Immigration in the UK economy: some aspects of immigrants' employment and self-employment.

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Abbreviations

ACS	American Community Survey
APS	Annual Population Survey
CPI	Consumer Price Index
EFTA	European Free Trade Area
EIU	Economist Intelligence Unit
EU	European Union
ESDS	Economic and Social Data Service
FLN	National Liberation Front
GCSE A-C	General Certificates of Secondary Education A-C
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
ILO	International Labour Organization
IMF	International Monetary Fund
IPS	International Passenger Survey
LFS	Labour Force Survey
LTIM	Long-term international migration
MPI	Migration Policy Institute
NVQ	National Vocational Qualification
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics
PPP	Purchasing Power Parity
QLFS	Quarterly Labour Force Survey

Abbreviations

SIE	Survey of Income and Education
SRPC	Short Run Phillips Curve
TEU	Treaties of the European Union
UAE	United Arab Emirates
UK	United Kingdom
UN	United Nations
US	United States
USA	United States of America

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Glossary

Glossary

- 1. Advanced economies page 120 etc.: a term used by the International Monetary Fund to describe developed countries. Advanced economies have a high level of gross domestic product per capita, as well as a very significant degree of industrialization.
- Aggregate demand page 26 etc.: in macroeconomics, aggregate demand (AD) is the total demand for final goods and services in the economy at a given time and price level.
- Aggregate supply page 26 etc.: the total supply of goods and services produced within an economy at a given overall price level in a given time period.
- 4. Bilateral trade page 22 etc.: trade between two states.
- 5. *Binary choice model-page* 149 etc.: when the dependent variable of a model has only two possible values. Binary choice models assume that individuals are faced with a choice between two alternatives and that the choice depends on identifiable characteristics.
- 6. Blue collar worker page 148 etc.: blue-collar worker is a person who performs predominantly manual labour.
- Capital stock page 45 etc.: the stock of plant, equipment, buildings (including residential housing) and unsold finished goods (Parkin, Powel, Matthews 1997).
- Cross-sectional page 39 etc.: cross-sectional data refers to data collected by observing many subjects (such as individuals, firms or countries/regions) at the same point of time, or without regard to differences in time
- Deflation page 58: deflation is a decrease in the general price level of goods and services. Deflation occurs when the inflation rate falls below 0% (a negative inflation rate).
- 10. *Destination country* page 17 etc.: is defined as the country in which immigrants come to live.
- 11. Developed country page 16 etc.: a country with relatively high per capita output in which manufacturing and services sectors make a dominant contribution to the whole

- 12. Developing country page 32 etc.: a developing country, also called a lessdeveloped country, is a nation with a lower living standard, underdeveloped industrial base, and low Human Development Index (HDI) relative to other countries.
- 13. *Differentiated goods* page 31: products or services that are distinguished from others.
- 14. *Disequilibrium between supply and demand* page 62 etc.: a condition where at least one side of the market (suppliers or consumers) are dis-satisfied with the current combination of price and quantity traded – implying some pressure for price and quantity to change.
- 15. Economic impacts page 26 etc.: are effects on aspects of "economic activity"

 meaning behaviour that is, typically, focussed on production or exchange and mediated by markets.
- 16. *Emigration* page 77: to emigrate is to leave a country, especially one's own, intending to remain away.
- 17. Endogeneity of migration flows page 37 etc.: net migration is expected to be influenced by economic conditions in each region making it difficult to identify the impact of migration on variables such as the wage and employment level because causation is bidirectional.
- 18. Endogenous growth theory page 56: endogenous growth theory holds that long-run economic growth is determined by forces that are internal to the economic system. These forces create the opportunities and incentives for new technological developments.
- 19. *Ethnic group* page 55 etc.: in this thesis we use the ethnic groups defined by the LFS. These are White, Black, Asian, Chinese, and Mixed.
- 20. *Ethnic enclave* page 155 etc.: is an area with high concentration of an ethnic group.
- 21. Finished products page 31: are goods that have completed the manufacturing process.
- 22. Foreign direct investment page 31: is a direct investment into production or business in a country by an individual or company of another country, either by establishing ownership of a company in the target country or by expanding capacity of an already owned business in that country.

