000	0.861	0.009722
Q14_7	A pleasing natural environment (e.g., weather, climate, green spaces)	137.0	3.0	57.0	3.0	5.0	3.0	3.0	3.0	23.0	3.0	9.0	3.0	0.615	4.000	0.961	0.004522
Q14_8	Being a cool, fashionable and exciting place to live	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	5.204	4.000	0.267	0.038268
Q14_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	136.0	4.0	56.0	4.0	5.0	4.0	43.0	4.0	23.0	5.0	9.0	4.0	3.868	4.000	0.424	0.028651
Q14_10	Being a centre for innovation and cutting-edge industries like tech and research	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.176	4.000	0.882	0.008648
Q14_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people	137.0	4.0	57.0	4.0	5.0	4.0	43.0	4.0	23.0	4.0	9.0	4.0	1.423	4.000	0.840	0.010463
15. Perceptions & Decision Making																	
Q15_1	A place to start your career	133.0	4.0	55.0	4.0	5.0	4.0	42.0	5.0	22.0	4.0	9.0	4.0	5.924	4.000	0.205	0.04488
Q15_2	A place to start a family	133.0	4.0	56.0	4.0	5.0	4.0	41.0	3.0	22.0	4.0	9.0	3.0	3.679	4.000	0.451	0.027874
Q15_3	Its social scene (nightlife, place for dating/meeting friends)	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	4.0	9.0	3.0	2.098	4.000	0.718	0.015771
Q15_4	Its cultural scene (museums, theatres, music, live performances, etc.)	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	3.0	9.0	3.0	5.579	4.000	0.233	0.041947
Q15_5	Its infrastructure like public transport, roads, airport	133.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	31.0	4.0	9.0	4.0	1.863	4.000	0.761	0.014117
Q15_6	Its built environment (e.g., landmarks and architecture)	134.0	3.0	56.0	3.0	5.0	3.0	42.0	4.0	22.0	3.0	9.0	3.0	2.575	4.000	0.631	0.019362
Q15_7	A pleasing natural environment (e.g., weather, climate, green spaces)	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	2.174	4.000	0.704	0.016344
Q15_8	Being a cool, fashionable and exciting place to live	134.0	4.0	56.0	4.0	5.0	3.0	42.0	4.0	22.0	4.0	9.0	4.0	1.736	4.000	0.784	0.01305
Q15_9	Being a tolerant place for diverse groups like minorities, immigrants, and the LGBTQ+ community	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	1.676	4.000	0.795	0.012605
Q15_10	Being a centre for innovation and cutting-edge industries like tech and research	134.0	4.0	56.0	4.0	5.0	4.0	42.0	4.0	22.0	4.0	9.0	4.0	2.354	4.000	0.671	0.017702
Q15_11	Being a talent hub that attracts ambitious, educated, and entrepreneurial people	133.0	4.0	55.0	4.0	5.0	3.0	42.0	4.0	22.0	3.5	9.0	4.0	4.142	4.000	0.387	0.031382

*p<0.05; **p<0.01.

Appendix 11: Sample Interview Transcript

Pseudonym	Prospective migration pathway	Ethnicity	Gender	Parental occupation	Geographic Origin	Course	Univ.
Harry	Prospective Stayer	White	Male	Non-professional	Carlisle (NW)	Marketing	MMU

Sean Brophy 0:00

Actually ,my study, it has a few different components to it. So first of all, what I'm doing is I can track about 50,000 people kind of where they went, where they come from, you know, where they go to study in Manchester, where there's like Bolton, Salford, MMU and then the University of Manchester and then where they kind of go.

But we don't have much understanding of kind of why people make the decisions that they do. Okay, so I have a survey that you took, and then I'm talking to people to get get a sense of kind of what they, how they make the decisions, what factors are most important, because right now, most people think people kind of decide where they want to live solely based on jobs. Hmm. And, you know, you probably know that that's not right. I know that's not right. And essentially, that's kind of what this conversation is going to be about. So tell me about yourself. You mentioned you're from Carlisle Yeah. Why did you decided to come to Manchester MMU,

Harry 0:56

and well, Manchester is like It's the closest biggest city, if that makes sense. Like, where Carlisle is 10 people either go up to Glasgow, across Newcastle or down to Manchester, that's it. So, obviously looked at all the options, but Manchester just stood out. It's literally been like a mini London. Like I've always like always had my heart set on living in London like all the time and I've always banged on about I've loved London and whatnot. I've never really visited Manchester I looked at unis and I came to Manchester and I was like, This is exactly like London. Yes. Smaller. I was like, 'it's perfect', like literally perfect. There's so much going on. There's so much culture, there's so much people. It's just brilliant.

Commented [SB1]: London Comparison

Sean Brophy 1:44

Yeah, and you know, the mini London is something that I'm hearing kind of a lot. So So, you know, you mentioned the culture, the people. Is there anything else that kind of you look for when you know, you think about Harry wants to live

Harry 2:01

umm... stuff to do. That's one of my biggest things like if there's enough things to do or like even proximity, like for example, Manchester so close to Liverpool, can go to Liverpool for the day, you could go to York for the day. Like it's so close to places but itself has so much to do. So it's just really handy I think because you're never bored you're never stuck stuck like what you want to do. It's always like Oh, why don't do this. Why don't we do this? Like

Commented [SB2]: Location Proximity

Sean Brophy 2:28

Does cost of living factor into your thinking?

Harry 2:33

Yes, quite a lot because in fairness, Manchester's really cheap place to live for the amount of stuff going on. Like, cuz I've got one of my cousins live in London, and they literally don't do anything. They just exist as they call it. They just get up, go to work, come home, go to bed. They don't do anything. Yeah, it's insane.

Commented [SB3]: Cost of living London Comparison

Sean Brophy 2:52

Your cousin here she's working right now.

Harry 2:54

Yeah, she's just graduated from uni. So she's got a job in London, but she's actually looking to move from London to Manchester. Just because she looked Manchester, like she came to visit me a few times she's like, this is just amazing. I'm like, Well, yes it is. So, yeah.

Sean Brophy 3:09

What are your plans? Have you thought I know it's you know, it's a ways away. But have you thought about kind of what you'd like to do when you finish it

Harry 3:16

and definitely stay here like 100% stay here. Just get wide city like PR marketing admin just get like a job like a marketing job here. I don't really know specifics yet but because again, this this is such a good place, right going on like a media city and everything that's here. Like for this kind of industry. This is such an important place for it to be outside of London. So

Commented [SB4]: Jobs Cool London Media City Comparison

Sean Brophy 3:44

yeah, that helps a lot. And when you get a you mentioned, it's always been a dream of yours. To live in London. So when you were looking at units Did you consider London?

Harry 3:54

Not all

Sean Brophy 3:54

so what cities Did you consider?

Harry 3:57

a Lot. so Glasgow, Edinburgh. Newcastle and Liverpool Manchester, Lancaster York and Birmingham.

Sean Brophy 4:10

Alright, so Birmingham, probably the furthest

Harry 4:12

was not going past Birmingham. That was the cutoff point.

Sean Brophy 4:15

So did you visit these cities or

Harry 4:18

went well, every open day they had

Sean Brophy 4:21

so get you yeah, that's pretty ambitious. Don't visit that many cities and I did quite a lot. Got a tour nice tour of the country. So So why, why? Why did you settle on Manchester when you're comparing the cities? Was there something about kind of the other cities something they didn't have that Manchester had or was it just a feeling you had about MMU like

Harry 4:43

it was what the uni itself is obviously MMU has got this brand new massive business school and no other university even came close to what this uni has in terms of the facilities and That was a lot of uni aren't quite on it, not the outskirts of the city center, but like the not amongst It was literally here, you walk down the road, you're in the center of Manchester. Like it's right in the heart of it. And it's again, there's just so much going on. And it's, it's not I don't know what it is. It's just nice. Like I like being busy mostly but also the chance that because yeah, it's nice having that busyness, it's nice to be able to get away from it as well. So the athletes cares to both of them, like go to the busy parts. If you want you can go to the quiet parts if you want.

Commented [SB5]: University Why chose to study in MCR

Sean Brophy 5:36

Similar to me too. I mean, I wasn't I didn't want to kind of go to a university that was kind of far out. I like the fact that I'm in the I could, you know walk from like Piccadilly or wherever Yeah, directly there and I could kind of live within walking distance the university there's, you know, you go to universities like Lancaster cannot walk No, nothing. So, yeah, no, I get that. So, when you finish your degree and you kind of move on, is it? Are you solely looking at kind of jobs and, and, and kind of the quality of life the city offers? Or are there other considerations like your family friends,

Harry 6:16

and obviously you could consider family and friends but in terms of everything it offers, they're quite low down on the list essentially because like, the way I always see things like that is the can always see people when you want to see people you like it to make time for people. Doesn't matter where you are, you can still see them, and you can still talk to them. So in my eyes, that's not really a big factor. But in terms of the actual places and what they offer, like job prospects, and by the culture and nightlife from everything. It really does highlight what the most important things are to me, especially For looking to live because Carlisle has got nothing, it's got absolutely nothing... it's nice but quiet. It's a town that's classed as a city. So it's not a city.

Commented [SB6]: Family Home Jobs Culture Nightlife

Sean Brophy 7:17

No, I mean it's a town that has a cathedral I mean a city

Harry 7:21

literally Yeah, that

Sean Brophy 7:21

literally the only reason pretty good picture I like the ceiling. I could stare at the ceiling all day but yeah, I can see what you mean. This

Harry 7:29

Yeah, there's no like you can walk from one end to the other in about five minutes and

Sean Brophy 7:36

yeah, walked Yeah, I went to the castle. I went to think of the hero. And so you mentioned the culture nightlife amenity. So what do you mean by culture? Like what like, what are you looking for,

and

Harry 7:50

All sorts, obviously Manchester has like, with, like music festivals and stuff like they happen in Heaton Park. That's just up the road. nightlife there's so many different places to go out in Manchester and each one has a completely different vibe to it, like Deansgate gets completely different to Canal Street, but it's still both amazing places to go out. And also like think just like even just little cheap things that go up towns like a food market or a food festival or just little things like that just it's just nice to say nice to experience because you don't get that in a lot of places.

Commented [SB7]: Nightlife Festivals Music

Sean Brophy 8:34

So do you think Manchester's cool?

Harry 8:36

Yeah, yeah, absolutely.

Sean Brophy 8:37

Do you think most people would consider Manchester cool?

Harry 8:41

I think so. Yeah. Definitely. was one of the top places like the in places as it were to be? I think so.

Sean Brophy 8:51

It is it simply because of the amount that's going on here or is there anything else that kind of...?

Harry 8:57

is because it literally I think it's because it's the amount goes on it's big enough to like, not get bored but not too big. So it's scary like London today's and obviously I think it caters to everyone. Like there's something for everyone here like you've got the Northern Quarter, the Trafford Centre, the Arndale, you've got Canal Street you got Deansgate locks, like there is everything for different types of people. Like I don't see how no one could not fit in here. Yeah.

Commented [SB8]: Comparison London Goldilocks "big enough, but not too big" Amenities Fitting in/belonging

Sean Brophy 9:30

That makes sense.

So and you mentioned kind of PR marketing. And using Manchester has the jobs

Harry 9:40

100%. 100. Yeah. Because, like, we usually use Google like marketing firms Manchester and they're like, there's just hundreds and like startups and things. Because it's cheaper here than London. You tend to find it happens more here.[Yeah.] As I said like especially you know with Media City relocating and everything moving with it, it's really kick started everything off I feel for Manchester that. it's moved that whole industry that was solely focused in London and down south and it's completely moved it up north because it's cheaper essentially.

Commented [SB9]: Jobs Cool London Media City Start ups Comparison

Sean Brophy 10:19

Yeah, that

Harry 10:20

yeah it's for all the benefits with it I think.

Sean Brophy 10:22

So for us it's more important to get a job in kind of like in marketing or PR or to get like a job for a cool company like say, BBC or a really cool startup or something like that.

Harry 10:35

I'd like to you it's not the be all and end all but I would like to [what a cool company] Yeah, yeah, get a job Like a cool company not like get to sort of say like, Oh, yeah, I work for ITV or I work for the BBC. Like it's quite a ... I feel like people sort of respect that a bit more. Yeah. And even like new start up things. It's seen as quite not daring but like innovative and quite cool. Oh wow, that sounds like fun. Like, like, yeah, it just it's Yeah, it's like look and sound the part as it were.

Commented [SB10]: Jobs Cool London Media City Comparison

Sean Brophy 11:15

Yeah, definitely. And for some people when he talked about Manchester, they always complain about the weather. Like, is that does that impact any of your decision? And like for me it doesn't bother me. I don't care.

Harry 11:25

I mean, it doesn't bother me because I'm from Carlisle. Literally, we don't have such thing as a British summer because it literally rains every day of the year. Like the wettest town is down the road from

me. It doesn't bother me actually. I think the weather is better than what I'm used to. So because I've got a lot of friends all from down South like they're all from like Cambridge and they're like 'I'm sick of it always raining.' And I'm like well, that's what it is. Yeah. You can't help it. You just get on with it, type thing. Yeah, can't change that.

Commented [SB11]: Weather Rain

Sean Brophy 12:00

And this I mean, this is going to go back to something that you could have brought up earlier but do you think Manchester's a tolerant place? Does that have any the fact that it is a tolerant place? Does that have any bearing on kind of your decision making?

Harry 12:14

Hundred percent. Hundred percent. Yeah. I because of is so much going on here like I feel like it's it's very it's probably one of the most tolerant places in the UK I certainly think anyways,

Commented [SB12]: Tolerance

Sean Brophy 12:33

yeah. And kind of safety, security and does that kind of figure into?

Harry 12:40

Well, I sort of take all that with a bit of pinch of salt really, because obviously, it's a big city. Yeah, you're never gonna be 100% safe. Like, for example, I've seen that happen to the weekend because of Piccadilly Gardens and things like that. I've worked with Neil. It's a big city at the end of the day stuffs gonna happen so you just got to not be stupid. I don't I don't take purposeful risks. Yeah, like obviously, you know, go out enjoy yourself and whatnot but just a little stupid things like, you know, it's pitch black dark, you walk walk home for a night out by yourself. I mean, yeah, you could maybe do that home, it's like a quiet little home. You wouldn't do it here. You wouldn't do it in London, you wouldn't do it in Liverpool. It doesn't factor into the place, I don't think because that's just what city culture is. Yeah.

Commented [SB13]: Safety Urban living London Comparison

Sean Brophy 13:27

And I know you haven't started like kind of the job search process. Yeah, but

What's your impression with kind of MMU employability services?

Harry 13:39

And well, I've since first year I had like, I always get their emails since I signed up to that is it just like it's I think it's quite good to point you in the right direction. Not necessarily finding the job you want, but it's a good idea to get the ball rolling a bit, then you can sort of take that and think okay, well, I'll

look here or look there for it because I'm now that's all I know I'm after. So I think it's a good place to start definitely but a lot of it still falls down to yourself. But I do agree with that because at the end of the day someone shouldn't just do it on a plate he should go out there and look for it.

Commented [SB14]: Safety Urban living London Comparison

Sean Brophy 14:15

Yeah. And do you think they tend to have relationships with more local companies or do you think they have what more of a national

Harry 14:24

I'd say more local but there are still national ones like a lot of times some configuring it says London for example. And I'm just like, yeah. Disregard that one.

Sean Brophy 14:36

Why disregard that one?

Harry 14:38

I just, I don't know. I just kind of said, like, I'll use the example of if there was two jobs. exactly the same. Like same position. Same company, for example, same everything, but one was in Manchester, one was in London. I'd pick Manchester. Why? living costs, primarily living costs. But London's so fast. I've got friends that lived on the go on a night out, and it takes them an hour to get there before they even started. And I don't like like, I'd still it just doesn't sound nice. It doesn't sound enjoyable like everyone I say about London, they just do the literally just exist. They don't live, they just exist. [Yeah]. And, you know, they don't have that relationship whereas, like, they'll like to live on a street, but they won't know the neighbors. Which to me is weird. That's really, really weird. Because I mean, like, the minute I didn't like the streets full of student houses, but we know every single person on that road just because we do because he talks to people.

Commented [SB15]: London Cost of living Comparison

Sean Brophy 15:43

about to live now.

Harry 15:44

Fallowfield felt a little bit out like Oh, I like it sounds really like every time I said people I live in Fallowfield. I was like, Oh, no. It's fine. I believe

Sean Brophy 15:57

that would be powerful. Like

Harry 15:58

Yeah, like so many people. Has has such a bad reputation because it's again, it's like anywhere else in the city. You've got to have better places than others, but there's nothing wrong with it. Yeah,

Sean Brophy 16:09

I've never lived in a nice area before. So

Harry 16:12

we never really, yeah.

Sean Brophy 16:16

All right. So I mean, so if I mean I like that that kind of example that you said if he if he saw a job advertised, you know, same job in London and Manchester you choose Manchester specifically because it will kind of cost of living and what seems like kind of quality of life. Yeah, so it seems like life is something that you value. Hundred percent. I notice you have the beat.

Unknown Speaker 16:38

Yeah, your ideas. Yeah, that's brand new, actually. newsprint would fold.

Harry 16:44

Got it for my 20th birthday. So

Sean Brophy 16:46

yeah. Oh, well, Happy belated. So why why did you get the tattoo of the be?

Harry 16:52

simpler? Manchester. Yeah. But it comes down to it. That's the reason I got it because I thought so. From day one, I'm, like, absolutely honest, I adore Manchester so much, and I want to live here. And I've been like, well, I want to get a tattoo. That means something to me. And I was like, I really want like Manchester and I love it so much. So I was like, I'm just gonna get it, but originally, I was gonna get it when I graduate, but had a quarterlife crisis before my 20th birthday. I decided to do it.

Commented [SB16]: Place identity Bee Tattoo Local pride

Sean Brophy 17:23

So there we go. quarter life crisis. Well, it happens to everyone. But like from what so you know, I've only I only moved to Manchester three years ago. So from what I understand like the like, kind of a Manchester is being proud of being for Manchester living in Manchester, the whole going to be being a symbol that people are proud of is fairly new, like barely released.

Harry 17:46

Yeah, like it's always been there, but it hasn't been as present. Yeah. until after what happened in the arena?

Sean Brophy 17:54

Yeah, that that's kind of what I understood.

Harry 17:57

Yeah. your understanding. Yeah, completely. Like it's always been the symbol. It's always been there but it's never really became the symbol of Manchester until after what happened at the arena

Sean Brophy 18:08

Yeah, so would you say you're you're proud to kind of trigger Manchester one 2%

Harry 18:13

Yeah, I like people tend to have that reaction like when I go home or I'm seeing people that I haven't seen ages ago, and they go 'where do you go to uni', and I'm like 'I go to Manchester'. It's not like' alright, fair enough'. I was like, oh, wow, that's great. Like, that sounds amazing. as just a general I don't know why it's weird because that's the general reaction people have like, if I would have said Newcastle they would have been like, 'alright, yeah' because everyone does that. But because it's cuz he said Manchester instantly people are like, oh, by the way, the impressed by it where they're kind of taken back by it quite a bit.

Commented [SB17]: Place identity Local pride home

Sean Brophy 18:48

jealous, perhaps.

Harry 18:50

I don't know. I think it's quite daring. Because people like especially where I'm from people don't like so not taking risks, but they go with the crowds like the reason because everyone that I went to school with in Carlisle went to Newcastle they just where they go everyone you went to

Commented [SB18]: Road less travelled home

Sean Brophy 19:09

school with it? Yeah

Harry 19:10

All my friends went to Newcastle. I was the only person that went to Manchester not a single person I know went to Manchester

Sean Brophy 19:19

or why do you think they went to Newcastle or

Harry 19:22

any convenient convenience

as you listen to each other Yeah, convenience and also it's it's like that is the closest city to us essentially but it also I think it's because if you feel safer there because like all I'm going my friends like, I'm still gonna be with everybody type thing, but I don't really like that. Like I quite like just going out and trying stuff. If it doesn't work, then try something else.

Commented [SB19]: Road less travelled Newcastle

Sean Brophy 19:52

type thing. Do you think after uni you would ever go back to Carlisle

Harry 19:57

not to live. I couldn't. I physically couldnt. I really can't, like I struggled when I when we went over summer last year, I had 18 weeks off. Yeah. And I was at home for majority of it and it was torture. It was just torture. After Manchester because there's just nothing like literally nothing. And to go places like I mean, I don't actually live in town I live middle of nowhere. So I opened the window and cows and sheep in the field.

Commented [SB20]: Would you return home?

Sean Brophy 20:25

You're out you're out there.

Harry 20:27

I'm yeah, like it takes half an hour just to drive into the neighbor's shop. Really? So.

Sean Brophy 20:33

Yeah. All right. So you're in like rural Cumbria.

Harry 20:35

Like, yeah, rural, rural middle of nowhere,

Sean Brophy 20:38

like White Haven like on the coast. It's

Harry 20:40

like, it's small to Central Central. So the train goes you Penrith? Yeah. Then the next stops Carlisle I'm literally between Penrith and Carlisle. So it's not like absolute middle of nowhere, but it's all green fields and rolling hills and cows and sheep. Okay. Yeah, exactly opposite of what here is

Sean Brophy 21:00

Yeah, I haven't I haven't been within Whitehaven and he hates it. So I mean because again there's nothing This is

Harry 21:06

nothing. Yeah, the only nice thing about home to me is obviously people because you know the people family, but the scenery, the Lake District. I do that's the only thing I think I've missed about being home is being able to just jump in the car and go 10 minutes down the road and you're in this literally like, picture perfect landscape.

Commented [SB21]: Home landscape

Sean Brophy 21:29

Yeah, Manchester doesn't have much in the way of scenery is not really flat.

Harry 21:36

Yeah, that's what got me actually the first time I came here, I was shocked that there's no hills, there's everywhere is flat, which was weird to me, really weird.

Sean Brophy 21:45

So it's not the it's not like even when you compare it to say Liverpool, it's not the prettiest of cities.

Harry 21:51

Like Liverpool is supposed to. It's got like the docks and things like that. So that's sort of what again, it's, it's, you know, it's like natural, you know, the water and whatnot. You're down by the quay side. I'd say that's very picturesque. Manchester hasn't got anything really like, maybe Heaton Park but the end of the day it's a it's a park. it's false. that's not real. Yeah, like, not landscape as is. That's been created. . Yeah, like you have to go elsewhere for that. I suppose, you know, it's like anywhere else and not everywhere. It's got everything. It's been the same for London essentially, that hasn't got a beautiful picturesque landscape. No, it doesn't do they've got really is like the Thames and even that's just the river

Commented [SB22]: Landscape Liverpool Comparison

Sean Brophy 22:38

then is So how important is it for you to feel like you belong somewhere.

When you're thinking about where to

Harry 22:48

Oh, as well as it's pretty important obviously but I feel that belonging comes out of many things, that many things factor into feeling like you belong somewhere, like, if you get on with the place. I suppose if like sorta the way you think, I think quite a lot of the time, like, Manchester is such, like, I think it's a really forward thinking city. Like, it's just growing and expanding so much and so much going on here and like, everything's acceptable here like, you know, no one's ever going tosay 'no, that's not right. You can't think like that.' And I feel like if you have that mentality, then automatically feel like you, like connect with something and if you connect with something, then you belong. You have something . It's a process, I'd say but it's important. It takes time to develop that, I think

Commented [SB23]: Belonging Tolerance

Sean Brophy 23:49

some people though, they can go to a city like, I don't think I belong here. It can be it's on a diverse place. They can get The sense that people aren't open to certain things. They're automatically like it. Conversely, they can go to a place and they can see that it's vibrant that is diverse. And you know what? I can see myself here. Yeah, that's

Harry 24:13

Yeah, I agree with that completely. No.

Sean Brophy 24:17

One can ask one more thing that now it's flown out of my head. Was it?

Oh, so, you know, Manchester has kind of gone through, you know, a period where it was kind of down on its luck and it's and it's been revitalized. So when you talk to your parents about kind of living in Manchester, wanting to say Manchester, do they have any opinions?

Harry 24:49

Well, my parents hate Manchester. They like absolutely hate it. Well, my mum can tolerate, but my dad's like, absolutely, like he comes for the day and he's like, get me home. Like he hates it. But that's just I think that's what people are like back home because everyone's just...it's kind of the thing is you're born in Carlisle you stay in Carlisle you die in Carlisle type thing. Don't leave, If you leave, you're weird.

Commented [SB24]: Parents family Place reputation embeddedness

Sean Brophy 25:14

Yeah. So you're weird to them?

Harry 25:17

Yeah it says they don't get it they don't understand it at all they just see it it's like it's just like they think they only see the bad things that come in like oh Lord, there's homeless people on the street. There's all this violence happening on the news I'm like yeah, but you don't you just show if you don't like you don't like it but I do. But yeah, it's it's strange, I think.

Commented [SB25]: Violence Outside perception Family homelessness

Sean Brophy 25:40

Do you have any other siblings?

Harry 25:42

Just majors who are only child Okay, so they're quite protective as it were.

Sean Brophy 25:47

Yeah, makes sense right? But yeah,

Harry 25:51

it's so strange that they just don't they hate it they absolutely hate them

Sean Brophy 25:56

well How much do you think that is kind of Manchester the place or the fact that It's just a series.

Harry 26:00

It's just a city say, definitely. I wouldn't say it's just the place like you could take them. I could take them to London and they'd hate it... They hated Liverpool. absolutely hated Liverpool. When we went that was

Commented [SB26]: Urban-rural divide

Sean Brophy 26:13

for debate about Liverpool.

Harry 26:15

And, again, just everything that's too busy. It's too big. It's too though.

Sean Brophy 26:19

Yeah. It is those things. And Liverpool is much more. I feel like I don't know. It's much more of a Party City.

Harry 26:26

Mm hmm. Definitely like, like

Sean Brophy 26:28

dance clubs open at 11 o'clock in the morning.

Harry 26:32

Like, I know so many people that just go to Liverpool for a night out. I'm like, Okay. Still haven't done that yet. At least try it out. It's a good time.

Sean Brophy 26:41

I recommend a good time. Yeah. Yeah. Is there anything else when it comes to kind of where you when you're thinking about kind of why you like Manchester, or why you want to stay here that we haven't touched on

Harry 27:01

Feel like nothing particularly springs right so I feel like we covered quite a lot of general things

think about it as pretty much just again just the culture the fact you can do so much and where it's art and what's going on there's always something happening that's what my friend is actually about Manchester like there's always something happening and like yeah there is and by something happening you mean like just get by as I've mentioned that a little stupid things like there's a market or town I was a little food festival or there's events going on at Media City or the Trafford Centre. Like obviously London will be the same but I think because London so big, it gets lost. Yeah, type thing but because Manchester's big but small, it's more noticeable. People pick up on it that there's always a concert on at the arena. There's always shows on at the theaters, always something to do, if you want to do it. I think

Commented [SB27]: London Media City Comparison Culture Nightlife

Sean Brophy 28:12

now, you mentioned and again, this is something that's coming up time and time again. And when I talk to people, it seems like Manchester's an urban alternative to London. And I'm talking, everyone I'm speaking to kind of seems to bring that up. Yeah. Do you think in general kind of people think that or do you think it's just folks that happened to study here live here and get to see kind of everything Manchester has to offer? Do you think it's well known throughout the country that Manchester's kind of like a great alternative to London because you get a lot of the same amenities events, but it's a lot cheaper

Harry 28:54

to think so I think it's certainly get because obviously, it's always like Well, my parents said It was always Birmingham that was always the second biggest city but I don't know if it still is or it isn't now I don't actually know that

Sean Brophy 29:05

depends like, how you count. Yeah.

You know, if you count like Greater Manchester is population versus Birmingham record and greater Birmingham Manchester is bigger but he's talking about the city is actual Yeah, Manchester City's actually pretty small. That's Birmingham as the city is actually going geographics geographically is actually quite large. Depends how you count the interest. But

so what's the what's this reputation Do you think with with people young people?

Harry 29:35

I think it's just because so much happens here like, more I feel like more happens here now than it does anywhere else. Like, for example, like, the thing that always kind of stuck in my mind quite a lot of the time is what happened at the arena that time and then afterwards, what is what is what happened afterwards. Like any other city, like I don't want to say these haven't been frequent, but like It's, it's happened elsewhere. Never every city kind of just not shut down almost, but the kind of I don't know just kind of brushed it over.

Yeah type thing, whereas Manchester sort of built itself upon what happens, like especially like the aftermath where they hosted the big charity concert and things like that, like that's never happened before. Yeah. And like I just remember watching it be like, wow, this is incredible like this is never... because stuff like that just doesn't happen but it happened here. Yeah. And it's, I think, especially like I mean that's where the bee symbol came from, like, everything is stemmed from that one tragedy almost. It's brought the whole area, but quite often quite a lot like whole country together type things. It was just so awful. But it's definitely done radical changes to Manchester I think.

Commented [SB28]: Bee Arena bombing local pride

Sean Brophy 31:02

what do you think it's done for the city?

Harry 31:04

Like it's not seen anymore. It's just feel like Manchester has always kind of been overlooked quite a lot because it's up North. Well up north. Yeah, I have so many people. And I live in Carlisle. Yeah. Like No, you're not North, I am North. And because it's always been further away. Like Birmingham in my mind is classed in the South like it's not a Middlands city, it's a Southern city. Like, I kind of push that more towards London than anywhere else. But I feel like it's always like the way the growth sorta happened like Liverpool sort of always doing quite well for itself with its location and whatnot. But Manchester is always kind of been shoved out the way quite a lot. But now, especially with everything like everything's moving like The BBC moved from London to Manchester, like when Media City happened, I think that was sort of a turning point where it was like no you have to pay attention to Manchester because you haven't got a choice. is even like pay attention to this or die out basically like you have to go into times.

Commented [SB29]: North/South divide Underdog Media City

Sean Brophy 32:19

So you think kind of a tragedy put Manchester back kind of in people's in the public consciousness in ways where perhaps it was forgotten.

Harry 32:29

Yeah, I think so. Because we're kind of says it all really that it's so it's always been it's been the same distance time wise as me to Newcastle to Manchester but I've never been I've never even really thought it's just been I never even thought our Yeah, let's go for a day out. I got Glasgow go to Edinburgh go to Newcastle. wouldn't go to Manchester never even contemplate as a until now.

Where am I? Why wouldn't you want to come to Manchester Yeah. But yeah, it's just it's sort of came out of nowhere really these past few years like more and more people get more and more interested because I talk with smile obviously they've been down to visit me from Newcastle and they rave about Newcastle so much then they come here because I were to go visit them the first time I was like yeah, it's all right. To me this is amazing. I was like, Where do you come see me? came down to see me they're like this is like so much better than like we like it's unbelievable. And funny enough we all got into a conversation the other day about what we are wanting to do after uni where we are wanting to live might not see them and I want to stay in Newcastle to them like no we'll go back to Carlisle be with family. But the majority of them are like I'd actually like to live in Manchester because because he really like he really proved me wrong.

Sean Brophy 33:50

What did you show them? What did they What did they not kind of appreciate the delay got here.

Harry 33:57

they came down, and they spent four nights here, and we went to a different area every single night. So we did Deansgate. We did Canal Street. We went to the Printworks went to see things at the the Arena, we went to the Trafford Centre and I think they were really blown away just how different everything is but it's in the same place because they apparently don't have that in Newcastle, which I understand to be honest because I went for a long weekend there. I was like, right what we doing.' Well, we can go shop in and we can go out to this place'. I was like 'right.. what else?' I like I feel like I'm quite greedy now when I go out to other places. I'm like, right? Well, we gonna do like, like what makes Newcastle unique? Why I could do that anywhere. Like how if I wanted to why, what what's unique run Newcastle and don't know, they didn't win me over with it at all? I wasn't convinced.

Commented [SB30]: Place identity Local pride Playing tour guide Acting as brand ambassador

Sean Brophy 35:04

It's cheaper to go out Newcastle

Harry 35:07

depends where you go to the wife that

Sean Brophy 35:09

was my impression. I had a good time in Newcastle but

Harry 35:12

it was great. Don't get me wrong. It was great. I was like

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Harry 35:12

it was great. Don't get me wrong. It was great. I was like

Manchester Yeah. Which has been strange because I have always see Newcastle's is really big, like impressive city every time I visited it for so many years because it's been the closest city to us always. Every day out we'll go to Newcastle. And it's always like Wow, look at this like this is amazing. Now I just

see it really small. Yeah. Like, I don't know. It's just like

disappointed but

Sean Brophy 35:44

well yeah, I mean, now that you've kind of have the Manchester experience

Harry 35:48

would be sending spoilers real

Sean Brophy 35:50

wise, it's just a smaller city emulation wise So

Harry 35:54

yeah, I don't know it's

not really now because Go out sweat I'm like, this is this isn't this good Manchester? Yeah,

Sean Brophy 36:05

well, I mean, it seems like you know, it's kind of your adopted home now. So you're literally and it seems like you're putting this 100% hundred percent. But if you had to prioritize like a top reason, like why you want to say Manchester, you know, is it jobs is a quality of life or would it be

Harry 36:27

quality of life, 100%. You can get a job anywhere or you know, I mean, you can get you can get the same job anywhere you want. But what's the point in being there if you're not happy? If you're not happy then, What's the point? There's no point. Like, if you go to London, what's the point in just existing for this job when you get the same job in Manchester and go out, enjoy yourself, enjoy

going out with people going to do things, And being able to afford to do those things. It's a lot more important than just looking for a job.

Commented [SB31]: London Comparison Quality of life just existing' Cost of living

Sean Brophy 37:10

Fair enough. Anything else

Harry 37:14

I can think of.

Sean Brophy 37:15

We hit most of the topics I had kind of planned out. Okay, cool. Well, are we do you go to Starbucks? I do. Five quid.

Unknown Speaker 37:25

Oh, no. Thank you. Yes.

Sean Brophy 37:27

Thank you very much for submitting. Yeah, no, I mean, your time is valuable. So I'm grateful for you taking part so Thank you. No problem. just stopped.

Transcribed by https://otter.ai

Appendix 12: Ethics Application

Have you completed relevant training?

Thank you for visiting the Ethics Online System (EthOS)

The University seeks to lead the sector in ensuring that the decisions we make concerning research ethics align with our values as an institution as well as meeting all regulatory requirements. (Manchester Metropolitan University, Research and Knowledge Exchange Strategy 2017).

EthOS is an important part of our efforts to achieve "beyond compliance" status in research ethics and governance.

All members of staff and students who are about to undertake a project or investigation in the broad area of research are required to use EthOS to determine what form of ethical approval, if any is required.

This system will guide you through the process of determining what form of ethical approval is required for your project.

The questions within EthOS will be automatically generated based on your previous answers to ensure that only relevant sections are displayed.

The RKE Strategy can be found by clicking the following link: http://www2.mmu.ac.uk/rke-strategy/

A1 The University is committed to adhering to the principles of the Concordat for Research Integrity and we expect all staff and students to complete the relevant online training. Have you completed the Manchester Metropolitan University Research Integrity training course?

- (•) Yes
- ( ) No

A2 Health and Safety

Every member of staff and students have a responsibility for their own health, safety, and wellbeing, and those around them who may be affected by their acts and omissions. Have you completed any University Health and Safety training?

- ( ) Yes
- (•) No

A3 Data Protection

The University is responsible for complying with the Data Protection Act 1998 whenever personal data is processed. Under the Data Protection Policy, all staff and students have a responsibility to comply with the Act in their day-to-day activities. The first step you can take to understand these responsibilities is to complete the University's Mandatory Data Protection Training Module. The Data Protection Training Module can be accessed on Moodle. To make sure your knowledge up to date, all staff and students must complete the training annually.

Have you completed the Data Protection Training?

- ( ) Yes
- (•) No

Applicant

A4 Applicant Details

Title	First Name	Surname
	Sean Robert	Brophy

Email: seanr.brophy@student.mmu.ac.uk

Applicant Status

A5 Your answer to "A5: In what capacity are you carrying out your project?" was:

As a postgraduate research student

A6 Which Faculty is responsible for the project?

Business and Law

A6.1 Which University Centre for Research and Knowledge Exchange (UCRKE) is responsible for the project?

Not aligned to any Research Centre

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Project Information

A7 Your Full Project Title is

Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to the Manchester City Region

A8 Project Short Title

This is the title by which your project will be known

Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to the Manchester City Region

A9 Do you propose to commence your data collection within the next 31 days?

- ○ Yes
- ◉ Yes - but I have confirmation from my FHREG to proceed with the application
- ○ Yes - but I have ethical approval in place
- ○ No

A9.1 What is the proposed start date of your data collection?

31/10/2018

A10 Is there any funding attached to this project?

- ○ Yes
- ◉ No

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Does your project require ethical approval?

A11 Please select any statements that apply for your project, relating to previously obtained or required approvals (select all that apply):

- ☐ You want Manchester Metropolitan University to certificate an existing approval you hold from a recognised body
- ☐ You need to apply for ethical approval from a particular recognised approving body or are in the process of being reviewed for ethical approval by such a body
- ☐ You want Manchester Metropolitan University to certificate an existing ethical approval you hold from another University?
- ☐ You want to submit an amendment to a project which was approved via the Manchester Metropolitan University paper-based process
- ☐ The project being undertaken within a larger research study for which an application for Manchester Metropolitan University ethical approval has already been submitted
- ☑ This is a new application for ethical approval at Manchester Metropolitan University

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

What will your project involve?

A13 Although it is not possible to provide exhaustive criteria which determine whether or not a proposed project needs ethical review, the following can be used as guidance. Please tick the boxes below for all statements that apply to your project.

- [x] Primary data collection from human participants (including, but not limited to interviews, questionnaires, images, artefacts and digital data)
- [x] Further analysis of identifiable, pre-existing data obtained from human participants
- [ ] Privileged access to personal or clinical records
- [ ] Activities or materials related to terrorism
- [ ] Observation of human participants or the collection of their data without their consent
- [ ] Vulnerable individuals (children, adults who lack the capacity to consent or are temporarily vulnerable within the context of the project)
- [ ] Access to individuals who may pose a safety risk to the researcher
- [ ] Any form of physical and/or psychological risk, damage or distress to the human participant
- [ ] Recompense other than reasonable expenses and compensation for time to the human participant
- [ ] Clinical procedures with human participants
- [ ] The use of novel techniques, even where apparently non-invasive, whose safety may be open to question with human participants
- [ ] The ingestion of any substance by human participants, by any means of delivery
- [ ] The administration of drugs to human participants, by whatever means of delivery
- [ ] The use of ionising radiation or exposure to radioactive materials
- [ ] New human tissue samples or other human biological samples
- [ ] Existing human tissue samples or other human biological samples
- [ ] The use of equipment which may be a medical device, or is a known medical device, but will be used outside its intended purpose and be tested on human participants
- [ ] Biological agents or toxins
- [ ] The design or production of new or substantially improved materials, devices, products or processes
- [ ] The generation of new ideas, images, performances or artefacts
- [ ] Animals, their tissue or their remains
- [ ] Plants or plant matter
- [ ] None of the above

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Short Description

This section aims to capture the basic project information.

Begin section

B1 Please provide an abstract for your project

In the study of skilled migration, the role of university study location in graduate migration patterns is under-researched. This study seeks to examine the attractiveness and retention of graduates from Greater Manchester universities. In skilled labour research, the role of university study location in graduates' residential behaviour is poorly understood. This study addresses this gap by examining the attractiveness and retention of higher education in peripheral UK cities for local attendants in the period after study, using Manchester as an empirical case study. The statistical analysis of secondary Manchester given individual, familial and contextual factors.

B2 Please provide key words for the project

Internal migration; location-specific capital; graduates; higher education; cities; United Kingdom; England; Manchester

Project team details

B3 Supervisor Details

Title	First Name	Surname
Professor	Ben	Lupton

Organisation	Professor of Employment Deputy Director, University Research Centre in Decent Work and Productivity
Faculty	Business and Law
Telephone	0161 247 6460
Email	b.lupton@mmu.ac.uk

B4a Are you the Principal Investigator for the project?

- (•) Yes
- ( ) No

Please enter your details in the Principal Investigator question below

B4 Principal Investigator

Title	First Name	Surname
Mr	Sean	Brophy

Organisation	MMU
Faculty	Business and Law
Telephone	07493366370
Email	sean.r.brophy@stu.mmu.ac.uk

B5 Are other investigators involved in the project?

- ( ) Yes
- (•) No

Timescales

B6 What is the end date of your project?

30/09/2020

Location

B7 Is data collection only taking place on Manchester Metropolitan University sites?

- ○ Yes
- ◉ No

B7.1 Which country will the data collection take place?

United Kingdom

B7.2 Data collection will take place at the following

- ☑ Public location(s)
- ☑ Private location(s)
- ☐ Isolated location(s)
- ☐ Manchester Metropolitan University approved location(s)
- ☑ On the internet

B7.3 Do you have or need any special security clearances for this project?

- ○ Yes
- ◉ No

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Purpose and Design of the Project

This section aims to identify the purpose and design of the project. The information provided should be clear and concise, to allow the reviewer to understand the reasons why and how the project is being done.

- ◉ Begin section

B8 What is the rationale for your project?

In the extant literature on graduate retention in the United Kingdom, there is little work done on the attraction and retention of graduates to peripheral cities. Because much of the literature focuses on London and the South East of England, the first aim of this project is to contribute to the academic debates about the factors driving graduate mobility, and specifically, how a peripheral city, as represented by Greater Manchester, is perceived by students studying there as a destination for life after university.

B9 What is the aim of your project?

In the extant literature on graduate retention in the United Kingdom, there is little work done on the attraction and retention of graduates to peripheral cities. Because much of the literature focuses on London and the South East of England, the first aim of this project is to contribute to the academic debates about the factors driving graduate mobility, and specifically, how a peripheral city, as represented by Greater Manchester, is perceived by students studying there as a destination for life after university. Although Greater Manchester does retain many of the graduates it produces, it fails to retain those "newcomer" graduates, i.e., those domiciled outside of the NW before university study in Greater Manchester, when compared to Greater London (Ball, Mcculloch, & Redman, 2015). This phenomenon leads to the second aim of this project: to inform talent management initiatives of policymakers by determining the factors that influence the decisions of "newcomer" students in Greater Manchester about where to live, work, or settle. Also, Higher Education Institutions (HEIs) and government agencies, like the Greater Manchester Combined Authority and the Northern Powerhouse Graduate Campaign, are engaged in activities to both attract graduates to the region and to retain those students from local HEIs. The third research aim of this project is to determine what role HEIs and government agencies play in the decision making processes of graduates. This third aim has the potential to inform both the policy and practice of HEIs and government agencies in Greater Manchester.

B10 What are your project objectives/questions?

1. How are peripheral cities in the UK, and Greater Manchester specifically, perceived by students studying there as a destination for post-graduation life and why? What impact does this perception have on graduate retention?
2. Who are these "newcomer" students and why do they choose to leave (or stay) in Greater Manchester?
3. How do institutions such as HEIs and government entities impact the decisions of "newcomer" graduates to stay or leave Greater Manchester?

B11 Please describe the methodology

This study will use a mixed methods approach, primarily using a survey questionnaire and participant interviews.

B12 Please describe the methods of data collection

The first quantitative method to be employed is a descriptive analysis of Higher Education Statistical Agency (HESA) data to build a profile of current students and recent graduates in Greater Manchester. The second quantitative method proposed is a questionnaire of third-year students to establish factors influencing perceptions of Greater Manchester and how these perceptions influence decisions on remaining in the region. The Proposed population is third-year newcomer students from Manchester Metropolitan University, the University of Bolton, University of Manchester, and the University of Salford. The qualitative component of semi-structured interviews will follow the quantitative phase and will be informed by any findings from the quantitative phase. The initial design of the qualitative phase is longitudinal with an interview of the same survey participants at two points in time: (1) during their third and final year of university and (2) 6 months after leaving. The purpose of the interviews is to explain why newcomers stay or leave and the role of institutions in decision making.

B13 Please describe your methods of data analysis

Quant 1: HESA dataset for incoming students 2016/17
• Analysis Procedure: Use of descriptive and inferential statistics
• Product: Demographic profile & meaningful measures of the student population of Greater Manchester for the incoming class of 2016/17 (Research Question 1)
Quant 2: Web-based questionnaire
• Analysis Procedure: Use of descriptive and inferential statistics
• Product: Meaningful measures of perceptions of Greater Manchester & attitudes of "newcomer students" (Research Question 2)
Qual: Semi-structured participant interviews
• Analysis Procedure: Coding and thematic analysis
• Product: Explanations of why newcomers stay or leave (Research Question 1) and the role of institutions in decision making (Research Question 3)

B14 Please upload your project proposal

Type	Document Name	File Name	Version Date	Version	Size
Project Protocol	Project Proposal_Brophy	Project Proposal_Brophy.docx	27/09/2018	1	51.2 KB

This is the end of the page.

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Demographics

Are you using human participants in your project?

- (•) Yes
- ( ) No

B15 How many participants will take part in the project?

Approximately 300

B16 Participant gender

All genders all eligible

B17 Lower age limit

18 Years

B18 Is there an upper age limit?

- ○ Yes
- ◉ No

Eligibility and Identification

B19 Inclusion criteria

3rd year, UK-domiciled undergraduates at the universities of Manchester, Manchester Metropolitan, Salford and Bolton.

B20 Exclusion criteria

Non-UK students, students from outside of Greater Manchester, first and second-year students, postgraduates

B21 How will potential participants or samples be identified?

Site access will be gained through official university channels like careers offices.

B22 Will any participants be identified through posters, leaflets, adverts, social media or websites?

- ◉ Yes
- ○ No

B22.1 Who will distribute the recruitment media?

Sean Brophy

B22.2 Please provide a copy of the recruitment media

Type	Document Name	File Name	Version Date	Version	Size
Recruitment Media	Brophy Template_Information_Sheet v10Oct18	Brophy Template_Information_Sheet v10Oct18.docx	08/10/2018	2	25.5 KB

B23 Will you have privileged access to personal records?

- ○ Yes
- ◉ No

B24 Will you have privileged access to clinical records?