- 23. Gravity models page 32 etc.: the gravity model of trade in international economics, predicts that bilateral trade flows are essentially based on the economic sizes of and distance between two Countries.
- 24. *Harmonized EU immigration policy* page 138: a push by EU institutions such as the Commission and the Parliament, as well as some member states, to develop a common EU immigration policy.
- 25. *Home country* page 29 etc.: is defined as the country immigrants came from.
- 26. *Homogenous goods* page 31 etc.: products physically identical or at least viewed identical by buyers.
- 27. *Host economy* page 23 etc.: is defined as the country immigrants come to live.
- 28. *Human capital* page 54 etc.: the skill and knowledge of people, arising from their education and on-the-job training (Parkin, Powel, Matthews 1997).
- 29. *Illegal immigration* page 41 etc.: refers to the migration of people across national borders, or the residence of foreign nationals in a country, in a way that violates the immigration laws of the destination country.
- 30. *Immigrant/migrant* page 15 etc.: an individual who has resided in a foreign country for more than one year irrespective of the causes, voluntary or involuntary, and the means, regular or irregular, used to migrate.
- 31. Immigrants generate externalities page 44 etc.: economic effects of migration can impose cost or benefits on others that are not mediated by markets so not recorded in national income statistics (Herbert G. Grubel – 2009).
- 32. *Immigrants' assimilation* page 16 etc.: refers only to economic assimilation of immigrants. It is the process by which immigrants unemployment rate and earnings tend to become equivalent with those of their native counterparts.
- 33. *Immigration* page 15 etc.: a process by which non-nationals move into a country for the purpose of at least temporary settlement.
- 34. Inter-industry trade page 31: Inter-industry trade is a trade of products that belong to different industries. For example, the trade of agricultural products produced in one country with technological equipment produced in another country can be classified to be an inter-industry trade.
- 35. Intermediate goods page 18: are goods used as inputs in the production of other goods.

- 36. Intra Industry Trade page 33: intra-industry trade is a trade of products that belong to the same industry. For example a country simultaneously imports and exports similar types of goods or services.
- 37. *Iron Curtain* page 80 etc.: refers to prolonged institutional barriers to crossborder travel, trade, finance, migration etc. separating the former Soviet bloc from the West prior to the decline of communism that followed the political events in Eastern Europe in 1989.
- 38. Labour market effects of immigration page 22 etc.: the impacts of immigration on the labour market in the UK, focusing on wages and employment.
- 39. Labour market page 20 etc.: the institutional arrangements by which employment contracts are formed and dissolved and by which rates of pay are determined
- 40. Labour-intensive goods and services page 25 etc.: the output of a process or industry that requires a large amount of labour in production.
- 41.Logit model page 24 etc.: a type of binary choice model in which the dependent variable is the logarithm of the odds ratio between the two possible outcomes.
- 42. Longitudinal data page 68 etc.: data obtained by repeated observations of the same, or related, variables for the same, or related, individuals over long periods of time often many decades
- 43. Low wages industries page 59: these sectors characterized by low wages, few benefits, and little upward mobility, e.g. bars, restaurants, hotels etc.
- 44. *Micro data* page 41 etc.: is data on the characteristics of units of a population, such as individuals, households, or establishments, collected by a census, survey, or experiment.
- 45. Natural rate of unemployment page 49: a rate of unemployment consistent with labour market equilibrium.
- 46. Net migration page 77 etc.: the difference between immigration and emigration.
- 47. Panel data model page 65 etc.: longitudinal data in which the variables measured and the individuals observed do not vary and in which, typically, a constant interval of time elapses between observation dates

- 48. *Per-capita income* page 31: is the mean income of the people in an economic unit such as a country or city.
- 49. *Percentiles* page 96: A percentile (or a centile) is a measure used in statistics indicating the value below which a given percentage of observations fall.
- 50. Perfect substitutability between native and immigrant labour page 38: a situation where immigrant workers have "similar/same" characteristics (e.g. skills, productivity levels etc.) with those of their native counterparts. Substitute immigrant and native workers are workers who, as a result of changed conditions, may replace each other in the labour market.
- 51. *Pink collar worker* page 148 etc.: a pink-collar worker performs jobs in the service industry.
- 52. *Pooling* page 41 etc.: the process of combining cross-section and time series data to form a panel.
- 53. Pro-trade effects of immigrants page 31: refers to the positive effect of immigration on trade flows.
- 54. *Purchasing power parity* page 51: a situation where the exchange rate between two currencies is such that a given amount of (either) currency could purchase the same basket of goods in either economy.
- 55. Real wage page 15 etc.: the quantity of goods that a consumer's wage will buy. It is the consumer's income expressed in units of a good and is calculated as income divided by the price of the good (Parkin, Powel, Matthews 1997).
- 56. *Receiving country* page 16 etc.: is defined as the country immigrants come to live.
- 57. *Refugee* page 18 etc.: a person who has been forced to leave their country in order to escape war, persecution, or natural disaster.
- 58. Returns to capital page 44: business owners' income pro rata to the value of their share of the business, usually defined as net operating profit less adjusted taxes divided by invested capital and usually expressed as a percentage.
- 59. *Time series* page 21: time series data tracks a single entity through time, recording the value(s) of one or more variables at regular intervals.

- 60. *Trade creation* page 34 etc.: Increased trade between countries that follows the removal of tariff barriers, for example by their joint membership of a free trade area.
- 61. *Unobserved heterogeneity* page 37 etc.: refers to variations between individuals' behaviour that is not due to differences between their measured characteristics.
- 62. White collar worker page 38 etc.: a white-collar worker is a person who performs professional, managerial, or administrative work.

Abstract

Abstract

This thesis is motivated by the over-arching question "what economic contribution do immigrants make to the UK"? The question invites several perspectives from which to answer and the thesis offers a survey of the literature relevant to these, with particular emphasis on empirical studies focussed on the UK economy. There is also a brief historical summary of the contemporary UK experience and policies regarding immigration. Comparative profiles of the UK immigrant and native populations are constructed from primary source data, namely various issues of the Quarterly Labour Force Survey (QLFS).

From this contextualising foundation, the thesis moves to examine two particular aspects of immigrants' economic activity in the UK, using QLFS data as an evidence base. These aspects are a) the change in the average real wages of low-skilled immigrant workers, with native workers as a comparator and b) factors influencing the rate of immigrant entrepreneurship.

The empirical investigation of changes in average real wages amongst low-skilled immigrants discovers a noticeable decline relative to the native peer group, particularly for males; proximate causes are identified. The investigation of entrepreneurial activity confirms a number of influential factors noted within the literature and adds to these some significant drivers that have not previously been identified.

Chapter 1

Introduction

International migration has emerged as a major force throughout the world. Over 231m people, accounting for 3.2% of the world's population, live permanently outside their countries of birth (UN 2013). This number was 175m people a decade earlier (UN 2002). Most of the world's developed countries have become diverse, multi-ethnic societies, and those that have not reached this state are moving decisively in that direction.

In traditional immigrant-receiving societies such as Australia, Canada, and the United States, the volume of immigration has grown and its composition has shifted resolutely away from Europe, the historically dominant source, toward Asia, Africa, and Latin America. Large numbers of Europeans migrated in the late 19th and early 20th centuries, but today the reception and assimilation of immigrants is a significant economic and social phenomenon in many previous immigration exporting countries, see Kerr & Kerr (2011). European migration patterns are very different to those from even 60 years ago. There were large-scale economically motivated migrations within and to Europe after the World War II. Labour migration was particularly significant in the 1945-1973 periods. By the 1990s countries in southern Europe e.g. Italy, Spain, Portugal and Greece-which only two decades before had been sending migrants to wealthier countries in the north, began to import workers from Eastern Europe, Africa, Asia, and the Middle East. Arguably the effect on both sending and receiving countries was always more than just economic, this occurred since immigration affects demographic and social structures, reshapes cultures and affects political institutions. Since the early 1990s, Western Europe was gripped by fears of uncontrolled influxes from the East and South, see Castles & Miller (2009). These facts and figures convey a striking message that international migration today affects most countries of the world.