- ○ Yes
- ◉ No

Participant recruitment and consent

B25 How and by whom will potential participants first be approached?

Via email from Sean Brophy

B26 Will you obtain written consent from or on behalf of participants?

- ◉ Yes
- ○ No

B27 If you are using audio / video recording or photography, will you explicitly obtain the participants consent for this?

- ◉ Yes
- ○ No
- ○ Not Applicable

Please enclose a copy of the information sheet(s) and consent form(s) at the end of the section.

B28 Will any participants be aged under 16?

- ○ Yes
- ◉ No

B29 Will any participants be from vulnerable groups (excluding children under 16)?

- ○ Yes
- ◉ No

B30 Will any participants lack legal capacity to provide consent?

- ○ Yes
- ◉ No

B31 Please outline how the consent process will vary according to participants age and understanding.

There is a presumption that third-year undergraduate students will be able to understand the consent process. Accommodation will be made for disabilities and language issues.

B32 What arrangements have been made for participants who may not understand verbal or written information in English, or who have special communication needs?

There is a presumption that UK university students understand verbal and written English. Alternative arrangements can be made on a case-by-case basis.

B33 How long will you allow potential participants to decide whether or not to take part?

3 months

B34 Will participants be included in the study with their consent but without full knowledge of the details? (deceptive research)

- ○ Yes
- ◉ No

B36 Could your past or present relationship with the potential participants give rise to a perceived pressure to participate?

- ○ Yes
- ◉ No

B37 Could the recruitment method give rise to a perceived peer-pressure to participate?

- ○ Yes
- ◉ No

B38 What is the process by which participants may withdraw from the project?

Withdrawal from the study can be done at any time, without giving a reason and without penalty, by advising the researchers of this decision. Withdrawal notification can be sent via email, by phone, or verbally. If participants withdraw from the study, data collected from the participants may still be used in the project and research outputs.

Please upload consent form(s)

Type	Document Name	File Name	Version Date	Version	Size
Consent Form	Brophywritten_consent_form v10Oct	Brophywritten_consent_form v10Oct.docx	08/10/2018	2	36.4 KB

Please upload information sheet(s) and any other relevant participant facing documentation

Type	Document Name	File Name	Version Date	Version	Size
Information Sheet	Brophy Template_Information_Sheet v10Oct18	Brophy Template_Information_Sheet v10Oct18.docx	08/10/2018	3	25.6 KB

Incentives and payments

B39 Will participants receive any payments, reimbursement of expenses, or any other benefits or incentives for taking part in this project?

- (•) Yes
- ( ) No

B39.1 Please describe what payments, reimbursement of expenses, or any other benefits or incentives participants will receive.

I will offer to share my findings (summary of dissertation or full dissertation) with research participants.

This is the end of the page.

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Risk

C1 Are there any Health and Safety risks to the researcher and/or human participants?

- ( ) Yes
- (•) No

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Data Access and Transmission

D1 This section aims to identify the access and management of the data within the project.

- (•) Begin section

D2 Is this data sourced from the internet or third party storage?

- (•) Yes
- ( ) No

D2.1 Have you verified you have the rights to access the data?

- (•) Yes
- ( ) No

D9.1 Will you be publishing quotes that are directly attributed to participants?

- ○ Yes
- ◉ No

D10 How will you ensure that anonymity will be maintained when publishing the results?

Participants will not be named in any publically shared documents (dissertation, articles, etc.) Anonymisation will first take place in the data analysis process, and individuals will be given pseudonyms.

D11 Will participant identifiers be stored separately from identifiable personal data?

- ◉ Yes
- ○ No

D11.1 At what point will the separation occur?

Pseudonymisation will take place at the coding stage, and identifiable personal data will be stored separately and securely from the coded data.

D11.2 How will you link the participant identifiers to the identifiable personal data during the project?

Pseudonymisation will take place at the coding stage, and identifiable personal data will be stored separately and securely from the coded data.

Storage and Dissemination

D12 Who will have control, and act as custodian of the data generated during the project? (include name, role in the study, contact details)

Sean Brophy, Principle Researcher, sean.r.brophy@stu.mmu.ac.uk

D13 Please describe what physical security arrangements are in place for the storage of identifiable personal data during the project.

All data will be hosted either on protected personal devices or cloud storage

D14 Will you be storing personal data electronically?

- ◉ Yes
- ○ No

D15 Where will the data generated by the project be analysed, and by whom?

Sean Brophy, Principle Researcher, seanz.brophy@stu.mmu.ac.uk

D16 How long will identifiable personal data be stored after the project has ended?

12 months to 3 years

D17 How long will you store pseudo anonymised data generated by the project?

3

Years

D18 At the end of your project, will the data be made available on an open access repository?

- ○ Yes
- ◉ No

D19 Have you planned for archiving data when the project has ended?

- ◉ Yes
- ○ No

D19.1 Please specify how you plan to archive data after the project has ended.

3 years

Terrorism

This is the end of the page.

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Publication and dissemination

E1 How do you intend to report and disseminate the results of this project? (Tick all that apply)

- [x] Peer reviewed journals
- [ ] Internal report
- [x] Conference presentation
- [ ] Publication on website
- [ ] Submission to regulatory authorities
- [ ] Publication to funder
- [ ] Access to raw data and right to publish freely by all investigators in the study or by Independent Steering committees on behalf of all investigators
- [ ] No plans to report or disseminate the results
- [ ] Other

E2 Will you be informing participants of the results?

- (•) Yes
- ( ) No

E2.2 Please give details of how you will be informing participants, and at what time point.

I will share the PhD dissertation with interviewees.

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Funding

F1 Has internal funding for the project been secured?

- (•) Yes
- ( ) No

F1.1 Please provide the details of the funding including any reference numbers

Vice Chancellor PhD Scholarship

F2 Has external funding for the project been secured?

- ( ) Yes
- (•) No

F2.2 Please indicate why no external funding has been secured?

- ○ External funding application to one or more funders in progress
- ◉ No application for external funding will/has been made

F3 What type of project is this?

- ☐ Standalone project
- ☐ Project that is part of a programme grant
- ☐ Programme that is part of a centre grant
- ☑ Project that is part of a fellowship/personal award/research training award
- ☐ Other

This is the end of the page

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Insurance and Indemnity

G1 This section aims identify there are any risks relating to insurance and indemnity.

- ◉ Begin section

G2 Will you be travelling outside the UK as part of this project?

- ○ Yes
- ◉ No

Techniques, Testing and Interventions

G3 Does your project involve any of the following techniques, tests or interventions (Please tick all that apply):

- ☐ Physically invasive techniques
- ☐ Ingestion of food stuffs or drugs
- ☐ Physical testing
- ☐ Psychological intervention
- ☑ None of the above

Other Hazards and Additional Information

G4 Are you working with a medical device manufacturer and/or a clinician to develop the product for commercialisation?

- ☐ Working with Hepatitis, Human T-Cell Lymphotropic Virus Type iii (HTLV iii), or Lymphadenopathy Associated Virus (LAV) or the mutants, derivatives or variations thereof or other viruses such as Human Immunodeficiency Virus (HIV) or any syndrome or condition of a similar kind
- ☐ Working with Transmissible Spongiform Encephalopathy (TSE), Creutzfeldt-Jakob Disease (CJD), variant Creutzfeldt-Jakob Disease (vCJD) or new variant Creutzfeldt-Jakob Disease (nvCJD)
- ☐ Working in hazardous areas
- ☐ Working with hazardous substances outside of a controlled environment
- ☐ Working with persons with a known history of violence, substance abuse or a criminal record
- ☑ None of the above

G5 I confirm that if Disclosure and Barring Service (DBS) clearing is required for my project, this will be obtained before the commencement of data collection.

- ○ Yes
- ○ No
- ◉ Not Applicable

G6 Will the project be conducted in line with a specific licence?

- ○ Yes
- ◉ No

This is the end of the page.

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Additional Information

This section allows you to include any further information, sign and submit the application for review

- ◉ Begin section

L1 Do you have any additional information or comments which have not been covered in the form?

- ○ Yes
- ◉ No

L2 Do you have any additional documentation or forms which you would like to upload in support of your application?

- ○ Yes
- ◉ No

This is the end the page.

Once you have answered all the questions, please click "Next" or "Navigate" on the sidebar to proceed with the application.

Declaration

M1 Please notify your supervisor that this application is complete and ready to be submitted by clicking "Request" below. This application will not be processed until your supervisor has provided their signature - it is your responsibility to ensure that they do this.

Signed: This form was signed by Professor Ben Lupton (B.Lupton@mmu.ac.uk) on 08/11/2018 11:20 AM

M3 By signing this application you are confirming that all details included in the form have been completed accurately and truthfully.

Signed: This form was signed by Sean Robert Brophy (sean.r.brophy@stu.mmu.ac.uk) on 06/11/2018 12:26 PM

Appendix 13: HESA Contract

HESA SERVICES

Dear Sean

On the basis of the information provided, I have constructed the attached Agreement. Please read this document carefully as it contains the specification of the data, the price, and the terms on which the data can be provided and used by you.
Please ensure that you have read, understood, and considered the whole agreement and in particular please check the following:

- The details for invoicing, delivery and the location at which the data will be held are correct.
- The data described in Specific Condition 12 meets your data requirements.
- You fully understand what can and cannot be done with the data (see Specific Conditions 16 and 17 which set out the important rules for use of the data). Specific Condition 16 sets out the restrictions which apply to the use of the data and Specific Condition 17 sets out the permitted purposes for which the data may be used.
- You understand that any data proposed to be published must comply with the HESA Services Standard Rounding Methodology.
- The person with the job title specified in Specific Condition 19 has appropriate authority to agree and sign off any variations to the agreement, including those affecting the price or the nature of the data.

If you are happy with the terms of this Agreement and are authorised to sign on behalf of the Client, please apply your digital signature using our electronic signature software, DocuSign. If you are not authorised to sign on behalf of the Client, please forward the Agreement to your designated signatory using the process specified within DocuSign.

Once signed, the Agreement will be automatically sent to a HESA Services designated signatory for counter signing. A counter signed version of the Agreement will then be returned by email to your designated signatory. Please note that the Commencement Date for the Agreement will be the date on which the last signatory has signed the Agreement.

Please note that the digital signature system will track and retain your Personal Data. Such Personal Data is retained within the digital signature system, and may be accessed by HESA Services Limited and its parent company, only for the purposes of monitoring progress towards signature of this Agreement and for standard records management and audit.

If you wish to alter the specification of the data in any way, or request changes to the permitted purposes for which it can be used please provide details of your proposed changes to me. These

will be considered and if they are acceptable, we will be pleased to prepare a revised Agreement as appropriate. Please note that changes may incur an additional charge.

Please note that payment will be required before you can receive any data from us. Delivery timescales stated in the agreement will only be adhered to assuming payment has been made prior to that date.

Should you require any further information, please do not hesitate to contact me. I look forward to hearing from you.

Please note, this covering letter does not form part of the Agreement.

Kind Regards,

Emily Raven
Data Intelligence Analyst

HESA SERVICES

HESA Services Reference Number: 60033 Student (No Account)

Agreement for the Supply of Information Services

MAIN AGREEMENT: SPECIFIC CONDITIONS

This document is the main agreement recording the nature of the Deliverables to be supplied by HESA Services to the Client and associated terms and conditions specific to those Deliverables. These Specific Conditions are valid and effective only in conjunction with the Standard Terms and Conditions set out in the Schedule. Terms not defined within this part of the Agreement shall be interpreted as provided for in clause 1 of the Standard Terms and Conditions.

1.	Client:	Sean Brophy
2.	Contact name:	Sean Brophy
3.	Client telephone:	4109958725
4.	Client address:	67 Richmond Grove Manchester M13 0DH England
5.	Invoicing address:	67 Richmond Grove Manchester M13 0DH
6.	Delivery email address and arrangements:	Deliverables will be supplied to sean.r.brophy@stu.mmu.ac.uk by HESA Services using an encrypted secure file transfer system.
7.	HESA Data location:	67 Richmond Grove Manchester M13 0DH England
8.	Commencement Date:	The date on which payment is received
9.	Licence End Date:	31 March 2020
10.	Review of data retention	N/A

11.	Payment(s)(£) Excluding VAT:	£438 A 75% student discount has been applied.
12.	Deliverable(s):	Item 1 Data Format and rounding requirements: Excel pivot table - Unrounded HESA Dataset Destinations of Leavers from Higher Education (DLHE) Survey Population restricted to: 2012/13-2016/17 Specified Providers* Total to be provided: FPE Field list: Population marker (DLHE) HE provider Subject of study (Principal subject) Mode of study (Full-time/ Part-time) Level of qualification (Doctorate/ Other Higher Degree/ Other postgraduate/ First degree/ Other undergraduate) Sex Domicile (UK/ Other EU/ Non EU/ Unknown) Activity Standard Industrial Classification (SIC) (2 digit) Standard Occupational Classification (SOC) (3 digit) Location of employment (Unitary Authority) Employment basis Type of qualification of further study * 0066 The Manchester Metropolitan University 0153 University of Manchester 0049 The University of Bolton 0158 The University of Salford
13.	Personal Data and/or Special Categories of Personal Data within the Deliverable(s), including any data which is to be treated as Personal Data and/or Special Categories of Personal Data in accordance	HESA Data item(s) 1 of the Deliverables are Personal Data or should be treated as such by the Client. Where the HESA Data contains information relating to the ethnicity, disability, sexual orientation, gender identity or religion/belief of an individual these are Special Categories of Personal Data or are required to

	with clause 6.2 of the Standard Conditions.	be treated as Special Categories of Personal Data under this Agreement.
14.	HE Provider Preview:	N/A
15.	Timescale for delivery:	Up to 20 Working Days from the Commencement Date.
16.	Use of Deliverables and Derived Materials: general provisions **This Condition sets out the important rules which apply to your use of HESA Data. Please read them carefully in full.** **It is particularly important that you understand the fundamental conditions on use of data relating to individuals. In summary, these are:** **Unrounded HESA Data relating to individuals must:** **• never be shared with anyone else who is not permitted to process the data under this agreement;** **• never be used to make decisions or enable any decisions to be made about an individual;** **• never be used to contact an individual or enable them to be contacted for any reason or purpose whatsoever;** **• only be processed if it is necessary for the Permitted Purposes set out within this Agreement;** **• where it contains data relating to disability or ethnicity, only be used for**	(a) For the avoidance of doubt, references in this condition and in the Permitted Purposes to the use of Deliverables or Derived Materials include the use or reproduction of any part thereof and the use or reproduction of any HESA Data within Deliverables and Derived Materials. "Use" includes any action which would constitute "processing" under the DP Legislation. (b) The Client shall produce Derived Materials only as provided for in the Permitted Purposes and in accordance with this condition 16 and clause 6 of the Standard Terms and Conditions. This includes the use of HESA Data to produce Derived Materials. (c) The Client shall use the Deliverables and any Derived Materials only in accordance with clause 6 of the Standard Terms and Conditions, this condition 16 and the Permitted Purposes in condition 17. (d) The Client shall not use the Deliverables or any Derived Materials to identify or enable identification of individuals or to inform a decision to be made about any individual or to contact an individual (e) For the avoidance of doubt and without prejudice to the generality of sub-conditions (b), (c) and (d), save to the extent that permission is expressly given in the Permitted Purposes the Client shall not at any time: i. Link the HESA Data to any other data; ii. Use the Deliverables or any Derived Materials to publish or share with any third party comparisons between any aspect of different higher education providers or comment (otherwise than internally within the Client organisation)

		condition 16(g) is that the HESA Data within that Deliverable is no longer required for the Permitted Purposes; iii. where the Client otherwise determines that the HESA Data within a Deliverable is no longer required for the Permitted Purposes; or iv. where the Client's licence to use the Deliverable is otherwise terminated through termination of this Agreement under clause 10 of the Standard Terms and Conditions. (i) Where this sub-condition applies, the Client shall destroy or procure the destruction of all HESA Data provided within the Deliverable. "Destroy" means permanently destroy all hard and electronic copies of such HESA Data and permanently expunge the HESA Data from all computers, file or document management systems and networks within the control of the Client or any third parties to whom the HESA Data has been passed within the Permitted Purposes. (j) The Client shall not use, reproduce, pass on, publish, permit the use by or otherwise make available to any third party (on a commercial basis or otherwise) the Deliverables or any part thereof including any HESA Data or any Derived Materials, save: i. as expressly provided for within the Permitted Purposes in relation to the relevant data fields or types of Derived Material; ii. as required by law; or iii. with HESA Services' explicit prior written consent. For the avoidance of doubt, "publication" shall include both publication in hard copy form and inclusion of material on an internet website, intranet, extranet or other method of accessing information electronically.

		mean or may mean that, the Deliverables, Derived Materials or any HESA Data have been used otherwise than in accordance with this condition 16 and the Permitted Purposes. (o) HESA Data within the Deliverables shall not be transferred out of or processed outside the United Kingdom without the prior explicit consent of HESA Services.
17.	Permitted Purposes: **This condition states the Permitted Purposes i.e. the purposes for which the Deliverables and Derived Materials may be used. These permissions are subject to the restrictions set out in this Agreement. If the Client is in any doubt as to what is permitted, they must contact HESA to request clarification and/or permission for any use beyond these terms.**	Permission for use of the Deliverables and Derived Materials, including HESA Data, is only granted as set out below. Unless explicitly stated otherwise, the permissions in this condition 17 are subject to the terms and conditions specified in condition 16. Where HESA Data is specified in condition 13 as being required to be treated as Personal Data, these permissions are also limited by clause 6 of the Standard Terms and Conditions. In the event of any doubt as to its meaning this condition shall be interpreted restrictively. (a) The Deliverables may be used internally by the Client for: (i) Student project/dissertation on Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to Greater Manchester (b) Reporting of the Deliverables: (i) The Client is permitted to generate, for internal distribution, reports on the outcome of its analysis of the Deliverables in accordance with sub-conditions (a) and may include information derived from the Deliverables provided it is rounded in compliance with the HESA Services Standard Rounding Methodology. (ii) The Client is permitted to reproduce information derived from the Deliverables or reference the Deliverables within the research paper/dissertation relating to Perception of Place: Its Role in the Attraction and Retention of Graduates and their Human Capital to Greater Manchester provided that the data is rounded in compliance with HESA Services Rounding Strategy.
18.	Publication caveats/data attribution to be given as	Source(s): HESA DLHE Record 2015/16;HESA DLHE Record

	required under condition 16(m):	2014/15;HESA DLHE Record 2013/14;HESA DLHE Record 2012/13;HESA DLHE Record 2016/17 Copyright Higher Education Statistics Agency Limited. Neither the Higher Education Statistics Agency Limited nor HESA Services Limited can accept responsibility for any inferences or conclusions derived by third parties from data or other information supplied by HESA Services.
19.	Persons authorised to vary this agreement as provided for in clause 14.6 of the Schedule:	For HESA Services: Managing Director HESA Enterprise or Head of Data Intelligence or Head of Product or Data Intelligence Analyst Lead (or such other person as HESA Services shall appoint from time to time). For the Client: Sean Brophy (or such other person as Client shall appoint from time to time).

HESA SERVICES

SIGNATURE PAGE

This document (Main Agreement: Specific Conditions) must be read together with the Schedule (Standard Terms and Conditions). The Agreement between the parties is made up of both the Standard and the Specific Terms and Conditions. In signing this document, the parties are agreeing to the terms and conditions in both the Main Agreement and the Schedule.

If a Purchase Order number will be required for payment by the Client of any invoice issued by HESA Services Limited under this Agreement then the Purchase Order number must be inserted in the space provided below prior to signature on behalf of the Client.

Signed on behalf of the Client:	DocuSigned by: 32660BC4756D437...
Name:	Sean Brophy
Position:	PhD Student
Date	04 February 2019
Client Purchase Order Number:	
Signed for HESA Services Limited:	DocuSigned by: Denise Jones 817418FB620F476...
Name:	Denise Jones
Position:	Head of Data Intelligence
Date:	04 February 2019

HESA SERVICES

Agreement for the Supply of Information Services

SCHEDULE: STANDARD TERMS AND CONDITIONS

1. Definitions

1.1. In this Agreement, the following terms shall have the following meanings:

"Agreement"	This agreement for the supply of Deliverables to the Client, comprising the Specific Conditions and these Standard Terms and Conditions.
"Client"	The organisation specified in the Specific Conditions.
"Commencement Date"	The commencement date of this Agreement as specified in the Specific Conditions.
"Controller"	As defined in the DP Legislation.
"Processor"	As defined in the DP Legislation.
"Data Subject"	As defined in the DP Legislation.
"Deliverable"	Any set of HESA Data, data analysis, report or other output, product or service specified in the Specific Conditions as required to be delivered to the Client by HESA Services under this Agreement.
"Derived Materials"	Any dataset, analysis, report or other output which the Client produces using one or more Deliverables or any HESA Data, other data or material within a Deliverable.
"DP Legislation"	All applicable data protection and privacy legislation, regulations and guidance including Regulation (EU) 2016/679 (**"General Data Protection Regulation"** or **"GDPR"**), the Data Protection Act 2018 (or, in the event that the UK leaves the European Union, all legislation enacted in the UK in respect of the protection of Personal Data), and the Privacy and Electronic Communications (EC Directive) Regulations 2003, and any guidance or codes of practice issued by any Regulator from time to time (all as amended, updated or re-enacted from time to time).
"Fixed Database"	A database for collection of data from higher education providers which may open following the closure of a standard HESA data

	collection process to enable one or more higher education providers to make amendments to data they have previously submitted to HESA in order that errors or omissions in that data can be rectified.
"HESA"	Higher Education Statistics Agency Limited (Registered Company No 2766993).
"HESA Data"	Data of which HESA is the Controller which is supplied to the Client under the terms of the Agreement.
"HESA Services"	HESA Services Limited (Registered Company No 3109219).
"HESA Services Standard Rounding Methodology"	The application of the following processes to data or statistics relating to individuals or such other processes as may be notified by HESA Services from time to time: • All numbers are rounded to the nearest multiple of 5. • Any number lower than 2.5 must be rounded to 0. • Halves are always rounded upwards (eg. 2.5 is rounded to 5). • Percentages based on fewer than 22.5 individuals are suppressed. • Averages based on 7 or fewer individuals are suppressed. • The above requirements relate to headcounts, FPE and FTE data.
"High Profile Use"	Any use of a Deliverable, Derived Material or HESA Data which involves national media publication of HESA Data or other reference to HESA Data which is likely to result in media, sector or government comment on the activities or performance of HESA, HESA Services, central government, regulators, individual higher education providers or other organisations within the higher education sector. It includes any use of data to produce league tables or other means of comparing institutions/providers.
"Insolvency Event"	(i) a winding up petition is presented or an application is made for the appointment of a provisional liquidator or an administrator or a receiver, or a notice of intention to appoint an administrator is filed at court, or a provisional liquidator or an administrator or an administrative receiver or a receiver, is appointed, or a scheme of arrangement or a voluntary arrangement is proposed, or any moratorium comes into effect; (ii) a shareholders' meeting is convened for the purpose of considering a resolution to wind up (except for a members' voluntary liquidation exclusively for the purposes of a bona fide solvent reconstruction or amalgamation and where the resulting entity agrees to be bound by, or assumes, the obligations of such insolvent party under this Agreement) a resolution to wind up is passed or a winding up order is made; (iii) a party to this Agreement is unable to pay its debts as they fall due within the meaning of section 123 of the

	Insolvency Act 1986; or (iv) an encumbrancer takes possession of, or a receiver, administrative receiver or similar officer is appointed over, the whole or any part of a party's business or assets or any other similar process in any relevant jurisdiction which has a similar or analogous effect.
"HE Provider Preview"	The process by which HESA Services notifies higher education providers and provides them with a preview of the proposed supply of the Deliverables to the Client for the Permitted Purposes, prior to the supply of the Deliverables, as further described in clause 4.7.
"Licence End Date"	As specified in the Specific Conditions.
"Parties"	HESA Services and the Client.
"Payment"	The payment(s) to be made by the Client to HESA Services as specified in condition 11 of the Specific Conditions.
"Permitted Purposes"	The purposes for which the Client is authorised to use the Deliverables as specified in the Specific Conditions.
"Personal Data"	As defined in the DP Legislation, provided that for the purposes of this Agreement it shall also be interpreted in accordance with clause 6.2 and condition 13 of the Specific Conditions.
"Quality Assurance Process"	The current quality assurance process applied by HESA and HESA Services as published on HESA's website at the time at which the Deliverables are produced and provided to the Client.
"Regulator"	The Information Commissioner's Office and the European Data Protection Board or any successor body to either regulator from time to time and any other supervisory authority with jurisdiction over either party.
"Rounded Data"	HESA Data to which the HESA Services Standard Rounding Methodology has been applied.
"Special Categories of Personal Data"	As defined in the DP Legislation, provided that for the purposes of this Agreement it shall also be interpreted in accordance with clause 6.2 and condition 13 of the Specific Conditions.
"Specific Conditions"	The details of the Deliverables to be supplied to the Client and other terms and conditions, being the main agreement to which these Standard Terms and Conditions are the Schedule. References in this Agreement to "conditions" are to the numbered conditions within the Specific Conditions.
"Standard Terms and Conditions"	The terms and conditions for supply of the Deliverables to the Client which are set out in this Schedule to the Specific Conditions. References in this Agreement to "clauses" are to the numbered clauses within the Standard Terms and Conditions.
"Term"	The period between the Commencement Date and the later of:

	1. The date on which the final Deliverable is delivered to the Client; or 2. The latest Licence End Date specified in the Specific Conditions.
"Termination Date"	The Licence End Date or any earlier date on which termination takes effect if the Agreement is terminated in accordance with clause 10.
"Unrounded Data"	HESA Data containing data at an individualised level to which the HESA Services Standard Rounding Methodology has not been applied and which may contain Personal Data or Special Categories of Personal Data.
"Working Day"	Any day which is not a Saturday, a Sunday or a public holiday or bank holiday in England or Wales.

2. Duration

2.1. This Agreement shall commence on the Commencement Date and end on the expiry of the Term, subject to earlier termination in accordance with clause 10 (the earlier of these dates being the **"Termination Date"**).

3. Payment

3.1. The Client shall pay to HESA Services the Payment specified in condition 11 of the Specific Conditions (plus VAT) as a fee for the provision of the Deliverables in accordance with this Agreement and the licensing and use of the Deliverables and Derivative Materials within the Permitted Purposes. Where condition 11 of the Specific Conditions specifies that the Payment shall be made in instalments, these must be paid by the Client on the basis and frequency set out in that condition 11.

3.2. All payments made by the Client under this Agreement shall be paid by the Client within 30 days of the date of the invoice for the Payment or the relevant instalment.

4. Supply of Deliverables

4.1. HESA Services will supply the Deliverables to the Client on or as soon as may be practicable after the dates specified in condition 15 of the Specific Conditions. HESA Services will not be liable for any delay in the supply of the Deliverables, however caused.

4.2. HESA Services shall supply all Deliverables to the Client in the format and to the specification set out in the Specific Conditions, provided that HESA Services shall be entitled at its absolute discretion to alter the specification and/or to provide data in HESA Services' standard format if such alterations are deemed necessary as a result of the Quality Assurance Process.

4.3. HESA Services shall notify the Client as soon as is reasonably practical of any decision taken within clause 4.2 to alter the specification or format of any Deliverables as a result of the Quality Assurance Process.

4.4. The Client acknowledges that the content of HESA Data is determined by the third parties submitting data to HESA. The Client further acknowledges and agrees that the HESA Data to be supplied under this Agreement shall be the data held by HESA for the fields specified in

condition 12 of the Specific Conditions at the date of signature of this Agreement. Where a Fixed Database relating to any of the data fields specified in condition 12 of the Specific Conditions is opened either before or after the date of signature of this Agreement:

4.4.1. the reference in this clause to "data held by HESA at the date of signature of this Agreement" may not include any data which has been submitted to a Fixed Database collection by that date; and

4.4.2. the Client shall not be entitled under this Agreement subsequently to receive any amended version of HESA Data which is generated through the Fixed Database process.

4.5. It is the responsibility of the Client to satisfy itself that the Deliverables are fully specified within the Specific Conditions and shall be appropriate and sufficient to meet its requirements. No refund or other remedy shall be due to the Client in the event that any aspect of the Deliverables are not in accordance with the Client's expectations or needs or in the event that the Client does not use any of the data, materials or services comprised in the Deliverables, provided that the Deliverables have been provided as described in the Specific Conditions.

4.6. Where the Permitted Purposes include High Profile Use or where HESA Services in its absolute discretion otherwise determines that it is appropriate, HE Provider Preview shall be carried out prior to the supply of the Deliverables to the Client. The need for HE Provider Preview to be carried out shall be confirmed in condition 14 of the Specific Conditions.

4.7. HE Provider Preview shall include provision of a copy of their data as it would be included in the Deliverables to all higher education providers who have contributed such data. Those providers shall be given two weeks to review that data and make a request for some or all of that data not to be included in the Deliverables. HESA Services shall comply with all such requests received in that period and the description of the Deliverables set out in the Specific Conditions shall be interpreted so as to give effect to such requests. No reduction in the Payment or other form of compensation shall be due to the Client for any reductions in the data or any changes to the scope of Deliverables to be supplied which follow from the conduct of HE Provider Preview.

5. Intellectual Property Rights

5.1. All intellectual property rights in the Deliverables to the extent that they constitute or contain HESA Data and all intellectual property rights in any database containing any HESA Data compiled by HESA Services or HESA are vested and shall remain vested in HESA Services and/or HESA. The Client acknowledges that HESA Data is derived from databases compiled and owned by HESA and that HESA retains all rights in any HESA Data and such databases under the Copyright Rights in Databases Regulations 1997.

5.2. In consideration of the Client making the Payment to HESA Services in accordance with clause 3 and subject to this Agreement HESA Services grants to the Client a non-exclusive, non-transferable licence to receive and use the HESA Data in the Deliverables as specified in the Specific Conditions for the Permitted Purposes during the relevant Licence Period.

5.3. HESA Services, to the extent that it or HESA is the author of any Deliverables, hereby asserts its and/or HESA's right to be identified as the author of such materials in accordance with s.78(2) of the Copyright, Designs and Patents Act 1988 where the Deliverable or any part thereof is reproduced in its original form.

5.4. In relation to the content of any Deliverable not within clause 5.1, in consideration of the Client making the Payment to HESA Services in accordance with clause 3 and subject to clause 5.3

and the remainder of this Agreement, HESA Services acknowledges the right of the Client to use and reproduce the Deliverable for the Permitted Purposes, subject to the limitations in clause 6 of these Standard Terms and Conditions and conditions 16 and 17 of the Specific Conditions.

6. Data Protection and Data Security

6.1. Each party acknowledges the need to manage data security and risks around use of data appropriately, both to protect the rights of individual Data Subjects and to avoid reputational, relationship and commercial risks to HESA and HESA Services arising from any perceived breach or inadequacy in the protection and security of data collected by HESA which could impede the ability of HESA, HESA Services and their customers to access data in the future.

6.2. Each party therefore agrees that where condition 13 of the Specific Conditions identifies any Deliverable or HESA Data within ay Deliverable as being Personal Data or Special Categories of Personal Data, such Deliverable or HESA Data shall be treated as Personal Data or Special Categories of Personal Data as defined in the DP Legislation and as subject to this clause 6, regardless of whether either party considers that identification of any particular individual from that Data by the Client or any other person is possible or likely to be possible. In this Agreement the terms Personal Data and Special Categories of Personal Data shall be interpreted accordingly.

6.3. Each party agrees that in connection with the provision or use of the Deliverables (as appropriate) it will at all times:

6.3.1. comply with the DP Legislation including without limitation (to the extent relevant) the obligations as to registration as a Controller and the data protection principles set out in the DP Legislation;

6.3.2. fully co-operate with each other to enable the other party to comply with the DP Legislation; and

6.3.3. ensure that they do not cause the other party to be in breach of its obligations under this Agreement or the DP Legislation.

6.4. In particular, without prejudice to the generality of clause 6.3, the Client shall:

6.4.1. fully co-operate with HESA Services and HESA as reasonably required to ensure HESA Services' and HESA's compliance with the DP Legislation;

6.4.2. in connection with any Personal Data or Special Categories of Personal Data within the Deliverables, notify HESA Services immediately if it receives any of the following, and in any event assist HESA Services in complying with or responding to:

6.4.2.1. requests for subject access from Data Subjects;

6.4.2.2. requests from Data Subjects for the rectification or erasure of Personal Data or restriction of Processing;

6.4.2.3. an information notice, or any other notice (including in particular any deregistration, enforcement or transfer prohibition notice) or any request or enquiry served on the Client by the Regulator;

6.4.2.4. any complaints from Data Subjects; and

6.4.2.5. any investigation of any breach, alleged breach or potential breach of the DP Legislation.

6.4.3. ensure that any HESA Data it holds is held in strict confidence and securely and that appropriate technical and organisational information security and processing procedures are established and maintained to ensure that all HESA Data provided in accordance with this Agreement are sufficiently protected against any unlawful or unauthorised processing, including in the accidental loss, disposal or destruction of HESA Data or equipment on which HESA Data is stored or accessed. In ensuring the security of the HESA Data, the Client will restrict access to Personal Data or Special Categories of Personal Data to a limited number of expressly authorised individuals for the Permitted Purposes who have received appropriate training regarding data protection and security.

6.4.4. without prejudice to the generality of clause 6.4.3, where at HESA Services's request the Client has completed an information security questionnaire or provided any other written information regarding its information security arrangements prior to entering into this Agreement, the Client shall promptly notify HESA of any changes to the matters covered by the questionnaire or other written information which materially alter the nature or scope of the systems and arrangements for data security which are in place within the Client organisation.

6.4.5. promptly report to HESA Services any circumstance that it becomes aware of which:

6.4.5.1. mean or may mean that clause 6.3.1 or 6.4.3 has not been complied with;

6.4.5.2. cause or may cause any party to breach the DP Legislation as a result of processing carried out in connection with this Agreement;

6.4.5.3. mean or may mean that the Personal Data transferred under this Agreement has been affected or could have been affected; or

6.4.5.4. mean or may mean that there has been unauthorised processing of personal data in connection with this Agreement.

7. Investigation of potential breach

7.1. The Client shall provide such evidence of its compliance with the obligations under clause 6 and conditions 16 and 17 of the Specific Conditions as HESA Services may reasonably request.

7.2. Without prejudice to the generality of clause 7.1, where the Client reports a matter to HESA Services under clause 6.4.5 or condition 16(n) of the Specific Conditions or HESA Services has otherwise has reasonable grounds for believing that there has or may have been a breach by the Client of clause 6 or conditions 16 or 17 of the Specific Conditions, the Client shall immediately provide all reasonable co-operation to HESA Services to enable HESA and HESA Services to determine as far as possible:

7.2.1. whether such a breach has taken place, the scope of any breach and the cause of any breach; and

7.2.2. action which is appropriate for HESA Services or the Client to take to remedy or mitigate the impact of any such breach.

7.3. Reasonable co-operation under clause 7.2 shall include but not be limited to the provision of documents and information and provision of access to personnel, premises and systems on request within reasonable timescales specified by HESA Services.

7.4. Without prejudice to HESA Services' rights under clause 10.1, where HESA Services investigates a potential breach under this clause 7 and reasonably determines that a breach of clause 6 or conditions 16 or 17 of the Specific Conditions has taken place, the Client shall promptly carry out any reasonable steps which HESA Services specifies to the Client as required to remedy or mitigate the impact of the breach.

8. Confidentiality and Freedom of Information

8.1. **"Confidential Information"** in this clause 8 means secret or confidential commercial, financial, marketing, technical or other information including, without limitation, information in or relating to, know-how, trade secrets, operations, plans, intentions, working methods, designs, market opportunities, transactions, affairs and/or business of the parties and/or their customers, suppliers or clients and other information in any form or medium, whether disclosed orally or in writing before or after the date of this Agreement, together with any reproductions of such information in any form or medium or any part(s) of this information. "Confidential" means that the information, either in its entirety or in the precise configuration or assembly of its components, is not publicly available. The parties shall seek to appropriately identify and label information which each considers to be confidential, but their failure to do so will not in itself mean such information is not Confidential Information.

8.2. Subject to clauses 8.3 and 8.4, each party shall keep and procure to be kept secret and confidential all Confidential Information belonging to the other disclosed or obtained as a result of the relationship of the parties under this Agreement. Each party shall not use nor disclose the same, save for the purposes of the proper performance of this Agreement or with the prior written consent of the other. Where disclosure is made to any employee, consultant or agent, it shall be done subject to obligations equivalent to those set out in this clause. Each party shall ensure that any such employee, consultant or agent enters into an information security agreement with the other, containing obligations equivalent to those set out in this clause 8. Each party shall use all reasonable endeavours to procure that any such employee, consultant or agent complies with such obligations. Each party shall be responsible to the other in respect of any disclosure or use of such Confidential Information by a person to whom disclosure is made.

8.3. The obligations of confidentiality and other obligations in this clause 8 shall not extend to any matter which the relevant party can show:

8.3.1. is lawfully in, or has become lawfully part of, the public domain other than as a result of a breach of the obligations of confidentiality under this Agreement; or

8.3.2. was independently disclosed to a party to this Agreement by a third party, which, in that receiving party's reasonable opinion, was legally entitled to disclose the same; or

8.3.3. is required to be disclosed under any applicable law, including a valid request under the Freedom of Information Act 2000, the Freedom of Information (Scotland) Act 2002, the Environmental Information Regulations 2004 or the Environmental Information (Scotland) Regulations 2004, or by order of a court or governmental or regulatory body or authority of competent jurisdiction; or

8.3.4. was known to the receiving party before the information was disclosed to it by the disclosing party.

8.4. The Client consents to HESA or HESA Services informing third parties of the supply by HESA Services of the Deliverables to the Client, including a description of the Deliverables, the name and address of the Client, the name of the recipient of the Deliverables at the Client, the Permitted Purposes, the date of supply and any other conditions imposed on the supply of Deliverables as set out in this Agreement to the following extent:

8.4.1. HESA or HESA Services may in its absolute discretion disclose such information at any time to UK government departments including the Department for Business, Innovation and Skills, the Department for Education and the Department for the Economy in Northern Ireland, the UK higher education funding councils, the Welsh Government, the Scottish Government and representative bodies of higher education providers; and

8.4.2. HESA or HESA Services may disclose such information to higher education providers as it considers necessary for the purposes of exercising its rights under this Agreement under clauses 4.6 and 4.7 and otherwise and for the purposes of ensuring compliance by itself and others with the DP Legislation.

8.5 This clause applies if the Client is a public authority to which the Environmental Information Regulations 2004, the Environmental Information (Scotland) Regulations 2004, the Freedom of Information Act 2000 or the Freedom of Information (Scotland) Act 2002 applies. If the Client receives a request for disclosure of information under any of this legislation which relates to information about this Agreement or any information which has been provided to the Client by HESA Services pursuant to this Agreement (whether within a Deliverable or otherwise) the Client shall notify HESA Services of the request and the Client's proposed response to the request (including the date on which the Client intends to send its response to the request) within a reasonable period after receipt of the request and before any disclosure is made in response to the request. The Client shall reasonably consider any representations made by HESA or HESA Services with regard to the disclosure of information referred to in this clause, including any representations as to the impact of disclosure on HESA or HESA Services or third parties and as to the applicability of any exemptions in the relevant legislation.

9. Liability, warranties and indemnities

9.1. Each party warrants and undertakes that it has the capacity and full legal authority to enter into this Agreement, this Agreement has been executed by its duly authorised representative, the making of this Agreement does not conflict with any of its existing obligations and once signed, this Agreement shall constitute its legal, valid and binding obligations.

9.2. HESA Services warrants and undertakes that the Quality Assurance Process has been completed with respect to the HESA Data.

9.3. Subject to clause 9.2 no warranty is given by HESA Services as to the quality or accuracy of the Deliverables. HESA Services does not accept any liability for any inferences or conclusions derived from the Deliverables by the Client or any third party.

9.4. The Client warrants and undertakes on a continuing basis that it will comply with the provisions of the DP Legislation so far as such provisions apply to it in respect of this Agreement and that it will procure that its employees, agents and contractors observe the provisions of the DP Legislation and the terms of this Agreement.

9.5. Without prejudice to the generality of clause 9.4 and conditions 16 and 17 of the Specific Conditions, the Client warrants and undertakes on a continuing basis that:

9.5.1. it shall use the Deliverables, Derived Materials and HESA Data only in accordance with the Data Protection Legislation;

9.5.2. in particular and without prejudice to the generality of clause 9.5.1, where the Permitted Purposes include the linking of HESA Data to data from any other source, there is a lawful basis for this processing of the other data and in particular it will not contravene the DP Legislation or any legal duty of confidentiality;

9.5.3. where the Client has provided information about its arrangements to ensure security of information at HESA Service's request prior to entering into this Agreement, that such information is and continues to be correct and accurate;

9.5.4. it shall use the Deliverables, Derived Materials and HESA Data only in accordance with the Permitted Purposes and condition 16 of the Specific Conditions;

9.5.5. it has complied with any advice, undertaking or enforcement notice issued to it by the Regulator following:

9.5.5.1. any audit by the Regulator; or

9.5.5.2. any notification of a data security breach or any other breach of the DP Legislation by the Client; and

9.5.6. it will not make or permit or pursue any analyses which allow the identification of individuals or which permit or enable any other person to identify individuals.

9.6. The Client shall indemnify and keep indemnified HESA Services and HESA against all damages, costs and expenses suffered by HESA Services or HESA arising from any breach of this Agreement by the Client.

9.7. Subject to clause 9.8:

9.7.1. HESA Services has no obligations to the Client, whether in contract, tort, breach of statutory duty or otherwise, beyond its obligations expressly set out in this Agreement;

9.7.2. HESA Services has no liability (however caused) for any loss of profit, business, contracts, revenues, increased costs or expenses or any indirect or consequential loss arising under this Agreement or otherwise in respect of any Deliverable supplied by HESA Services to the Client;

9.7.3. the maximum liability of HESA Services to the Client for any loss or damage of any kind arising from this Agreement shall not in any event exceed the lesser of:

9.7.3.1. where the full Payment is less than £10,000: 50% of the Payment and where the full Payment is more than £10,000: the sum of £5,000; and

9.7.3.2. 50% of the aggregate amount actually received by HESA Services from the Client under this Agreement.

9.8. Neither party excludes or limits its liability to the other party for:

9.8.1. fraud or fraudulent misrepresentation;

9.8.2. death or personal injury caused by negligence;

9.8.3. a breach of any obligations implied by section 12 of the Sale of Goods Act 1979 or section 2 of the Supply of Goods and Services Act 1982 or subsequent legislation which replaces these provisions; or

9.8.4. any matter for which it would be unlawful for the parties to exclude liability.

9.9. Without prejudice to any other rights or remedies which HESA Services may have, the Client acknowledges and agrees that damages would not be an adequate remedy for any breach of the provisions of this Agreement and HESA Services shall be entitled to the remedies of injunction, specific performance and other equitable relief for any threatened or actual breach of any provision of this Agreement by the Client.

9.10. The Client shall at all times have appropriate insurance cover in respect of its liabilities and potential liabilities under this Agreement, including each of professional indemnity cover, employer's liability cover and public liability cover to the extent that these are relevant and appropriate in light of the Client's activities and the Permitted Purposes. The Client shall provide HESA Services with such evidence of compliance with this clause 9.11 as HESA Services may reasonably request.

10. Termination

10.1. HESA Services may without liability terminate this Agreement immediately by written notice to the Client if:

10.1.1. HESA Services determines, in its own absolute discretion, that the Client is in material breach of any of its obligations under this Agreement. For the avoidance of doubt, any breach of clauses 3, 6.2 to 6.4, 7.2 to 7.4 or 8.2 or conditions 16 or 17 of the Specific Conditions will always be considered to be a material breach; or

10.1.2. HESA Services determines, in its own absolute discretion, that the Client is acting or has acted in a manner materially prejudicial to HESA Services' or HESA's goodwill and reputation or to the detriment of HESA's relationship with government departments, funding councils, one or more higher education institutions or providers, academic institutions or higher education representative bodies; or

10.1.3. HESA Services is unable to supply the Services to the Client within 60 days of the Commencement Date; or

10.1.4. an Insolvency Event occurs in relation to the Client; or

10.1.5. the Client ceases, or threatens to cease, to carry out business; or

10.1.6. HESA Services reasonably apprehends that any of the events referred to in clauses 10.1.1 to 10.1.5 is about to occur in relation to the Client and notifies the Client accordingly.

10.2. The Client may without liability terminate this Agreement immediately by written notice to HESA Services if HESA Services is in material breach of its obligations to the Client under this Agreement.

10.3. Clauses 3, 5, 6, 7, 8, 9, 11 and this clause 10 and conditions 16 and 17 of the Specific Conditions shall survive termination or expiration of this Agreement.

10.4. Termination shall be without prejudice to the rights of the parties accrued up to the Termination Date provided that upon the Termination Date all Payments due from the Client to HESA Services shall become immediately payable.

11. Alternative dispute resolution

11.1. This clause 11 applies to any dispute arising between the Client and HESA Services in connection with this Agreement, including for the avoidance of doubt any dispute as to whether HESA Services has complied with a duty under this Agreement to act reasonably.

11.2. Where a dispute as referred to in clause 11.1 arises from a concern or complaint on the part of the Client, the Client shall refer the matter to be considered within HESA's complaints process as published on its website and as amended from time to time. If the Client remains dissatisfied with HESA Services' position following completion of this process, the provisions of clauses 11.3 to 11.5 shall apply.

11.3. This paragraph 11.3 and, if applicable, paragraphs 11.4 and 11.5, apply either where a dispute as referred to in paragraph 11.1 arises from a concern or complaint on the part of HESA Services, or where the Client remains dissatisfied with HESA Services' position following completion of HESA's complaints process under paragraph 11.2. Directors or other senior representatives of each party with authority to settle the dispute will, within 10 working days of a written request from one party to the others, meet in a good faith effort to resolve the dispute.