There are several reasons to expect the rise of international migration to continue in the future: these can be economic, social, political or environmental. For example, growing inequality in wealth between the West and most of the Rest of the World is likely to impel increasing numbers of people to move in search of better living standards. Political, environmental and demographic pressures may force many people to seek refuge outside their own countries; political or ethnic conflict in a number of regions could lead to future mass movements; also moving somewhere to be closer to family or friends -family reunification, and the creation of new free trade areas cause movements of labour (e.g. EU, EFTA, NAFTA), whether or not this is intended by the governments concerned. But migration is not just a reaction to difficult conditions at home: it is also motivated by the search for better opportunities and lifestyles elsewhere-movements between rich countries are increasing too, see Castles & Miller (2009).

There are a number of trends and patterns of international migration throughout the world. Despite the growing scope, complexity and impact of migration it is possible to identify certain general tendencies (Castes & Miller 2009), such as:

- The globalization of migration
- The different categories of migration
- The feminization of migration
- The growing politicization of migration

The 'globalization of migration': economic globalization, arguably, is linked with the nature and volume of world migration. Destination countries are receiving immigrants from a larger number of source countries than a few decades ago- most of the host countries have entrants from a broad spectrum of economics, social and cultural backgrounds. Changes in world migration are related to fundamental features of economic globalization, many of these changes are related to the emerging global economic structure and the impact such a structure has on advanced capitalist countries and peripheral regions. Also changes in world migration influenced by demographic transitions in immigrant-receiving societies, for example, the declining fertility and aging create pressures for these countries to look outside their borders for future growth in population and in the labour force, see Li

(2008). International movements of people are growing in volume in all major regions over the last decades. Migrant networks are webs of social ties that link potential migrants in sending communities to people in receiving societies, and their existence lowers the costs of international movement. With each person that becomes a migrant, the cost of migration is reduced for a set of friends and relatives, inducing them to migrate and further expanding the network, see Douglas and Espana (1987). As a result of this dynamic interaction Douglas and Espana (1987) argue that network connections to the developed countries have become widespread throughout the migrant sending countries, and the probability of international migration from these countries is high. These network channels use intermediate countries as lands of transit migration, for example Poland, Spain, Morocco, Mexico, the Dominican Republic, Turkey and South Korea are experiencing various stages of a migration transition- Castles & Miller (2009). Arguably this quantitative growth increases both the urgency for and the difficulties of government policies.

The 'different categories of migration': migration is the temporary or permanent move of individuals or groups of people from one geographic location to another for various reasons ranging from better employment possibilities to persecution. There are migrants returning to their country of birth; and non-returning immigrants separated into immigrants moving for first time (new immigrants) and immigrants making at least their second move (repeat immigrants), see Ka and Sirmans (1976). Immigration policies in Britain and the rest of European Union seem to have had little success in preventing unwanted flows and effectively managing immigration and integration, such as labour migration, refugees or permanent settlement, but a whole range of types at once. This appears to be a major obstacle to national and international policy measures (Castles & Miller 2009).

The 'feminization of migration': in recent years the term —feminisation of migration has become commonly used, women play a significant role in all regions and in most types of migration. In the past most labour migrations and many refugee movements were male-dominated, and women were often dealt with under category of family reunion (Castles & Miller 2009). However this has now changed completely and half of all international migrants today are women (Human Development Report 2009).

Since the early 1980s, increasing number of women - both single and married, and often better educated than men, have been moving on their own to take up jobs in other countries (Feminisation of migration, INSTRAW, 2007). According to data from the United Nations Population Division (2009), obtained mostly from population censuses and covering both documented and undocumented migrants, the number of female migrants grew faster than the number of male migrants between 1965 and 1990 in the most important receiving countries, industrialised as well as developing. The 'growing politicization of migration': the majority of Immigration policies are often described as having two components, immigration control and immigrant integration, a distinction popularized by Tomas Hammar (1985; 1990). As a result of this most of the literature focuses on the role of anti-immigration parties, or on the influence of societal factors like the presence of large groups of migrants, or economic recession (Pilet 2013). However, domestic politics, bilateral and regional relationships and national security policies of countries around the world are increasingly affected by international migration. There is increasing realization that migration policy issues require enhanced global governance, and cooperation between receiving, transit and sending countries (Castles & Miller 2009).

The theoretical base for understanding international migration remains unclear. At present, there is no single, coherent theory of international migration. Rather, the current patterns, trends and complexity of migration, have led to a number of theories that incorporate a variety of perspectives, levels, and assumptions. Some of the leading contemporary theories of international migration are:

- Neoclassical economics: Macro theory
- Neoclassical economics: Micro theory
- The new economics of migration
- Dual labour market theory
- World systems theory

The 'Neoclassical economics- Macro theory' suggests that international migration, like its internal counterpart, is caused by geographic differences in the supply of and demand for labour. Countries with a large endowment of labour relative to capital have a low equilibrium market wage, while countries with a limited endowment of

labour relative to capital are characterized by a high market wage. The resulting differential in wages causes workers from the low- wage country to move to the high-wage country (Lewis, 1954; Ranis and Fei, 1961; Harris and Todaro, 1970; Todaro, 1976).

According to '*Neoclassical economics: Micro theory*', potential migrants estimate the costs and benefits of moving to alternative international locations and migrate to where the expected discounted net returns are greatest over some time horizon (Borjas, 1990).

The main idea of the 'The new economics of migration theory' is that migration decisions are not made by isolated individuals, as it is assumed in the neoclassical theory, but by groups of related people- typically families or households-in which people act collectively not only to maximize expected income, but also to minimize risks and to loosen constraints associated with a variety of market failures, apart from those in the labour market. For example, unlike individuals, households are in a position to control risks to their economic well-being by diversifying the allocation of household resources, such as family labour. While some family members can be assigned economic activities in the local economy, others may be sent to work in foreign labour markets where wages and employment conditions are better than those in the local area. In the event that local economic conditions deteriorate the household can rely on migrant remittances for support (Stark and Levhari, 1982; Stark, 1984; Katz and Stark, 1986; Lauby and Stark, 1988; Taylor, 1986; Stark and Taylor, 1991).

The '*Dual labour market theory*' suggests that immigration is not caused by push factors in sending countries (low wages or high unemployment), but by pull factors in receiving countries. Piore (1979) argues that international migration is caused by a permanent demand for immigrant labour that is inherent to the economic structure of developed nations.

Finally the 'World systems theory' argues that the penetration of capitalist economic relations into peripheral, non-capitalist societies creates a mobile population that is prone to migrate abroad. There is a more sociological rather than economic approach in this scheme. International migration is linked to the structure of the world market that has developed and expanded since the sixteenth century (Portes and Walton, 1981; Petras, 1981; Castells, 1989; Sassen, 1988, 1991; Morawska, 1990).

Chapter 1: Introduction

The reality, considering immigration and immigrants, can be very different from one country to another. The political puzzles that high levels of immigration create may be even more difficult to solve than the economic, cultural, or security puzzles. The UK experience shows that Immigration is a prominent feature in the economic, social, and political landscape of the country. Given the long-term demographic impacts of, and rising public concern about, the rapid increase in immigration, there is a continuing debate about the economic, social and cultural impacts of immigration in the UK, a country in which concerns about immigration seem frequently articulated¹. Consideration of the economic effects in destination countries, with which this thesis is concerned, includes a critical assessment of the topics that have empirically been investigated; these are (i) changes in earnings power of low skilled immigrants in the UK in chapter 4 (ii) the entrepreneurial success of immigrants in the UK in chapter 5.

The net flow of people migrating to the UK has increased substantially in recent years, (see graph 1 below).



Source: ONS (2011) Long-Term International Migration, time series, 1991 to 2010

¹ According to the Autumn 2012 Eurobarometer, 24% of UK citizens, as opposed to an average 8% of EU residents, believe that immigration represents one of the two most important issues facing the country. (http://ec.europa.eu/public_opinion/archives/eb/eb78/eb78_publ_en.pdf)

The number of immigrants in the UK has been estimated at 11.78% of the county's population or 7.23 million (ONS 2011). Consequently immigration has become one of the main political issues in the UK and the UK government is at present introducing a new points-based migration framework for individuals from outside of the European Economic Area. The concerns that are raised in public discussion regarding immigration include: the pace of migration, the undercutting of workers' terms and conditions and the general impact on the UK labour market. This thesis concerns itself with some aspects of immigrants' labour market experience, undertaking statistical investigation of aspects of their employment and their self-employment.