11.4. If the dispute is not resolved at that meeting, the parties will attempt to settle it by mediation in accordance with the Centre for Effective Dispute Resolution (CEDR) Model Mediation Procedure. Unless otherwise agreed between the parties, the mediator will be nominated by CEDR. To initiate the mediation a party must give notice in writing (**"ADR notice"**) to the other parties to the dispute requesting a mediation. A copy of the request should be sent to CEDR Solve. The mediation will start not later than 20 working days after the date of the ADR notice.

11.5. No party may commence any court proceedings in relation to any dispute arising out of this Agreement until it has attempted to settle the dispute by mediation in accordance with this clause 11 and either the mediation has terminated or one of the other parties has failed to participate in the mediation, provided that the right to issue proceedings is not prejudiced by a delay.

11.6. Nothing in this clause 11 shall prevent any party seeking a preliminary injunction or other judicial relief at any time, if in its judgement such action is necessary to prevent irreparable damage.

12. Notices

12.1. Any notice to be given pursuant to this Agreement:

12.1.1. shall be in writing; and

12.1.2. shall be delivered by hand or sent by first class post, recorded delivery or by commercial courier to the party due to receive such notice at its address set out below or such other address or addressee as any party may notify to the other from time to time:

HESA Services: For the attention of the Managing Director HESA Enterprise and the Head of Data Intelligence

HESA SERVICES LIMITED
95 Promenade
Cheltenham
GL50 1HZ

The Client: The individual and address stated in conditions 2 and 4 of the Specific Conditions.

12.1.3. In the absence of evidence of earlier receipt any such notice shall be deemed to have been given or received:

12.1.3.1. if delivered by hand, when delivered; or

12.1.3.2. on the second business day following the day of sending if sent by post or recorded delivery; or

12.1.3.3. on the date and at the time that the courier's delivery receipt is signed if sent by commercial courier.

13. Force Majeure

13.1. HESA Services shall not be deemed to be in breach of this Agreement or otherwise liable to the Client for a failure to perform any obligation to which it is subject under this Agreement to the extent that it is prevented from performing the relevant obligation by any event or circumstance beyond its reasonable control (**"an Event of Force Majeure"**). Where an Event of Force Majeure occurs or arises, HESA Services shall as soon as may be practical give notice of this event to the Client and the time for HESA Services' performance of the relevant obligation shall be deemed to be extended by a period equal to the duration of the Event of Force Majeure.

14. General

14.1. This Agreement comprises the Specific Conditions and the Standard Terms and Conditions. Neither the Specific Conditions nor the Standard Terms and Conditions are to be interpreted or applied separately from the other.

14.2. This Agreement including the Main Agreement and this Schedule together with all other documents referred to herein contains the entire agreement between the parties in relation to its subject matter. It supersedes any prior written or oral agreement between them in relation to its subject matter and shall not be superseded subsequently by any communication by one party of proposed alternative terms or variations which is not agreed in the manner provided for in clauses 14.6 and 14.7.

14.3. The parties confirm that they have not entered into this Agreement on the basis of any representations that are not expressly incorporated into this Agreement. Each of the parties irrevocably and unconditionally waives any right it may have to claim damages for, and/or to rescind this Agreement because of breach of any warranty not contained in this Agreement, or any misrepresentation not contained in this Agreement, unless such misrepresentation was made fraudulently.

14.4. This Agreement may not be assigned or otherwise transferred in whole or in part by the Client without the prior written consent of HESA Services.

14.5. The Client shall not be entitled to sub-licence any of the rights granted to it nor to sub-contract any of the obligations imposed on it by HESA Services under this Agreement.

14.6. Variations to the following provisions of this Agreement shall take effect following an exchange of emails between the authorised individuals named in condition 19 of the Specific Conditions in which an authorised individual of one party sets out the terms of the variation and an authorised individual representing the other party explicitly confirms the agreement of that variation without stating any qualification, caveat or condition:

14.6.1. the length of any Licence Period;

14.6.2. the addition of further data fields to any datasets specified in condition 12 of the Specific Conditions at the date of signature of this Agreement;

14.6.3. the scope of permitted use and the identity of permitted users within the Permitted Purposes;

14.6.4. variations to the Payment which directly reflect any variations falling within clauses 14.6.1, 14.6.2 or 14.6.3 or the grant of any consent(s) under condition 16(j)(iii) of the Specific Conditions.

14.7. Save as provided for in clause 14.6, no variation to this Agreement shall take effect unless it is in writing and signed by all parties to this Agreement.

14.8. For the purpose of section 1(2) of the Contracts (Rights of Third Parties) Act 1999 the parties state that they do not intend any terms of this Agreement to be enforced by any third parties with the exception of HESA; but any third party right which exists or is available independently of that Act is preserved.

14.9. Each party shall not pledge the credit of the other nor represent itself as being the other nor a partner, agent, employee or representative of the other. Each party shall not hold itself out as such nor as having any power or authority to incur any obligation of any nature, express or implied, on behalf of the other. Nothing in this Agreement shall create, or be deemed to create, a partnership or joint venture or relationship of employer and employee or principal and agent between the parties; and no employee of either party shall be deemed to be or have become an employee of the other.

14.10. Each party shall not, either by its actions or by its public statements, commit or purport to commit the other to any action, other than those actions which are explicitly covered by this Agreement, except with the written consent of the other party.

14.11. In particular, and without prejudice to the generality of clauses 14.9 and 14.10, the Client shall refer to HESA Services any request made to it for provision of HESA Data to a third party unless such provision to that third party is within the Permitted Purposes, and the Client shall not without the prior written agreement of HESA Services:

14.11.1. either by its actions or its public statements, describe itself as being an official source of HESA Data, as being supported by HESA or HESA Services, as having a special relationship or partnership with either HESA or HESA Services with regard to enabling access to HESA Data or as having any right or permission to sub-license or otherwise provide access to HESA Data other than as specified in the Permitted Purposes;

14.11.2. use the logo or name of either HESA or HESA Services save as required to comply with condition 18 of the Specific Conditions.

14.12. The rights and remedies of either party in respect of this Agreement shall not be diminished, waived or extinguished by the granting of any indulgence, forbearance or extension of time granted by one party to the other; nor by any failure of, or delay by the said party in ascertaining

or exercising any such rights or remedies. The waiver by either party of any breach of this Agreement shall not prevent the subsequent enforcement of that provision, and shall not be deemed to be a waiver of any subsequent breach of that or any other provision.

14.13. If at any time any part of this Agreement is held to be or becomes illegal, void or otherwise unenforceable for any reason under any applicable law, the parties shall negotiate in good faith to amend such provision such that, as amended, it is legal, valid and enforceable and, to the greatest extent possible, achieves the parties original intention. The validity and/or enforceability of the remaining provisions of this Agreement shall not in any way be affected or impaired as a result of that omission.

14.14. The headings in this Agreement are included for convenience or reference only and shall not affect the interpretation of this Agreement.

14.15. References in this Agreement to the singular include the plural and vice versa and references to one gender includes the other gender.

15. Governing law

15.1. This Agreement shall be governed by and construed in accordance with English Law and, to the extent disputes arising out of or relating to this Agreement are not settled under the procedures referred to in clause 11, the Client submits to the exclusive jurisdiction of the English Courts.

16. Execution of this agreement

16.1. This agreement may be executed in any number of counterparts, each of which when executed and delivered shall constitute a duplicate original, but all the counterparts shall together constitute the one agreement.

16.2. The following shall take effect as delivery of an executed counterpart of this agreement or the executed signature page of a counterpart of this agreement:

16.2.1. This agreement or a counterpart of this agreement; or

16.2.2. The signature page of this agreement or of a counterpart of this agreement;

where it is transmitted through a digital signature programme to a party to this agreement following electronic signature by another party using that digital signature programme.

16.3. No counterpart shall be effective until each party has executed and delivered a least one counterpart or the executed signature page of a counterpart.

16.4. Each party shall be entitled to assume that the signatory on behalf of the other has full authority to enter into this agreement.

16.5. The Client acknowledges and accepts that the digital signature system used by HESA Services will track and retain the Personal Data of individuals who use the system. Such Personal Data is retained within the digital signature system, and may be accessed by HESA or HESA Services, only for the purposes of monitoring progress towards signature of this Agreement and for standard records management and audit. The Client shall be responsible for notifying the retention and use of such Personal Data to individuals employed or engaged by it as necessary to ensure compliance with the fair processing requirements within the DP Legislation.

Appendix 14 - Technical Appendix: HESA Data

This technical appendix includes important information related to the analysis of the secondary HESA data using STATA. It is organised into the following sections:

14.1 Variables & Coding

A full codebook generated in STATA is available in Appendix 13. Table 13.1 below lists the raw variables provided by HESA, and they are organised into categories according to geography, demographics, higher education, and employment outcomes. Throughout this chapter, the process for altering and recoding these raw variables will be discussed.

Table 13.1 – Variable List

Geography		
F_XDOMGR401_1	Domicile	Domicile - The students' country prior to commencement of the course. Restricted to UK-domiciled students for fee assessment purposes.
F_XDOMU01_1	Origin Domicile	Domicile Location (Unitary Authority)
f_sectorpcode	Postcode	Domicile Location (Sector Postcode)
f_sectorpcode	Postcode	Domicile Location (Sector Postcode)
F_XLOU01_1	Employment Destination	Employment Location (Unitary Authority)
Demographics		
F_SEXID_1	Gender	This field records the sex of the student.
F_XETHNIC01_1	Ethnicity	Ethnicity - The student's ethnicity, applicable to UK domiciled students only.
F_ZPOLAR4_1	POLAR 4	Classification of areas for young participation rates in higher education.
Higher Education		
F_AcYear_1	Academic Year	This field indicates the year in which the student received their degree, restricted to 2012/13-2016/17.

F_XINSTID01_1	Name of university	HE providers restricted to The University of Bolton, The Manchester Metropolitan University, The University of Salford, University of Manchester.
F_XJACS201_1	Course Subject	Subject of study and JACS codes - Subject categories of the students general course aim. 20 categories.
F_XMODE301_1	Mode of Study	Refers to the method by which the qualification was achieved i.e. Full-time/Part-time.
F_XQLEV601_1	Degree Level	Qualification obtained restricted to first degree.
F_XCLASS01_1	Degree Class	The undergraduate degree class that the student obtained. Applicable to first degree qualifiers only.
Employment Outcomes		
F_XACTIV02_1	Employment Activity	Reports what graduates are doing in relation to both employment and study.
F_EMPBASIS_1	Employment Basis	The HE leaver's own assessment of the basis of their employment contract.
F_TYPEQUAL_1	Type of Further Qualification	The type of qualification that the leaver was aiming for in further study.
F_XSIC202_1	Industry (SIC)	Standard Industrial Classification - The industrial classification of the leavers employer. 85 categories.
F_XSOCD302_1	Occupation (SOC)	Standard Occupational Classification (SOC) and Professional marker - The occupational classification of the job undertaken by the leaver. 90 categories.

Certain fields present a challenge for analysis since they contain large number of categories. For example, the Standard Industrial Classification of activities (SIC) record, which contains the data for the industry that graduates are working in contains 100 different categories. The Standard Occupational Classification (SOC) records the job undertaken by the graduate and contains 90 codes. In order to make the reporting of descriptive statistics meaningful, certain categories are condensed into larger groupings. The SOC field contains 928 job classification codes, and marker for working in a professional occupation is used instead.

Therefore, two new fields are created: 'Course Subject (Condensed)', 'Industry (Condensed)', and 'In Professional Employment', as illustrated in Table 13.2.

Table 14.2 – Condensed Variable Categories

Field Name	Description Label	Short Description	Corresponding Appendix
F_XJACS201Condensed	Course Subject (Condensed)	JACS codes -condensed from 20 codes into 7 categories.	13.6
SICSectionCodes_Condensed	Industry (Condensed)	Standard Industrial Classification (SIC) - 85 codes condensed into 17 categories.	13.7
Prof_NonProf_F_XSOCD302	In Professional Employment	Professional employment marker (0 Unknown, 1 In Professional Employment) replaces F_XSOCD302_1	13.8

The details for the procedure used to create these condensed categories is provided in corresponding appendices as listed in above.

14.2 The Binomial Logistic Regression (BLR) Model

A BLR allows us to establish a relationship between a binary dependent variable and a group of independent variables. Because the probabilities are bounded at 0 and 1, the relationship between the independent and dependent variables is inherently non-linear, logistic regression uses the logit function to 'linearise' this relationship (Crowson, 2020). The BLR model used in this analysis uses only categorical variables in the form of either dichotomous or factor variables.

More formally, let Y be the binary outcome variable indicating failure/success with [0,1] and p be the probability of y to be **1**, $p=P(Y=1)$. Let $x_1,\cdots,x_k$ be a set of predictor variables. Then the logistic regression of Y on $x_1,\cdots,x_k$ estimates parameter values for $\beta_0,\beta_1,\cdots,\beta_k$ via maximum likelihood method of the following equation

(Equation 1)

$$logit(p) = log(p/(1-p)) = \beta_0 + \beta_1 * x_1 + \ldots + \beta_k * x_k$$

BLR analyses how each dependent variable affects the probability of the event occurring, for this analysis, the probability of a graduate staying in GM, $p=P(Y=1)$. The first dependent variable that is analyzed is the binary dependent variable that depicts whether a graduate is or is not employed in GM 6 months after graduation. A value of 0 (leave) is recorded for migration out of GM and a value of 1 (stay) if a migration has not occurred. Therefore, the BLR equation used in this analysis can be expressed as

(Equation 2)

$$logit(p) = \beta_0 + \beta_{1*\text{Domicile}} + \beta_{2*Ethnicity} + \beta_{3*Sex} + \beta_{4*HEI} + \beta_{5*FTstudy} + \beta_{6*DegreeClass} + \beta_{7*Course} + \beta_{8*FTwork} + \beta_{9*PermanentContract} + \beta_{10*ProfOccupation} + \beta_{11*Industry}$$

Applying such a model to this analysis's dataset, each estimated coefficient is the expected change in the log odds of staying in GM for a unit increase in the corresponding predictor variable, while holding the other predictor variables constant (Ranganathan et al., 2017). STATA use two logistic regression commands. The command 'logistic' gives the results in odds ratios and the command 'logit' gives the results as regression coefficients. This analysis will use the 'logistic' command and the results will be provided as odds ratios. Odds ratios can be interpreted where a value above 1.00 means there is a greater likelihood that a graduate will stay in GM, and there is a lower likelihood that the graduate will stay if the value is below 1.00

As argued by Osborne (2017), the model selection process should settle on a model that has a good statistical fit compared to other models, while also including variables needed in the final analysis needed for conceptual or theoretical reasons. The conceptual framework presented in Chapter 2 argues that graduate migration is influenced by geography, demographics, higher education-related factors, employment factors, among others. Therefore, there is a desire to retain as many of these variables as possible in the final model. It should also be mentioned that the BLR analysis is undertaken in an effort explore patterns in the HESA data and not to find the best predictive model. Therefore, the identification of the which best predictive variables worth advancing to the final model is less of a concern for the purposes here. Issues related to collinearity are addressed in the discussion of the BLR model itself.

14.2.1 Interaction Terms

The discussion of the regression results will also include interaction terms for two sets of interaction terms: (1) gender and ethnicity and (2) geographic origin and HEI, the inclusion of which is driven by the theoretical groundings in the literature that shows that these factors are likely to impact on the mobility and immobility of graduates. Interaction effect is the combined effect of two or more independent variables on a dependent variable, and it is also known by the names 'conditioning effect', 'contingency effect', 'joint effect', or 'moderating effect' (Vogt, 2005). Moderation means that one variable can moderate, or influence, the effect of another variable on an outcome (Osborne, 2017), and they are important the presence of interaction effects that are statistically significant makes it difficult to interpret main effects (ibid). For example, the literature suggests that Asian females may be less mobile for a variety of social and cultural reasons. Without modelling interaction effects, the binomial logistic regression results would return only results for females and, separately, Asians, without any insights into the interaction between the two variables. The interaction model used in this analysis includes an indicator variable formed by multiplying two ordinary predictors (gender and ethnicity).

For example, let Y be the binary outcome variable indicating failure/success with $\{0,1\}$ and p be the probability of y to be **1**, $p=P(Y=1)$. Let x_1 , x_2 be a set of predictor variables. Then the logistic regression of Y on x_1, x_2 estimates parameter values for β_0, β_1, β_2 via maximum likelihood method of the following equation containing an interaction term β_i ($\boldsymbol{X_1}$ multiplied by $\boldsymbol{X_2}$, which is represented by $\boldsymbol{X_1}*\boldsymbol{X_2}$).

(Equation 3)

$$logit(p) = log(p/(1-p)) = \beta_0 + \beta_1*x_1 + \ldots + \beta_k*x_k + \beta_i\,(x_1*x_2)$$

Therefore, BLR regression equation can be updated to include the interaction term:

(Equation 4)

$$logit(p) = \beta_0 + \beta_{1*\text{Domicile}} + \beta_{2*Ethnicity} + \beta_{3*Sex} + \beta_{4*HEI} + \beta_{5*FTstudy} + \beta_{6*DegreeClass} + \beta_{7*Course} + \beta_{8*FTwork} + \beta_{9*PermanentContract} + \beta_{10*ProfOccupation} + \beta_{11*Industry} + \beta_{12}\,(X_{Ethnicity}*X_{Gender}) + \beta_{13}\,(X_{Geography}*X_{HEI})$$

Table 13.3 below lists the equations and relative effects of the interaction terms that will be helpful in explaining the results of the analysis. The reference category, or base category, in this model is white males coded as 0,0, and all other combinations of gender and ethnicity are compared against white males. Equations can then be created, and through plugging in 1's and 0's, relative effects can be identified for each category. For example, the relative effects for a black female in this model are $\beta_{Female} + \beta_{Black} + \beta_{Black*Female}$ where $\beta_{Black*Female}$ reflects the interaction term.

Table 13.3 – Interaction Terms Equations and Relative Effects for Gender & Ethnicity

Category	Ethnicity	Gender	Equation	Relative Effect
White Male	0	0	β_0	Reference Category
White Female	0	1	$\beta_0 + \beta_{1(Female)}$	$\beta_{1(Female)}$
Black Male	1	0	$\beta_0 + \beta_{2(Black)}$	$\beta_{2(Black)}$
Black Female	1	1	$\beta_0 + \beta_{1(Female)} + \beta_{2(Black)} + \beta_{3(Female*Black)}$	$\beta_{1(Female)} + \beta_{2(Black)} + \beta_{3(Female*Black)}$
Asian Male	2	0	$\beta_0 + \beta_{4(Asian)}$	$\beta_{4(Asian)}$

Asian Female	2	1	$\beta_0+\beta_{1(Female)}+\beta_{4(Asian)}+\beta_{5(Female*Asian)}$	$\beta_{1(Female)}+\beta_{4(Asian)}+\beta_{5(Female*Asian)}$
Mixed Male	3	0	$\beta_0+\beta_{6(Mixed)}$	$\beta_{6(Mixed)}$
Mixed Female	3	1	$\beta_0+\beta_{1(Female)}+\beta_{6(Mixed)}+\beta_{7(Female*Mixed)}$	$\beta_{1(Female)}+\beta_{6(Mixed)}+\beta_{7(Female*Mixed)}$
Other Male	4	0	$\beta_0+\beta_{8(Other)}$	$\beta_{8(Other)}$
Other Female	4	1	$\beta_0+\beta_{1(Female)}+\beta_{8(Other)}+\beta_{9(Female*Other)}$	$\beta_{1(Female)}+\beta_{8(Other)}+\beta_{9(Female*Other)}$

Similarly, Table 13.4 below shows the interaction terms for geographic origin (GM or Not GM) and university attended (University of Manchester, Bolton, MMU, and Salford).

Table 13.4 – Interaction Terms Equations and Relative Effects for Geography & University

Category	**GM**	**HEI**	**Equation**	**Relative Effect**
Not GM, Univ of MCR	0	0	β_0	Reference Category
GM, Univ of MCR	1	0	$\beta_0+\beta_{1(GM)}$	$\beta_{1(GM)}$
Not GM, Bolton	0	1	$\beta_0+\beta_{2(Bolton)}$	$\beta_{2(Bolton)}$
GM, Bolton	1	1	$\beta_0+\beta_{1(GM)}+\beta_{2(Bolton)}+\beta_{3(GM*Bolton)}$	$\beta_{1(GM)}+\beta_{2(Bolton)}+\beta_{3(GM*Bolton)}$
Not GM, MMU	0	2	$\beta_0+\beta_{4(MMU)}$	$\beta_{4(MMU)}$
GM, MMU	1	2	$\beta_0+\beta_{1(GM)}+\beta_{4(MMU)}+\beta_{5(GM*MMU)}$	$\beta_{1(GM)}+\beta_{4(MMU)}+\beta_{5(GM*MMU)}$
Not GM, Salford	0	3	$\beta_0+\beta_{6(Salford)}$	$\beta_{6(Salford)}$
GM, Salford	1	3	$\beta_0+\beta_{1(GM)}+\beta_{6(Salford)}\ \beta_{7(GM*Salford)}$	$\beta_{1(GM)}+\beta_{6(Salford)}\ \beta_{7(GM*Salford)}$

The results of the interaction terms will be reported in the same manner as the other logistic regression results, i.e., as odds ratios. With many different permutations, explaining the odds ratios and the relative effects become difficult. One technique to make the results clearer is to calculate predicted probabilities for migration using marginal effects.

14.2.2 Marginal Effects

Marginal effects show the change in probability when the independent variable increases by one unit (Williams, 2019), and marginal effects can be thought of as a way to summarise an independent variable's effect in terms of a model's predictions (Mize, 2019). For the categorical variables used in this model, the change in 'unit' is the change from 0 to 1. The equation of the marginal effect of a parameter value x_1 can be expressed in the below equation.

(Equation 6)

Marginal Effect $x_1 = Pr(Y = 1 \mid x, x_1 = 1) - Pr(\ (y=1 \mid x, x_1 = 0)$

where x is computed at observed values, otherwise known as the Average Marginal Effects (AME) (Williams, 2012) in this model.

In effect, AME compares the probability of staying or leaving Greater Manchester for two hypothetical populations (e.g., one all white, one all Asian) that have the exact same values for the other independent variables in the model (Williams, 2011). The STATA 'margins' command can be used to estimate the marginal effect of an independent variable (e.g., ethnicity) on the predicted probabilities of graduate retention. Mize (2019) also recommends that marginal effects should be used to determine the size and significance of results rather than regression coefficients and to graph the

predictions to determine the nature of the underlying interactions. Therefore, in addition to the odds ratios, marginal effects will be considered, and graphs provided for select variables.

14.3 The Multinomial Logistic Regression (MLR) Model

As was mentioned in the introduction of this section MNLR is perhaps the most commonly used regression model used in the analysis of UK graduate migration. The basic principle behind MNLR is like that of BLR, i.e., the predicted probability of falling into a particular group (dependent variables) is a result of the observed independent variables. So, for this analysis, the MNLR is used to predict the probability of a graduate being in one of the migration pathways given their explanatory characteristics like gender, ethnicity, HEI, course of study, etc.

MNLR calculates log of probability ratio, which is the log of probability of falling into one category compared to the probability of falling into the reference category (Agresti, 2013).

Equations for MNLR models where the outcome variable five categories, as in this analysis, is shown in Equations 7 below (ibid).

(Equations 7)

$$\text{Log}\ (\pi_1/\ \pi_4) = \alpha_1 + x_1\ \beta_1$$

$$\text{Log}\ (\pi_2/\ \pi_4) = \alpha_2 + x_2\ \beta_2$$

$$\text{Log}\ (\pi_3/\ \pi_4) = \alpha_3 + x_3\ \beta_3$$

$$\text{Log}\ (\pi_5/\ \pi_4) = \alpha_5 + x_5\ \beta_5$$

In Equations 7, π_1 is the response category 1 (Home Grown Loyals), π_2 is the response category 2 (Stayers), π_3 is the response category 3 (returners), π_4 is the response category 4 and reference category (Bouncers), π_5 is response category 5 (Home Gown Leavers), α_1 the intercept, x_i a vector of the explanatory variables, and β_i the coefficients. Bouncers was chosen as the reference category since members of this group are the most mobile, following Faggian et al. (2006). The results of the model will be given as relative risk ratios (RRR), which are like the odds ratios used in the BLR model previously. The findings section will discuss the difference in using the RRR to interpret results, but marginal effects will also be calculated to aid in the discussion of the results. As is the case with all regression modelling, MNLR relies on a few important assumptions related to the completeness of the model, the linearity of the model, that the variables are measured at interval scale and without error, that the residuals are normally distributed, and independence of observation. Issues related to collinearity were not identified through standard testing. Like the BLR, the approach taken to missing values in MNLR analysis is to drop any individual record which does not have complete information on every item used in the analysis.

14.4 STATA Codebook for HESA Dataset

AcYear_1 Academic Year

---

type: numeric (int)

range: [2013,2017] units: 1

unique values: 5 missing .: 0/53,484

tabulation: Freq. Value

11,434 2013

11,875 2014

10,111 2015

9,892 2016

10,172 2017

RespMkr_1 Response Type

---

type: numeric (byte)

label: RespMkr_1

range: [1,1] units: 1

unique values: 1 missing .: 0/53,484

tabulation: Freq. Numeric Label

53,484 1 Respondent

F_XINSTID01_1 University

---

type: numeric (int)

label: F_XINSTID01_1

range: [49,204] units: 1

unique values: 4 missing .: 0/53,484

tabulation: Freq. Numeric Label

2,838 49 The University of Bolton

19,807 66 The Manchester Metropolitan University

11,039 158 The University of Salford

19,800 204 The University of Manchester

F_XJACS201_1 Course Subject (JACS)

---

type: numeric (byte)

label: F_XJACS201_1

range: [1,20] units: 1

unique values: 20 missing .: 0/53,484

examples: 2 Allied to medicine

7 Engineering

13 Business studies

15 Language, linguistics, classics & related subjects

F_XMODE301_1 Mode of Study

---

type: numeric (byte)

label: F_XMODE301_1

range: [1,2] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

51,073 1 Full Time

2,411 2 Part Time

F_XQLEV601_1 Degree Level

---

type: numeric (byte)

label: F_XQLEV601_1

range: [4,4] units: 1

unique values: 1 missing .: 0/53,484

tabulation: Freq. Numeric Label

53,484 4 First degree

F_SEXID_1 Gender

---

type: numeric (byte)
label: F_SEXID_1

range: [1,2] units: 1
unique values: 2 missing .: 0/53,484
unique mv codes: 1 missing .*: 2/53,484

tabulation: Freq. Numeric Label
22,692 1 Male
30,790 2 Female
2 .a Not known/ Not applicable

F_XDOMGR401_1 Domicile (UK, EU, Intl)

---

type: numeric (byte)
label: F_XDOMGR401_1

range: [1,1] units: 1
unique values: 1 missing .: 0/53,484

tabulation: Freq. Numeric Label
53,484 1 UK

F_XACTIV02_1 Employment Activity

---

type: numeric (byte)

label: F_XACTIV02_1

range: [1,9] units: 1

unique values: 6 missing .: 0/53,484

tabulation: Freq. Numeric Label

41,305	1	Full-time paid work only (including self-employed)
8,467	2	Part-time paid work only
1,176	3	Voluntary/unpaid work only
2,288	4	Work and further study
14	8	Other
234	9	Explicit refusal

F_XJACS201Condensed Course Subject (Condensed)

---

type: numeric (byte)

label: F_XJACS201Condensed

range: [1,7] units: 1

unique values: 7 missing .: 0/53,484

tabulation: Freq. Numeric Label

11,804 1 Medicine & Allied

12,848 2 STEM

5,121 3 Social Sciences

1,174 4 Law

10,316 5 Business & Comms

10,274 6 Arts & Humanities

1,947 7 Education

F_XSIC202_1 Industry (SIC)

---

type: numeric (int)

label: F_XSIC202_1

range: [1,99] units: 1

unique values: 85 missing .: 0/53,484

unique mv codes: 1 missing .*: 219/53,484

examples: 47 Retail trade, except of motor vehicles and motorcycles

64 Financial service activities, except insurance and pension funding

84 Public administration and defence; compulsory social security

86 Human health activities

SICSectionCodes_Condensed Industry (Condensed)

---

type: numeric (byte)

label: SICSectionCodes_Condensed

range: [1,17] units: 1

unique values: 17 missing .: 0/53,484

unique mv codes: 1 missing .*: 219/53,484

examples: 5 Retail & Wholesale Trade

9 Financial Services

13 Public Administration

15 Human Health & Social Work

F_XSOCD302_1 Occupation (SOC)

---

type: numeric (int)

label: F_XSOCD302_1

range: [111,927] units: 1

unique values: 90 missing .: 0/53,484

unique mv codes: 1 missing .*: 56/53,484

examples: 221 Health professionals

247 Media Professionals

354 Sales and related associate professionals

614 Caring Personal Services

F_EMPBASIS_1 Employment Basis

---

type: numeric (byte)

label: F_EMPBASIS_1

range: [1,11] units: 1

unique values: 11 missing .: 0/53,484

unique mv codes: 1 missing .*: 427/53,484

examples: 3 On a permanent or open-ended contract

3 On a permanent or open-ended contract

3 On a permanent or open-ended contract

4 On a fixed-term contract lasting 12 months or longer

F_TYPEQUAL_1 Type of Further Qualification

---

type: numeric (byte)

label: F_TYPEQUAL_1

range: [1,98] units: 1

unique values: 8 missing .: 0/53,484

unique mv codes: 1 missing .*: 50,016/53,484

tabulation: Freq. Numeric Label

119 1 Higher degree, mainly by research (e.g. PhD, DPhil, MPhil)

1,673 2 Higher degree, mainly by taught course (e.g. MA, MSc, MBA)

507 3 Postgraduate diploma or certificate (including PGCE)

89	4	First degree (e.g. BA, BSc, MBChB, MEng)
150	5	Other diploma or certificate
714	6	Professional qualification (e.g. ACA, Charted Institute of Marketing)
140	7	Other qualification
76	98	Not aiming for a formal qualification
50,016	.a	Not known/ Not applicable

---

f_sectorpcode Postcode

---

type: string (str11)

unique values: 6,842 missing "": 0/53,484

examples: "CW10 9"
"M11 1"
"NG16 1"
"SK3 9"

warning: variable has embedded blanks

F_XETHNIC01_1 Ethnicity

---

type: numeric (byte)

label: F_XETHNIC01_1

range: [1,5] units: 1

unique values: 5 missing .: 0/53,484

unique mv codes: 1 missing .*: 264/53,484

tabulation: Freq. Numeric Label

41,275 1 White

2,351 2 Black

7,031 3 Asian

2,033 4 Mixed

530 5 Other

264 .a Not known/ Not applicable

F_ZPOLAR4_1 POLAR 4

---

type: numeric (byte)

label: F_ZPOLAR4_1

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

unique mv codes: 1 missing .*: 43,334/53,484

tabulation: Freq. Numeric Label

8,925 0 Other neighbourhood

1,225 1 Low Participation neighbourhood

43,334 .a Not known/ Not applicable

F_XCLASS01_1 Degree Class

---

type: numeric (byte)

label: F_XCLASS01_1

range: [1,5] units: 1

unique values: 5 missing .: 0/53,484

unique mv codes: 1 missing .*: 16/53,484

tabulation: Freq. Numeric Label

13,065 1 First class honours

24,291 2 Upper second class honours

9,786 3 Lower second class honours

2,118 4 Third class honours/Pass

4,208 5 Unclassified

16 .a Not known/ Not applicable

F_XDOMU01_1 Origin Domicile

---

type: numeric (int)

label: F_XDOMU01_1

range: [2,938] units: 1

unique values: 158 missing .: 0/53,484

examples: 369 Greater Manchester

369 Greater Manchester

800 Bath and North East Somerset

888 Lancashire

F_XLOU01_1 Employment Destination

---

type: numeric (int)

label: F_XLOU01_1

range: [1,938] units: 1

unique values: 154 missing .: 0/53,484

examples: 369 Greater Manchester

369 Greater Manchester

369 Greater Manchester

860 Staffordshire

Prof_NonProf_F_XSOCD302 Professional Occupation

---

type: numeric (byte)

label: Prof_NonProf_F_XSOCD302

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

unique mv codes: 1 missing .*: 56/53,484

tabulation: Freq. Numeric Label

16,087 0 Unknown

37,341 1 Professional

56 .a Not known/ Not applicable

MigrationCode Migration Code

---

type: numeric (byte)

label: MigrationCode

range: [1,15] units: 1

unique values: 5 missing .: 0/53,484

tabulation: Freq. Numeric Label

15,462 1 HG Loyals

10,880 2 Stayers

11,498 3 Returners

12,538 4 Bouncers

3,106 15 HG Leavers

ManchesterDomicile Manchester Domiciled

---

type: numeric (byte)

label: ManchesterDomicile

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label
34,916 0 Not manchester
18,568 1 Manchester

---

dontuse_StayorLeave Stay or Leave

---

type: numeric (byte)
label: StayorLeave

range: [0,1] units: 1
unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label
38,022 0 Leave
15,462 1 Stay

StayUpdated UPDATED

---

type: numeric (byte)
label: StayUpdated

range: [0,1] units: 1
unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

27,142 0 Leave

26,342 1 Stay

DONT_USE_Mod_Russ_Uni Uni Type

---

type: numeric (byte)

label: Type, but 1 nonmissing value is not labeled

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

19,800 0

33,684 1 Modern

NorthWest North West Domicile

---

type: numeric (byte)

label: NorthWest, but 1 nonmissing value is not labeled

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

25,416 0

28,068 1 North West

NorthernPowerhouse Northern Powerhouse Domicile

---

type: numeric (byte)

label: NorthernPowerhouse, but 1 nonmissing value is not labeled

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

19,589 0

33,895 1 Northern Powerhouse

HE_STEM HE STEM Subject

---

type: numeric (float)

label: HE_STEM

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

40,636 0 Not STEM Subject

12,848 1 STEM Subject

SIC_STEM STEM Industry

---

type: numeric (float)

label: STEM_Industry

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

47,585 0 Not STEM Industry

5,899 1 STEM Industry

PermContract PermanentContract

---

type: numeric (float)

label: PermContract

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

21,844 0 Not on a Permanent Contract

31,640 1 Permanent Contract

FTwork In Full Time Work

---

type: numeric (float)

label: FTWork

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

12,179 0 Not in FT work

41,305 1 In FT work

Ethnicty Ethnicity

---

type: numeric (float)

label: Ethnicty

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

12,209 0 Asian, Black, or Other

41,275 1 White

RUSSELLgroup Univeristy Type

---

type: numeric (float)

label: UniType

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

33,684 0 Mod Group

19,800 1 Russell Group

FirstClass Degree Type

---

type: numeric (float)

label: FirstClass

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

40,419 0 2nd, 3rd or Unclassified

13,065 1 First class honors

FTstudy Full Time Study

---

type: numeric (float)

label: FTStudy

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

2,411 0 Part Time

51,073 1 Full Time

---

sex Gender

---

type: numeric (float)

label: Sex

range: [0,1] units: 1

unique values: 2 missing .: 0/53,484

tabulation: Freq. Numeric Label

30,792 0 Female

22,692 1 Male

.

14.5 Dummy Variable List

Category	Dummy Variable Name	Dummy Variable Description	Dichotomous Dummy Variables
Demographics	Gender_Female	Gender	1 Female, 0 Male
	Gender_Male	Gender	1 Male, 0 Female
	Ethnicity_Asian	Asian Ethnicity	1 Asian, 0 Other
	Ethnicity_Black	Black Ethnicity	1 Black, 0 Other
	Ethnicity_Mixed	Mixed Ethnicity	1 Mixed, 0 Other
	Ethnicity_White	White Ethnicity	1 White, 0 Other
	F_ZPOLAR4_1	POLAR4 Marker	1 Low Participation neighbourhood, 0 Other
Geography	ManchesterDomicile	Manchester Domiciled	1 Manchester, 0 Not Manchester
	NorthWest	North West Domicile	1 North West, 0 Other UK region,
	NorthernPowerhouse	Northern Powerhouse Domicile	1 Northern Powerhouse, 0 Other UK region
	StayUpdated	Stay or Leaver	1 Stay, 0 Leave
HE	RUSSELLgroup	Univeristy Type	1 Russell Group, 0 Non-Russel Group
	FirstClass	Degree Type	1 First class honors, 0 Other
	FTstudy	Full Time Study	1 Full Time, 0 Part Time
	JAC_Health	Medicine & Allied Course	1 Medicine, 0 Other
	JAC_STEM	STEM Course	1 STEM , 0 Other
	JAC_SocSi	Social Science Course	1 SocSi, 0 Other
	JAC_Law	Law Course	1 Law , 0 Other
	JAC_Business	Business & Communications Course	1 Business, 0 Other
	JAC_Arts	Arts & Humanities Course	1 Arts, 0 Other
	JAC_Education	Education Course	1 Education, 0 Other
Employment	PermContract	Working on a Permanent Contract	1 Permanent Contract, 0 Other
	FTwork	In Full Time Work	1 In FT work, Other
	Prof_Occupation	Professional Occupation	1 Professional , 0 Other
	SIC_Agriculture	Agriculture, Forestry and Fishing	1 Agriculture, 0 Other
	SIC_Mining	Mining	1 Mining, 0 Other
	SIC_Manufacturing	Manufacturing	1 Manufacturing , 0 Other
	SIC_Construction	Water/Gas/Sewerage Supply & Construction	1 Construction, 0 Other
	SIC_Retail	Retail & Wholesale Trade	1 Retail , 0 Other
	SIC_Transport	Transport & Logistics	1 Transport, 0 Other
	SIC_Food	Accommodation & Food Service	1 Food, 0 Other
	SIC_Media	Media, Information & Communication	1 Media , 0 Other
	SIC_Financial	Financial Services	1 Financial , 0 Other
	SIC_RealEstate	Real Estate	1 Real Estate, 0 Other
	SIC_Professions	Professional, Scientific, & Technical Services	1 Professional , 0 Other
	SIC_Admin	Administrative & Support Service	1 Admin, 0 Other
	SIC_PublicSector	Public Administration	1 Public Sector , 0 Other
	SIC_Education	Education	1 Education, 0 Other

	SIC_Health	Human Health & Social Work Occupation	1 Health, 0 Other
	SIC_Arts	Arts, Entertainment & Recreation	1 Arts, 0 Other
	SIC_Other	Other	1 Other, 0 Not Other

14.6 JAC Condensed Categories

Condensed Categories taken from HESA's principal subject codes:

https://www.hesa.ac.uk/support/documentation/jacs/jacs3-principal

1	Medicine & Allied
2	STEM
3	Social Sciences
4	Law
5	Business & Comms
6	Arts & Humanities
7	Education
8	Other
0	Combined

Field Name	Data	Code	Subject	F_XJACS201 Condensed Category
F_XJACS201	A0	1	Broadly-based programmes within medicine & dentistry	Medicine & Allied
F_XJACS201	A1	1	Pre-clinical medicine	Medicine & Allied
F_XJACS201	A2	1	Pre-clinical dentistry	Medicine & Allied
F_XJACS201	A3	1	Clinical medicine	Medicine & Allied
F_XJACS201	A4	1	Clinical dentistry	Medicine & Allied
F_XJACS201	A9	1	Others in medicine & dentistry	Medicine & Allied
F_XJACS201	B0	2	Broadly-based programmes within subjects allied to medicine	Medicine & Allied
F_XJACS201	B1	2	Anatomy, physiology & pathology	Medicine & Allied
F_XJACS201	B2	2	Pharmacology, toxicology & pharmacy	Medicine & Allied
F_XJACS201	B3	2	Complementary medicine	Medicine & Allied
F_XJACS201	B4	2	Nutrition	Medicine & Allied
F_XJACS201	B5	2	Ophthalmics	Medicine & Allied
F_XJACS201	B6	2	Aural & oral sciences	Medicine & Allied
F_XJACS201	B7	2	Nursing	Medicine & Allied
F_XJACS201	B8	2	Medical technology	Medicine & Allied
F_XJACS201	B9	2	Others in subjects allied to medicine	Medicine & Allied
F_XJACS201	C0	3	Broadly-based programmes within biological sciences	STEM
F_XJACS201	C1	3	Biology	STEM

F_XJACS201	C2	3	Botany	STEM
F_XJACS201	C3	3	Zoology	STEM
F_XJACS201	C4	3	Genetics	STEM
F_XJACS201	C5	3	Microbiology	STEM
F_XJACS201	C6	3	Sports science	STEM
F_XJACS201	C7	3	Molecular biology, biophysics & biochemistry	STEM
F_XJACS201	C8	3	Psychology	STEM
F_XJACS201	C9	3	Others in biological sciences	STEM
F_XJACS201	D0	4	Broadly-based programmes within agriculture & related subjects	STEM
F_XJACS201	D1	4	Pre-clinical veterinary medicine	STEM
F_XJACS201	D2	4	Clinical veterinary medicine & dentistry	STEM
F_XJACS201	D3	4	Animal science	STEM
F_XJACS201	D4	4	Agriculture	STEM
F_XJACS201	D5	4	Forestry	STEM
F_XJACS201	D6	4	Food & beverage studies	STEM
F_XJACS201	D7	4	Agricultural sciences	STEM
F_XJACS201	D9	4	Others in veterinary sciences, agriculture & related subjects	STEM
F_XJACS201	F0	5	Broadly-based programmes within physical sciences	STEM
F_XJACS201	F1	5	Chemistry	STEM
F_XJACS201	F2	5	Materials science	STEM
F_XJACS201	F3	5	Physics	STEM
F_XJACS201	F4	5	Forensic & archaeological science	STEM
F_XJACS201	F5	5	Astronomy	STEM
F_XJACS201	F6	5	Geology	STEM
F_XJACS201	F7	5	Ocean sciences	STEM
F_XJACS201	F8	5	Physical & terrestrial geographical & environmental sciences	STEM
F_XJACS201	F9	5	Others in physical sciences	STEM
F_XJACS201	G0	6	Broadly-based programmes within mathematical sciences	STEM
F_XJACS201	G1	6	Mathematics	STEM
F_XJACS201	G2	6	Operational research	STEM
F_XJACS201	G3	6	Statistics	STEM

F_XJACS 201	G4	6	Computer science	STEM
F_XJACS 201	G5	6	Information systems	STEM
F_XJACS 201	G6	6	Software engineering	STEM
F_XJACS 201	G7	6	Artificial intelligence	STEM
F_XJACS 201	G9	6	Others in mathematical & computing sciences	STEM
F_XJACS 201	G9 1	6	Others in mathematical sciences	STEM
F_XJACS 201	G9 2	6	Others in computing sciences	STEM
F_XJACS 201	H0	7	Broadly-based programmes within engineering & technology	STEM
F_XJACS 201	H1	7	General engineering	STEM
F_XJACS 201	H2	7	Civil engineering	STEM
F_XJACS 201	H3	7	Mechanical engineering	STEM
F_XJACS 201	H4	7	Aerospace engineering	STEM
F_XJACS 201	H5	7	Naval architecture	STEM
F_XJACS 201	H6	7	Electronic & electrical engineering	STEM
F_XJACS 201	H7	7	Production & manufacturing engineering	STEM
F_XJACS 201	H8	7	Chemical, process & energy engineering	STEM
F_XJACS 201	H9	7	Others in engineering	STEM
F_XJACS 202	I1	8	Computer science	STEM
F_XJACS 203	I2	8	Information systems	STEM
F_XJACS 204	I3	8	Software engineering	STEM
F_XJACS 205	I4	8	Artificial intelligence	STEM
F_XJACS 206	I5	8	Health informatics	STEM
F_XJACS 207	I6	8	Games	STEM
F_XJACS 208	I7	8	Computer generated visual & audio effects	STEM
F_XJACS 209	I9	8	Others in computer sciences	STEM
F_XJACS 201	J1	9	Minerals technology	STEM
F_XJACS 201	J2	9	Metallurgy	STEM
F_XJACS 201	J3	9	Ceramics & glasses	STEM
F_XJACS 201	J4	9	Polymers & textiles	STEM
F_XJACS 201	J5	9	Materials technology not otherwise specified	STEM
F_XJACS 201	J6	9	Maritime technology	STEM

F_XJACS201	J7	9	Industrial biotechnology	STEM
F_XJACS201	J9	9	Others in technology	STEM
F_XJACS201	K0	10	Broadly-based programmes within architecture, building & planning	STEM
F_XJACS201	K1	10	Architecture	STEM
F_XJACS201	K2	10	Building	STEM
F_XJACS201	K3	10	Landscape design	STEM
F_XJACS201	K4	10	Planning (urban, rural & regional	STEM
F_XJACS201	K9	10	Others in architecture, building & planning	STEM
F_XJACS201	L0	11	Broadly-based programmes within social studies	Social Sciences
F_XJACS201	L1	11	Economics	Social Sciences
F_XJACS201	L2	11	Politics	Social Sciences
F_XJACS201	L3	11	Sociology	Social Sciences
F_XJACS201	L4	11	Social policy	Social Sciences
F_XJACS201	L5	11	Social work	Social Sciences
F_XJACS201	L6	11	Anthropology	Social Sciences
F_XJACS201	L7	11	Human & social geography	Social Sciences
F_XJACS201	L9	11	Others in social studies	Social Sciences
F_XJACS201	M0	12	Broadly-based programmes within law	Law
F_XJACS201	M1	12	Law by area	Law
F_XJACS201	M2	12	Law by topic	Law
F_XJACS201	M9	12	Others in law	Law
F_XJACS201	N0	13	Broadly-based programmes within business & administrative studies	Business & Comms
F_XJACS201	N1	13	Business studies	Business & Comms
F_XJACS201	N2	13	Management studies	Business & Comms
F_XJACS201	N3	13	Finance	Business & Comms
F_XJACS201	N4	13	Accounting	Business & Comms
F_XJACS201	N5	13	Marketing	Business & Comms
F_XJACS201	N6	13	Human resource management	Business & Comms
F_XJACS201	N7	13	Office skills	Business & Comms
F_XJACS201	N8	13	Tourism, transport & travel	Business & Comms
F_XJACS201	N9	13	Others in business & administrative studies	Business & Comms

F_XJACS 201	P0	14	Broadly-based programmes within mass communications & documentation	Business & Comms
F_XJACS 201	P1	14	Information services	Business & Comms
F_XJACS 201	P2	14	Publicity studies	Business & Comms
F_XJACS 201	P3	14	Media studies	Business & Comms
F_XJACS 201	P4	14	Publishing	Business & Comms
F_XJACS 201	P5	14	Journalism	Business & Comms
F_XJACS 201	P9	14	Others in mass communications & documentation	Business & Comms
F_XJACS 201	Q0	15	Broadly-based programmes within languages	Arts & Humanities
F_XJACS 201	Q1	15	Linguistics	Arts & Humanities
F_XJACS 201	Q2	15	Comparative literary studies	Arts & Humanities
F_XJACS 201	Q3	15	English studies	Arts & Humanities
F_XJACS 201	Q4	15	Ancient language studies	Arts & Humanities
F_XJACS 201	Q5	15	Celtic studies	Arts & Humanities
F_XJACS 201	Q6	15	Latin studies	Arts & Humanities
F_XJACS 201	Q7	15	Classical Greek studies	Arts & Humanities
F_XJACS 201	Q8	15	Classical studies	Arts & Humanities
F_XJACS 201	Q9	15	Others in linguistics, classics & related subjects	Arts & Humanities
F_XJACS 201	R1	16	French studies	Arts & Humanities
F_XJACS 201	R2	16	German studies	Arts & Humanities
F_XJACS 201	R3	16	Italian studies	Arts & Humanities
F_XJACS 201	R4	16	Spanish studies	Arts & Humanities
F_XJACS 201	R5	16	Portuguese studies	Arts & Humanities
F_XJACS 201	R6	16	Scandinavian studies	Arts & Humanities
F_XJACS 201	R7	16	Russian & East European studies	Arts & Humanities
F_XJACS 201	R9	16	Others in European languages, literature & related subjects	Arts & Humanities
F_XJACS 201	T1	17	Chinese studies	Arts & Humanities
F_XJACS 201	T2	17	Japanese studies	Arts & Humanities
F_XJACS 201	T3	17	South Asian studies	Arts & Humanities
F_XJACS 201	T4	17	Other Asian studies	Arts & Humanities
F_XJACS 201	T5	17	African studies	Arts & Humanities
F_XJACS 201	T6	17	Modern Middle Eastern studies	Arts & Humanities

F_XJACS201	T7	17	American studies	Arts & Humanities
F_XJACS201	T8	17	Australasian studies	Arts & Humanities
F_XJACS201	T9	17	Others in Eastern, Asiatic, African, American & Australasian languages, literature & related subjects	Arts & Humanities
F_XJACS201	V0	18	Broadly-based programmes within historical & philosophical studies	Arts & Humanities
F_XJACS201	V1	18	History by period	Arts & Humanities
F_XJACS201	V2	18	History by area	Arts & Humanities
F_XJACS201	V3	18	History by topic	Arts & Humanities
F_XJACS201	V4	18	Archaeology	Arts & Humanities
F_XJACS201	V5	18	Philosophy	Arts & Humanities
F_XJACS201	V6	18	Theology & religious studies	Arts & Humanities
F_XJACS201	V9	18	Others in historical & philosophical studies	Arts & Humanities
F_XJACS201	W0	19	Broadly-based programmes within creative arts & design	Arts & Humanities
F_XJACS201	W1	19	Fine art	Arts & Humanities
F_XJACS201	W2	19	Design studies	Arts & Humanities
F_XJACS201	W3	19	Music	Arts & Humanities
F_XJACS201	W4	19	Drama	Arts & Humanities
F_XJACS201	W5	19	Dance	Arts & Humanities
F_XJACS201	W6	19	Cinematics & photography	Arts & Humanities
F_XJACS201	W7	19	Crafts	Arts & Humanities
F_XJACS201	W8	19	Imaginative writing	Arts & Humanities
F_XJACS201	W9	19	Others in creative arts & design	Arts & Humanities
F_XJACS201	X0	20	Broadly-based programmes within education	Education
F_XJACS201	X1	20	Training teachers	Education
F_XJACS201	X2	20	Research & study skills in education	Education
F_XJACS201	X3	20	Academic studies in education	Education
F_XJACS201	X9	20	Others in education	Education
F_XJACS201	Y0	21	Combined	Other
F_XJACS201	ZZ	22	Unknown subject/Subject not required	Other

STEM SOURCE: https://publications.parliament.uk/pa/ld201213/ldselect/ldsctech/37/3705.htm

Appendix – SIC Condensed

SIC Full results

F_XSIC202_1 -- Industry (SIC)				
Freq.	Percent	Valid	Cum.	
Valid 1 Crop and animal production, hunting and related	37	0.07	0.07	0.07
service activities				
2 Forestry and logging	2	0.00	0.00	0.07
6 Extraction of crude petroleum and natural gas	49	0.09	0.09	0.17
7 Mining of metal ores	1	0.00	0.00	0.17
8 Other mining and quarrying	3	0.01	0.01	0.17
9 Mining support service activities	40	0.07	0.08	0.25
10 Manufacture of food products	263	0.49	0.49	0.74
11 Manufacture of beverages	85	0.16	0.16	0.90
12 Manufacture of tobacco products	9	0.02	0.02	0.92
13 Manufacture of textiles	48	0.09	0.09	1.01
14 Manufacture of wearing apparel	84	0.16	0.16	1.17
15 Manufacture of leather and related products	7	0.01	0.01	1.18
16 Manufacture of wood and of products of wood and	21	0.04	0.04	1.22
cork, except furniture; manufacture of articles				
of straw and plaiting materials				
17 Manufacture of paper and paper products	33	0.06	0.06	1.28
18 Printing and reproduction of recorded media	67	0.13	0.13	1.41
19 Manufacture of coke and refined petroleum	17	0.03	0.03	1.44
products				
20 Manufacture of chemicals and chemical products	189	0.35	0.35	1.79
21 Manufacture of basic pharmaceutical products	156	0.29	0.29	2.09
and pharmaceutical preparations				
22 Manufacture of rubber and plastic products	66	0.12	0.12	2.21
23 Manufacture of other non-metallic mineral	45	0.08	0.08	2.29
products				
24 Manufacture of basic metals	43	0.08	0.08	2.37
25 Manufacture of fabricated metal products,	104	0.19	0.20	2.57
except machinery and equipment				
26 Manufacture of computer, electronic and optical	193	0.36	0.36	2.93
products				
27 Manufacture of electrical equipment	92	0.17	0.17	3.11
28 Manufacture of machinery and equipment (not	125	0.23	0.23	3.34
elsewhere classified)				
29 Manufacture of motor vehicles, trailers and	182	0.34	0.34	3.68
semi-trailers				
30 Manufacture of other transport equipment	187	0.35	0.35	4.03

31 Manufacture of furniture	48	0.09	0.09	4.12
32 Other manufacturing	305	0.57	0.57	4.70
33 Repair and installation of machinery and equipment	25	0.05	0.05	4.74
35 Electricity, gas, steam and air conditioning supply	245	0.46	0.46	5.20
36 Water collection, treatment and supply	78	0.15	0.15	5.35
37 Sewerage	2	0.00	0.00	5.35
38 Waste collection, treatment and disposal activities; materials recovery	74	0.14	0.14	5.49
39 Remediation activities and other waste management services	12	0.02	0.02	5.51
41 Construction of buildings	419	0.78	0.79	6.30
42 Civil engineering	339	0.63	0.64	6.94
43 Specialised construction activities	232	0.43	0.44	7.37
45 Wholesale and retail trade and repair of motor vehicles and motorcycles	181	0.34	0.34	7.71
46 Wholesale trade, except of motor vehicles and motorcycles	636	1.19	1.19	8.91
47 Retail trade, except of motor vehicles and motorcycles	7755	14.50	14.56	23.47
49 Land transport and transport via pipelines	166	0.31	0.31	23.78
50 Water transport	31	0.06	0.06	23.84
51 Air transport	78	0.15	0.15	23.98
52 Warehousing and support activities for transportation	217	0.41	0.41	24.39
53 Postal and courier activities	164	0.31	0.31	24.70
55 Accommodation	563	1.05	1.06	25.75
56 Food and beverage service activities	2850	5.33	5.35	31.10
58 Publishing activities	392	0.73	0.74	31.84
59 Motion picture, video and television programme production, sound recording and music publishing activities	569	1.06	1.07	32.91
60 Programming and broadcasting activities	303	0.57	0.57	33.48
61 Telecommunications	295	0.55	0.55	34.03
62 Computer programming, consultancy and related activities	1366	2.55	2.56	36.60
63 Information service activities	199	0.37	0.37	36.97
64 Financial service activities, except insurance and pension funding	1733	3.24	3.25	40.22
65 Insurance, reinsurance and pension funding, except compulsory social security	385	0.72	0.72	40.95
66 Activities auxiliary to financial services and insurance activities	316	0.59	0.59	41.54
68 Real estate activities	590	1.10	1.11	42.65
69 Legal and accounting activities	1983	3.71	3.72	46.37

70 Activities of head offices; management consultancy activities	512	0.96	0.96	47.33
71 Architectural and engineering activities; technical testing and analysis	1093	2.04	2.05	49.38
72 Scientific research and development	218	0.41	0.41	49.79
73 Advertising and market research	1171	2.19	2.20	51.99
74 Other professional, scientific and technical activities	887	1.66	1.67	53.66
75 Veterinary activities	35	0.07	0.07	53.72
77 Rental and leasing activities	234	0.44	0.44	54.16
78 Employment activities	1402	2.62	2.63	56.79
79 Travel agency, tour operator and other reservation service and related activities	227	0.42	0.43	57.22
80 Security and investigation activities	131	0.24	0.25	57.47
81 Services to buildings and landscape activities	138	0.26	0.26	57.72
82 Office administrative, office support and other business support activities	676	1.26	1.27	58.99
84 Public administration and defence; compulsory social security	1464	2.74	2.75	61.74
85 Education	4966	9.29	9.32	71.07
86 Human health activities	11056	20.67	20.76	91.82
87 Residential care activities	394	0.74	0.74	92.56
88 Social work activities without accommodation	1338	2.50	2.51	95.07
90 Creative, arts and entertainment activities	806	1.51	1.51	96.59
91 Libraries, archives, museums and other cultural activities	176	0.33	0.33	96.92
92 Gambling and betting activities	181	0.34	0.34	97.26
93 Sports activities and amusement and recreation activities	898	1.68	1.69	98.94
94 Activities of membership organisations	322	0.60	0.60	99.55
95 Repair of computers and personal and household goods	20	0.04	0.04	99.59
96 Other personal service activities	197	0.37	0.37	99.95
97 Activities of households as employers of domestic personnel	21	0.04	0.04	99.99
99 Activities of extraterritorial organisations and bodies	3	0.01	0.01	100.00
Total	53265	99.59	100.00	
Missing .a Not known/ Not applicable	219	0.41		
Total	53484	100.00		

14.7 Condensed SIC Categories

The below condensed categories are taken from the ONS SIC Hierarchy, which is available here: https://onsdigital.github.io/dp-classification-tools/standard-industrial-classification/ONS_SIC_hierarchy_view.html

1	Agriculture, Forestry and Fishing
2	Mining
3	Manufacturing
4	Water/Gas/Sewerage Supply & Construction
5	Retail & Wholesale Trade
6	Transport & Logistics
7	Accommodation & Food Service
8	Media, Information & Communication
9	Financial Services
10	Real Estate
11	Professional, Scientific, & Technical Services
12	Administrative & Support Services
13	Public Administration
14	Education
15	Human Health & Social Work
16	Arts, Entertainment & Recreation
17	Other
0	Not known

No	SIC2017	SIC sections	SIC Section Codes Condensed
1	Crop and animal production, hunting and related service activities	AGRICULTURE, FORESTRY AND FISHING	1
2	Forestry and logging	AGRICULTURE, FORESTRY AND FISHING	1
3	Fishing and aquaculture	AGRICULTURE, FORESTRY AND FISHING	1
5	Mining of coal and lignite	Mining	2
6	Extraction of crude petroleum and natural gas	Mining	2
7	Mining of metal ores	Mining	2
8	Other mining and quarrying	Mining	2
9	Mining support service activities	Mining	2
10	Manufacture of food products	Manufacturing	3
11	Manufacture of beverages	Manufacturing	3
12	Manufacture of tobacco products	Manufacturing	3

13	Manufacture of textiles	Manufacturing	3
14	Manufacture of wearing apparel	Manufacturing	3
15	Manufacture of leather and related products	Manufacturing	3
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Manufacturing	3
17	Manufacture of paper and paper products	Manufacturing	3
18	Printing and reproduction of recorded media	Manufacturing	3
19	Manufacture of coke and refined petroleum products	Manufacturing	3
20	Manufacture of chemicals and chemical products	Manufacturing	3
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Manufacturing	3
22	Manufacture of rubber and plastic products	Manufacturing	3
23	Manufacture of other non-metallic mineral products	Manufacturing	3
24	Manufacture of basic metals	Manufacturing	3
25	Manufacture of fabricated metal products, except machinery and equipment	Manufacturing	3
26	Manufacture of computer, electronic and optical products	Manufacturing	3
27	Manufacture of electrical equipment	Manufacturing	3
28	Manufacture of machinery and equipment (not elsewhere classified)	Manufacturing	3
29	Manufacture of motor vehicles, trailers and semi-trailers	Manufacturing	3
30	Manufacture of other transport equipment	Manufacturing	3
31	Manufacture of furniture	Manufacturing	3
32	Other manufacturing	Manufacturing	3
33	Repair and installation of machinery and equipment	Manufacturing	3
35	Electricity, gas, steam and air conditioning supply	Water/Gas/Sewerage Supply & Construction	4
36	Water collection, treatment and supply	Water/Gas/Sewerage Supply & Construction	4
37	Sewerage	Water/Gas/Sewerage Supply & Construction	4
38	Waste collection, treatment and disposal activities; materials recovery	Water/Gas/Sewerage Supply & Construction	4

39	Remediation activities and other waste management services	Water/Gas/Sewerage Supply & Construction	4
41	Construction of buildings	Water/Gas/Sewerage Supply & Construction	4
42	Civil engineering	Water/Gas/Sewerage Supply & Construction	4
43	Specialised construction activities	Water/Gas/Sewerage Supply & Construction	4
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	Retail & Wholesale Trade	5
46	Wholesale trade, except of motor vehicles and motorcycles	Retail & Wholesale Trade	5
47	Retail trade, except of motor vehicles and motorcycles	Retail & Wholesale Trade	5
49	Land transport and transport via pipelines	Transport & Logistics	6
50	Water transport	Transport & Logistics	6
51	Air transport	Transport & Logistics	6
52	Warehousing and support activities for transportation	Transport & Logistics	6
53	Postal and courier activities	Transport & Logistics	6
55	Accommodation	Accommodation & Food Service	7
56	Food and beverage service activities	Accommodation & Food Service	7
58	Publishing activities	Media, Information & Communication	8
59	Motion picture, video and television programme production, sound recording and music publishing activities	Media, Information & Communication	8
60	Programming and broadcasting activities	Media, Information & Communication	8
61	Telecommunications	Media, Information & Communication	8
62	Computer programming, consultancy and related activities	Media, Information & Communication	8
63	Information service activities	Media, Information & Communication	8
64	Financial service activities, except insurance and pension funding	Financial Services	9
65	Insurance, reinsurance and pension funding, except compulsory social security	Financial Services	9
66	Activities auxiliary to financial services and insurance activities	Financial Services	9
68	Real estate activities	Real Estate	10
69	Legal and accounting activities	Professional, Scientific, & Technical Services	11

70	Activities of head offices; management consultancy activities	Professional, Scientific, & Technical Services	11
71	Architectural and engineering activities; technical testing and analysis	Professional, Scientific, & Technical Services	11
72	Scientific research and development	Professional, Scientific, & Technical Services	11
73	Advertising and market research	Professional, Scientific, & Technical Services	11
74	Other professional, scientific and technical activities	Professional, Scientific, & Technical Services	11
75	Veterinary activities	Professional, Scientific, & Technical Services	11
77	Rental and leasing activities	Administrative & Support Services	12
78	Employment activities	Administrative & Support Services	12
79	Travel agency, tour operator and other reservation service and related activities	Administrative & Support Services	12
80	Security and investigation activities	Administrative & Support Services	12
81	Services to buildings and landscape activities	Administrative & Support Services	12
82	Office administrative, office support and other business support activities	Administrative & Support Services	12
84	Public administration and defence; compulsory social security	Public Administration	13
85	Education	Education	14
86	Human health activities	Human Health & Social Work	15
87	Residential care activities	Human Health & Social Work	15
88	Social work activities without accommodation	Human Health & Social Work	15
90	Creative, arts and entertainment activities	Arts, Entertainment & Recreation	16
91	Libraries, archives, museums and other cultural activities	Arts, Entertainment & Recreation	16
92	Gambling and betting activities	Arts, Entertainment & Recreation	16
93	Sports activities and amusement and recreation activities	Arts, Entertainment & Recreation	16
94	Activities of membership organisations	Other	17
95	Repair of computers and personal and household goods	Other	17
96	Other personal service activities	Other	17
97	Activities of households as employers of domestic personnel	Other	17

98	Undifferentiated goods- and services-producing activities of private households for own use	Other	17
99	Activities of extraterritorial organisations and bodies	Other	17
100	(__) Not known/ Not applicable	Not known	0
101	Not a DLHE respondent	Not known	0

14.8 Professional Employment Categories

Code: 0 Unknown, 1 In Professional Employment

Filed	Field Code	Prof or Non Prof		
SOC3DIGIT	111	Professional	1	Corporate managers and senior officials
SOC3DIGIT	112	Professional	1	Production managers
SOC3DIGIT	113	Professional	1	Functional managers
SOC3DIGIT	114	Professional	1	Quality and customer care managers
SOC3DIGIT	115	Professional	1	Financial institution and office managers
SOC3DIGIT	116	Professional	1	Managers in distribution, storage and retailing
SOC3DIGIT	117	Professional	1	Protective service officers
SOC3DIGIT	118	Professional	1	Health and social services managers
SOC3DIGIT	121	Professional	1	Managers in farming, horticulture, forestry and fishing
SOC3DIGIT	122	Professional	1	Managers and proprietors in hospitality and leisure services
SOC3DIGIT	123	Professional	1	Managers and proprietors in other service industries
SOC3DIGIT	211	Professional	1	Science professionals
SOC3DIGIT	212	Professional	1	Engineering professionals
SOC3DIGIT	213	Professional	1	Information and communication technology professionals
SOC3DIGIT	221	Professional	1	Health professionals
SOC3DIGIT	231	Professional	1	Teaching professionals
SOC3DIGIT	232	Professional	1	Research professionals
SOC3DIGIT	241	Professional	1	Legal professionals
SOC3DIGIT	242	Professional	1	Business and statistical professionals
SOC3DIGIT	243	Professional	1	Architects, town planners, surveyors
SOC3DIGIT	244	Professional	1	Public service professionals
SOC3DIGIT	245	Professional	1	Librarians and related professionals
SOC3DIGIT	311	Professional	1	Science and engineering technicians
SOC3DIGIT	312	Professional	1	Draughtspersons and building inspectors
SOC3DIGIT	313	Professional	1	IT service delivery occupations
SOC3DIGIT	321	Professional	1	Health associate professionals
SOC3DIGIT	322	Professional	1	Therapists
SOC3DIGIT	323	Professional	1	Social welfare associate professionals
SOC3DIGIT	331	Professional	1	Protective service occupations
SOC3DIGIT	341	Professional	1	Artistic and literary occupations
SOC3DIGIT	342	Professional	1	Design associate professionals
SOC3DIGIT	343	Professional	1	Media associate professionals
SOC3DIGIT	344	Professional	1	Sports and fitness occupations
SOC3DIGIT	351	Professional	1	Transport associate professionals
SOC3DIGIT	352	Professional	1	Legal associate professionals
SOC3DIGIT	353	Professional	1	Business and finance associate professionals
SOC3DIGIT	354	Professional	1	Sales and related associate professionals
SOC3DIGIT	355	Professional	1	Conservation associate professionals
SOC3DIGIT	356	Professional	1	Public service and other associate professionals
SOC3DIGIT	411	Non Professional	0	Administrative occupations: Government and related organisations

SOC3DIGIT	412	Non Professional	0	Administrative occupations: Finance
SOC3DIGIT	413	Non Professional	0	Administrative occupations: Records
SOC3DIGIT	414	Non Professional	0	Administrative occupations: Communications
SOC3DIGIT	415	Non Professional	0	Administrative occupations: General
SOC3DIGIT	421	Non Professional	0	Secretarial and related occupations
SOC3DIGIT	511	Non Professional	0	Agricultural trades
SOC3DIGIT	521	Non Professional	0	Metal forming, welding and related trades
SOC3DIGIT	522	Non Professional	0	Metal machining, fitting and instrument making trades
SOC3DIGIT	523	Non Professional	0	Vehicle trades
SOC3DIGIT	524	Non Professional	0	Electrical trades
SOC3DIGIT	531	Non Professional	0	Construction trades
SOC3DIGIT	532	Non Professional	0	Building trades
SOC3DIGIT	541	Non Professional	0	Textiles and garments trades
SOC3DIGIT	542	Non Professional	0	Printing trades
SOC3DIGIT	543	Non Professional	0	Food preparation trades
SOC3DIGIT	549	Non Professional	0	Skilled trades not elsewhere classified
SOC3DIGIT	611	Non Professional	0	Healthcare and related personal services
SOC3DIGIT	612	Non Professional	0	Childcare and related personal services
SOC3DIGIT	613	Non Professional	0	Animal care services
SOC3DIGIT	621	Non Professional	0	Leisure and travel service occupations
SOC3DIGIT	622	Non Professional	0	Hairdressers and related occupations
SOC3DIGIT	623	Non Professional	0	Housekeeping occupations
SOC3DIGIT	629	Non Professional	0	Personal services occupations not elsewhere classified
SOC3DIGIT	711	Non Professional	0	Sales assistants and retail cashiers
SOC3DIGIT	712	Non Professional	0	Sales related occupations
SOC3DIGIT	721	Non Professional	0	Customer service occupations
SOC3DIGIT	811	Non Professional	0	Process operatives
SOC3DIGIT	812	Non Professional	0	Plant and machine operatives
SOC3DIGIT	813	Non Professional	0	Assemblers and routine operatives
SOC3DIGIT	814	Non Professional	0	Construction operatives
SOC3DIGIT	821	Non Professional	0	Transport drivers and operatives
SOC3DIGIT	822	Non Professional	0	Mobile machine drivers and operatives
SOC3DIGIT	911	Non Professional	0	Elementary agricultural occupations
SOC3DIGIT	912	Non Professional	0	Elementary construction occupations
SOC3DIGIT	913	Non Professional	0	Elementary process plant occupations
SOC3DIGIT	914	Non Professional	0	Elementary goods storage occupations
SOC3DIGIT	921	Non Professional	0	Elementary administration occupations
SOC3DIGIT	922	Non Professional	0	Elementary personal services occupations
SOC3DIGIT	923	Non Professional	0	Elementary cleaning occupations
SOC3DIGIT	924	Non Professional	0	Elementary security occupations
SOC3DIGIT	925	Non Professional	0	Elementary sales occupations
SOC3DIGIT	0	Unknown/ Not applicable	0	Unknown/ Not applicable
SOC3DIGIT	1000	Not a DLHE respondent	0	Not a DLHE respondent

14.9 Marginal Effects for BLR

Table 1 – Manchester Domicile

```
. margins ManchesterDomicile

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

Expression   : Pr(Retention), predict()
```

	Margin	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
ManchesterDomicile						
Not manchester	.3190417	.002624	121.58	0.000	.3138987	.3241847
Manchester	.8142227	.0033225	245.07	0.000	.8077108	.8207346

Table 2 – Marginal Effects of Domicle & HEI

```
. margins i.ManchesterDomicile##ib204.F_XINSTID01_1

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

Expression   : Pr(Retention), predict()
```

	Margin	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
ManchesterDomicile						
Not manchester	.3190417	.002624	121.58	0.000	.3138987	.3241847
Manchester	.8142227	.0033225	245.07	0.000	.8077108	.8207346
F_XINSTID01_1						
The University of Bolton	.5035003	.0104533	48.17	0.000	.4830122	.5239884
The Manchester Metropolitan University	.4991714	.0031561	158.16	0.000	.4929855	.5053572
The University of Salford	.5537522	.0050556	109.53	0.000	.5438434	.563661
The University of Manchester	.4454634	.0036453	122.20	0.000	.4383187	.4526081
ManchesterDomicile#F_XINSTID01_1						
Not manchester #The University of Bolton	.3128601	.0152861	20.47	0.000	.2829	.3428203
Not manchester #The Manchester Metropolitan University	.3038722	.0041972	72.40	0.000	.2956459	.3120986
Not manchester #The University of Salford	.398694	.007309	54.55	0.000	.3843686	.4130194
Not manchester #The University of Manchester	.291282	.0037316	78.06	0.000	.2839681	.2985959
Manchester#The University of Bolton	.8623044	.0078847	109.36	0.000	.8468506	.8777582
Manchester#The Manchester Metropolitan University	.8667796	.0041919	206.77	0.000	.8585635	.8749956
Manchester#The University of Salford	.8451909	.0045478	185.85	0.000	.8362774	.8541045
Manchester#The University of Manchester	.73644	.0074771	98.49	0.000	.7217851	.7510949

Table 3 – Predicted Margins for Graduate Industry

```
. margins SICSectionCodes_Condensed

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

Expression   : Pr(Retention), predict()
```

	Margin	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
SICSectionCodes_Condensed						
Agriculture, Forestry and Fishing	.1631787	.0583033	2.80	0.005	.0489063	.2774512
Mining	.052818	.0339504	1.56	0.120	-.0137235	.1193594
Manufacturing	.3285709	.0085719	38.33	0.000	.3117702	.3453716
Water/Gas/Sewerage Supply & Construction	.3652846	.011164	32.72	0.000	.3434036	.3871656
Retail & Wholesale Trade	.4769808	.0049709	95.95	0.000	.4672381	.4867236
Transport & Logistics	.4656449	.0170271	27.35	0.000	.4322724	.4990174
Accommodation & Food Service	.5203128	.0077491	67.14	0.000	.5051248	.5355008
Media, Information & Communication	.450245	.0078565	57.31	0.000	.4348466	.4656434
Financial Services	.4761613	.0089427	53.25	0.000	.4586339	.4936887
Real Estate	.4967489	.0177761	27.94	0.000	.4619085	.5315893
Professional, Scientific, & Technical Services	.4885808	.0059638	81.93	0.000	.476892	.5002695
Administrative & Support Services	.5260368	.0083123	63.28	0.000	.5097449	.5423286
Public Administration	.4164868	.0112782	36.93	0.000	.394382	.4385916
Education	.609086	.0070007	87.00	0.000	.5953648	.6228071
Human Health & Social Work	.5133306	.0056478	90.89	0.000	.502261	.5244001
Arts, Entertainment & Recreation	.4917576	.0097482	50.45	0.000	.4726516	.5108637
Other	.537987	.0183971	29.24	0.000	.5019294	.5740447

Table 3 – Precited Margins for Course of Study

```
. margins F_XJACS201Condensed

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

Expression   : Pr(Retention), predict()
```

	Margin	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
F_XJACS201Condensed						
Medicine & Allied	.4999129	.0059939	83.40	0.000	.488165	.5116608
STEM	.477769	.0041118	116.20	0.000	.4697101	.4858279
Social Sciences	.4846185	.0062204	77.91	0.000	.4724267	.4968103
Law	.5564322	.0135613	41.03	0.000	.5298525	.5830118
Business & Comms	.509832	.0047231	107.94	0.000	.5005749	.5190892
Arts & Humanities	.500812	.0045101	111.04	0.000	.4919724	.5096516
Education	.3752993	.0101532	36.96	0.000	.3553995	.3951992

Table 4 – Interaction Terms for Ethnicity and Gender

```
. margins i.F_SEXID_1##i.F_XETHNIC01_1

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

Expression   : Pr(Retention), predict()
```

	Margin	Delta-method Std. Err.	z	P>|z|	[95% Conf.	Interval]
F_SEXID_1						
Male	.4803929	.002939	163.45	0.000	.4746326	.4861533
Female	.5010256	.0025115	199.49	0.000	.4961031	.5059482
F_XETHNIC01_1						
White	.4999191	.0021011	237.94	0.000	.4958011	.5040371
Black	.4613384	.0090852	50.78	0.000	.4435318	.4791451
Asian	.4539919	.0053719	84.51	0.000	.4434631	.4645206
Mixed	.4957361	.0094914	52.23	0.000	.4771334	.5143388
Other	.4777322	.0191813	24.91	0.000	.4401375	.5153269
F_SEXID_1#F_XETHNIC01_1						
Male#White	.4912213	.0033229	147.83	0.000	.4847085	.4977341
Male#Black	.441412	.0139032	31.75	0.000	.4141622	.4686618
Male#Asian	.4293203	.0074121	57.92	0.000	.4147928	.4438477
Male#Mixed	.4752968	.014574	32.61	0.000	.4467323	.5038613
Male#Other	.4506335	.0258963	17.40	0.000	.3998777	.5013894
Female#White	.5063442	.0028042	180.57	0.000	.5008482	.5118403
Female#Black	.4759296	.0119616	39.79	0.000	.4524852	.499374
Female#Asian	.4720247	.0074081	63.72	0.000	.4575051	.4865444
Female#Mixed	.5108163	.0125471	40.71	0.000	.4862244	.5354082
Female#Other	.4976434	.0273252	18.21	0.000	.444087	.5511999

14.10 Marginal Effects for MLR

Table 1 – Migration Pathways

```
. margins

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method				
	Margin	Std. Err.	z	P>|z|	[95% Conf. Interval]
_predict					
1	.2881553	.0017886	161.11	0.000	.2846497 .2916609
2	.2039155	.0017123	119.09	0.000	.2005593 .2072716
3	.2154128	.0017382	123.93	0.000	.2120059 .2188197
4	.2347458	.0017462	134.43	0.000	.2313234 .2381683
5	.0577706	.0009978	57.90	0.000	.0558149 .0597263

Table 2 – Gender

```
. margins  i.F_SEXID_

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method				
	Margin	Std. Err.	z	P>|z|	[95% Conf. Interval]
_predict#F_SEXID_1					
1#Male	.2712345	.0028577	94.91	0.000	.2656335 .2768355
1#Female	.3002469	.0024341	123.35	0.000	.2954761 .3050177
2#Male	.2052901	.0027312	75.16	0.000	.199937 .2106432
2#Female	.2032702	.0022983	88.44	0.000	.1987655 .2077749
3#Male	.2147567	.0027401	78.38	0.000	.2093862 .2201272
3#Female	.2163889	.0023579	91.77	0.000	.2117675 .2210103
4#Male	.2447394	.0027817	87.98	0.000	.2392874 .2501914
4#Female	.2273792	.0023629	96.23	0.000	.222748 .2320105
5#Male	.0639793	.0016352	39.13	0.000	.0607743 .0671843
5#Female	.0527148	.0013478	39.11	0.000	.0500732 .0553564

Table 3 – Ethnicity

```
margins i.F_XETHNIC01_1

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method Margin	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_predict#F_XETHNIC01_1						
1#White	.2510364	.0019909	126.09	0.000	.2471343	.2549385
1#Black	.361182	.0090229	40.03	0.000	.3434975	.3788666
1#Asian	.4589991	.0056518	81.21	0.000	.4479218	.4700763
1#Mixed	.3020337	.0096119	31.42	0.000	.2831947	.3208728
1#Other	.4916285	.0203758	24.13	0.000	.4516926	.5315644
2#White	.2259607	.0020439	110.56	0.000	.2219548	.2299666
2#Black	.1515639	.0078658	19.27	0.000	.1361472	.1669806
2#Asian	.0980479	.0035608	27.54	0.000	.0910688	.1050269
2#Mixed	.2023303	.008607	23.51	0.000	.1854608	.2191998
2#Other	.1107192	.0131087	8.45	0.000	.0850266	.1364117
3#White	.2181236	.0019935	109.42	0.000	.2142165	.2220308
3#Black	.2318032	.0089695	25.84	0.000	.2142234	.2493831
3#Asian	.1907715	.0047257	40.37	0.000	.1815093	.2000337
3#Mixed	.2509102	.0092156	27.23	0.000	.232848	.2689724
3#Other	.1723916	.0159728	10.79	0.000	.1410855	.2036976
4#White	.2557522	.0020592	124.20	0.000	.2517163	.2597881
4#Black	.1698827	.0081948	20.73	0.000	.1538212	.1859442
4#Asian	.159071	.0041545	38.29	0.000	.1509284	.1672137
4#Mixed	.1825577	.0081282	22.46	0.000	.1666267	.1984886
4#Other	.1143262	.0123617	9.25	0.000	.0900978	.1385546
5#White	.049127	.0010559	46.53	0.000	.0470575	.0511965
5#Black	.0855682	.0056733	15.08	0.000	.0744488	.0966876
5#Asian	.0931105	.0035574	26.17	0.000	.0861382	.1000828
5#Mixed	.0621681	.0055626	11.18	0.000	.0512656	.0730705
5#Other	.1109346	.0130888	8.48	0.000	.0852811	.1365881

Table 4 – HEI

```
. margins F_XINSTID01_1

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method Margin	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_predict#F_XINSTID01_1						
1#The University of Bolton	.5467401	.0094953	57.58	0.000	.5281296	.5653505
1#The Manchester Metropolitan University	.2904942	.0033529	86.64	0.000	.2839226	.2970659
1#The University of Salford	.489204	.0047196	103.65	0.000	.4799537	.4984542
1#The University of Manchester	.1371139	.0025336	54.12	0.000	.1321482	.1420797
2#The University of Bolton	.1135048	.0063317	17.93	0.000	.1010948	.1259148
2#The Manchester Metropolitan University	.2076632	.0030428	68.25	0.000	.2016993	.2136271
2#The University of Salford	.1674273	.0035831	46.73	0.000	.1604045	.1744501
2#The University of Manchester	.2327071	.003114	74.73	0.000	.2266039	.2388104
3#The University of Bolton	.1361498	.0063028	21.60	0.000	.1237966	.148503
3#The Manchester Metropolitan University	.2373878	.0030435	78.00	0.000	.2314227	.2433529
3#The University of Salford	.1336708	.0032596	41.01	0.000	.1272821	.1400595
3#The University of Manchester	.2590101	.0033997	76.19	0.000	.2523468	.2656735
4#The University of Bolton	.1027762	.0060744	16.92	0.000	.0908707	.1146818
4#The Manchester Metropolitan University	.2132982	.0030755	69.35	0.000	.2072702	.2193261
4#The University of Salford	.1204754	.0031565	38.17	0.000	.1142888	.126662
4#The University of Manchester	.3288237	.0034632	94.95	0.000	.3220358	.3356115
5#The University of Bolton	.1008291	.0060063	16.79	0.000	.0890569	.1126013
5#The Manchester Metropolitan University	.0511566	.0017541	29.16	0.000	.0477187	.0545945
5#The University of Salford	.0892225	.0027805	32.09	0.000	.0837729	.0946722
5#The University of Manchester	.0423451	.0014304	29.60	0.000	.0395415	.0451487

Table 5 – Degree Class

```
. margins FirstClass

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method				
	Margin	Std. Err.	z	P>|z|	[95% Conf. Interval]
_predict#FirstClass					
1#2nd, 3rd or Unclassified	.2943496	.0020839	141.25	0.000	.2902652 .2984339
1#First class honors	.2692048	.0036567	73.62	0.000	.2620378 .2763719
2#2nd, 3rd or Unclassified	.2021062	.0019856	101.79	0.000	.1982145 .2059978
2#First class honors	.2094673	.003549	59.02	0.000	.2025114 .2164233
3#2nd, 3rd or Unclassified	.2184738	.0020185	108.23	0.000	.2145176 .22243
3#First class honors	.206361	.0035785	57.67	0.000	.1993472 .2133748
4#2nd, 3rd or Unclassified	.2286147	.0020196	113.20	0.000	.2246563 .2325732
4#First class honors	.2531297	.0036716	68.94	0.000	.2459334 .260326
5#2nd, 3rd or Unclassified	.0564557	.0011539	48.93	0.000	.0541942 .0587173
5#First class honors	.0618371	.0021125	29.27	0.000	.0576966 .0659776

Table 6 – Course of Study

```
margins F_XJACS201Condensed

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method				
	Margin	Std. Err.	z	P>|z|	[95% Conf. Interval]
_predict#F_XJACS201Condensed					
1#Medicine & Allied	.3236477	.0059186	54.68	0.000	.3120475 .335248
1#STEM	.2707258	.0039011	69.40	0.000	.2630798 .2783718
1#Social Sciences	.3158957	.0062971	50.17	0.000	.3035536 .3282378
1#Law	.3999276	.0134175	29.81	0.000	.3736298 .4262253
1#Business & Comms	.2777141	.004291	64.72	0.000	.2693039 .2861244
1#Arts & Humanities	.2489633	.0042971	57.94	0.000	.2405412 .2573853
1#Education	.3263083	.0102383	31.87	0.000	.3062416 .3463751
2#Medicine & Allied	.2061874	.0056722	36.35	0.000	.19507 .2173048
2#STEM	.2036609	.0039093	52.10	0.000	.1959987 .211323
2#Social Sciences	.1807639	.0054699	33.05	0.000	.170043 .1914848
2#Law	.2101893	.0126384	16.63	0.000	.1854185 .2349602
2#Business & Comms	.2199438	.0045629	48.20	0.000	.2110007 .2288869
2#Arts & Humanities	.227735	.0043526	52.32	0.000	.2192041 .236266
2#Education	.0837261	.0060577	13.82	0.000	.0718532 .0955991
3#Medicine & Allied	.1670178	.0052747	31.66	0.000	.1566796 .177356
3#STEM	.2135965	.003792	56.33	0.000	.2061643 .2210287
3#Social Sciences	.2378607	.0058706	40.52	0.000	.2263546 .2493669
3#Law	.1817103	.0111905	16.24	0.000	.1597773 .2036433
3#Business & Comms	.2090722	.0042367	49.35	0.000	.2007683 .217376
3#Arts & Humanities	.2488289	.0044076	56.45	0.000	.2401902 .2574676
3#Education	.2765372	.0110836	24.95	0.000	.2548138 .2982606
4#Medicine & Allied	.2361878	.0056146	42.07	0.000	.2251833 .2471923
4#STEM	.2467787	.0040312	61.22	0.000	.2388778 .2546797
4#Social Sciences	.2159312	.0056911	37.94	0.000	.2047769 .2270855
4#Law	.1523414	.0109148	13.96	0.000	.1309488 .1737341
4#Business & Comms	.243192	.0045984	52.89	0.000	.2341792 .2522048
4#Arts & Humanities	.2289303	.004496	50.92	0.000	.2201183 .2377422
4#Education	.2517574	.0120401	20.91	0.000	.2281591 .2753556
5#Medicine & Allied	.0669593	.003434	19.50	0.000	.0602287 .0736899
5#STEM	.0652381	.0022665	28.78	0.000	.0607958 .0696805
5#Social Sciences	.0495485	.0033417	14.83	0.000	.0429989 .0560981
5#Law	.0558314	.0069705	8.01	0.000	.0421694 .0694933
5#Business & Comms	.0500779	.0022776	21.99	0.000	.0456138 .0545419
5#Arts & Humanities	.0455426	.0024551	18.55	0.000	.0407307 .0503545
5#Education	.0616709	.0078965	7.81	0.000	.0461941 .0771478

Table 7 – Full Time Work

```
. margins FTwork

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method				
	Margin	Std. Err.	z	P>|z|	[95% Conf. Interval]
_predict#FTwork					
1#Not in FT work	.3363166	.0041857	80.35	0.000	.3281127 .3445205
1#In FT work	.2744588	.0020909	131.26	0.000	.2703608 .2785569
2#Not in FT work	.1766831	.0037613	46.97	0.000	.1693111 .184055
2#In FT work	.2131324	.002023	105.35	0.000	.2091674 .2170975
3#Not in FT work	.2446537	.0040334	60.66	0.000	.2367484 .2525591
3#In FT work	.2074253	.0020442	101.47	0.000	.2034187 .2114318
4#Not in FT work	.1952256	.0041886	46.61	0.000	.1870162 .203435
4#In FT work	.2442239	.002014	121.27	0.000	.2402766 .2481711
5#Not in FT work	.0471209	.0022427	21.01	0.000	.0427253 .0515166
5#In FT work	.0607596	.0011669	52.07	0.000	.0584725 .0630468

Table 8 – Professional Occupation

```
(file C:\Users\Lenovo\OneDrive\Documents\Dissertation\Stata do file editor\MLR FT Work.gph saved)
margins Prof_Occupation

Predictive margins                              Number of obs     =     52,968
Model VCE    : OIM

1._predict   : Pr(MigrationCode==HG_Loyals), predict(pr outcome(1))
2._predict   : Pr(MigrationCode==Stayers), predict(pr outcome(2))
3._predict   : Pr(MigrationCode==Returners), predict(pr outcome(3))
4._predict   : Pr(MigrationCode==Bouncers), predict(pr outcome(4))
5._predict   : Pr(MigrationCode==HG_Leavers), predict(pr outcome(5))
```

	Delta-method					
	Margin	Std. Err.	z	P>|z|	[95% Conf.	Interval]
_predict#Prof_Occupation						
1#Unknown	.3223657	.0038675	83.35	0.000	.3147855	.3299459
1#Professional	.274991	.0023104	119.02	0.000	.2704628	.2795193
2#Unknown	.191919	.0035765	53.66	0.000	.1849092	.1989288
2#Professional	.2118491	.0022317	94.93	0.000	.2074751	.2162231
3#Unknown	.2858032	.0040714	70.20	0.000	.2778234	.2937831
3#Professional	.1849335	.002163	85.50	0.000	.180694	.1891729
4#Unknown	.1600596	.0034333	46.62	0.000	.1533305	.1667887
4#Professional	.2632436	.0023196	113.48	0.000	.2586972	.26779
5#Unknown	.0398525	.0018451	21.60	0.000	.0362363	.0434688
5#Professional	.0649828	.0013356	48.65	0.000	.062365	.0676006

14.11 BLR Selection Model

Binary logistic regression results as odds ratios for the probability of staying in Greater Manchester

	Model 1 (Geography)	**Model 2** (+Demographics)	**Model 3** (+HE Contribution)	**Model 4** (+Employment Outcomes)
Geographic Origin				
(base = Not Manchester)				
Manchester	10.998**	11.494**	10.354**	10.730**
Gender				
(base = Male)				
Female		1.213**	1.145**	1.094**
Ethnicity				
(base = White)				
Black		0.849**	0.815**	0.798**
Asian		0.756**	0.783**	0.780**
Mixed		0.989	1.008	1.019
Other		0.774*	0.848	0.866
University				
(base = Univeristy of Manchester)				
The University of Bolton			1.352**	1.310**
The Manchester Metropolitan University			1.167**	1.148**
The University of Salford			1.404**	1.404**
Course Subject (JACS)				
(base = Engineering)				
Medicine & dentistry			1.088	0.650*
Allied to medicine			2.272**	1.419
Biological sciences			1.579**	1.043
Veterinary sciences, agriculture & related subjects			1.138	1.555
Physical sciences			1.565**	1.262*
Mathematical sciences			1.880**	1.404**
Computer science			2.111**	1.788**
Technology & Materials			1.175	0.992
Architecture, building & planning			1.608**	1.440**
Social studies			1.732**	1.227*
Law			2.570**	1.778**
Business studies			1.750**	1.344**
Mass communications & documentation			2.944**	2.291**
Language, linguistics, classics & related subjects			2.264**	1.515**
European languages, literature & related subjects			1.486**	1.026
Others in Eastern, Asiatic, African, American & Australasian languages..			1.950**	1.263
Historical & Philosophical Studies			1.928**	1.299*
Creative arts & design			1.995**	1.480**
Education			1.470**	0.730**
Mode of Study (FT/PT)				
(base = Part Time)				
Full Time			1.298**	1.223**

Degree Class				
(base =First class honours)				
Upper second class honours			1.067*	1.06*
Lower second class honours			1.147**	1.146**
Third class honours/Pass			1.239**	1.241**
Unclassified			1.510*	1.461*
Employment Activity				
(base = Full time employment)				
Part-time paid work only				0.947
Voluntary/unpaid work only				0.847*
Work and further study				1.508**
Other				0.869
Explicit refusal				0.549**
Industry (SIC)				
(base =Professional, Scientific, & Technical Services)				
Agriculture, Forestry and Fishing				0.124**
Mining				0.026**
Manufacturing				0.413**
Water/Gas/Sewerage Supply & Construction				0.501**
Retail & Wholesale Trade				0.928
Transport & Logistics				0.914
Accommodation & Food Service				1.155*
Media, Information & Communication				0.744
Financial Services				0.956
Real Estate				1.030
Administrative & Support Services				1.269**
Public Administration				0.702**
Education				1.847**
Human Health & Social Work				1.283**
Arts, Entertainment & Recreation				1.035
Other				1.294
In a Professional Occuption				0.999**
(base = Non professional)				
Professional				0.916*
Employment Contract Type				0.998
(base = On a permanent or open-ended contract)				
Self-employed/freelance				0.945
Starting up own business				0.866
On a fixed-term contract lasting 12 months or longer				1.004*
On a fixed-term contract lasting less than 12 months				0.9106
Voluntary work				0.742*
On an internship/placement				1.436**
Developing a professional portfolio/creative practice				0.614*
Temping (including supply teaching)				0.786**
Other				1.014
On a zero hours contract				0.882
Constant	0.453**	0.418**	0.156**	.249**

McKelvey and Zavoina's R2	0.284	0.288	0.305	0.335
Correctly Classified				74.11%

*p<0.05; **p<0.01.

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