There is a large econometric literature that examines the economic effects of immigrants in the United Kingdom and elsewhere. This is surveyed within the thesis; the main emphasis is on literature relating to the United Kingdom, but studies dealing with other countries are also considered, both for comparison and to fill in certain gaps in the British evidence. The majority conclusions of these include: immigration enhances bilateral trade, the labour market effect (employment and wages) of immigration on natives is very small, and immigration enhances growth and eases inflation.

The thesis also offers some new research intended to illuminate some of the aspects of immigration in the UK economy. Our motivating research question is: What sort of contribution do immigrants make in the UK economy? Are they employed to their full potential? Particular emphasis has been given to immigrants' self-employment and the earnings power of low-skilled immigrants, relative to natives. We have found six novel results; these are:

- Over the period 2001-2010, the average real wages of low skilled immigrants in the UK have reduced noticeably - particularly for males, both in absolute terms and also relative to low-skilled natives.
- This reduction in real wages can be explained by compositional changes within the immigrant cohort. The increase of net migration the last decade has lowered the average residency period and the mean age of immigrants, thus

reducing the extent of their labour market experience and their assimilation experience.

- The variation in years of schooling amongst the low skilled immigrants in the UK does not play an important role in explaining variation in earnings within this group.
- Experience of tertiary education has a negative impact on immigrants' entrepreneurial activity.
- Concentration of immigrant communities within national enclaves enhances the self-employment rates amongst some immigrant groups but exerts negative effects for others.
- Economic factors such as unemployment and households' gross disposable income are found to affect the self-employment likelihood of some particular immigrant groups.

These particular findings contrast to some extent with previous literature. Most of our other findings are consistent with the previous UK-focussed literature.

Following this introductory chapter, the remaining chapters are as follows:

- CHAPTER 2: The literature review.
- CHAPTER 3: Migration flows in the UK, politics and history; immigrants vs. natives' profiles
- CHAPTER 4: Changes in the earnings power of low skilled immigrants in the UK
- CHAPTER 5: Immigrants' entrepreneurial success in the UK.
- CHAPTER 6: Conclusion and implications for policy and/or further research.

There is an Appendix to contain supporting tables.

Chapters two and three provide a critical survey of relevant literature and aspects of the recent history of immigration into the UK. The original contribution to knowledge of this thesis based on statistical analysis of data taken from the UK Labour Force Survey is presented in chapters four and five.

Chapter 1: Introduction

The data used in this thesis are taken from various resources, but mainly from the Quarterly Labour Force Survey (QLFS). The statistical analysis ends in 2010 and any change in the topics we examine after 2010 has not been investigated.

The second chapter, a literature review, concentrates on research related to the economic effects of immigrants in their destination economies. The purpose of this chapter is to identify consensus conclusions concerning these effects. The outcomes of these studies suggest that the impacts of immigration on the host labour markets critically depend on the skills and other characteristics of migrants, the skills of existing workers, and the characteristics of the host economy.

The third chapter begins with a brief summary of the history and politics of immigration in the UK from the post-war era until today. This is followed by a descriptive analysis of some of the most important socioeconomic characteristics of the labour force in the UK which contrasts the profiles of natives and immigrants. Constructing these profiles year by year from the QLFS data shows that there has been a steady increase in the foreign born workers. The majority of immigrants have occupied the upper or lower end of the skills and income groups. In the last part of chapter 3 the limitations of the methodologies employed in the empirical research topics in chapters 4 and 5 are discussed and explained.

The two research chapters (four & five) examine some aspects of the employment and self-employment of immigrants in the UK. Our conclusions differ in some respects from previous literature.

In chapter 4 we use QLFS data so as to measure the changes in average earnings of low skilled immigrants and low skilled natives over the period 2001-2010. The findings show that the average earnings of low skilled natives slightly increased over the decade while the average earnings of low skilled immigrants decreased noticeably, especially for male immigrants.

In chapter 5 we use a logit model to estimate the likelihood of the different ethnic and national groups of immigrants in the UK to become self-employed. The data are from the QLFS for the years 2006-2010. We find a fairly large number of factors (81 key

variables and interactions are significant) that are associated with the immigrants' entrepreneurship and allocate these to a smaller number of categories for analysis and interpretation.

The final part of the study includes a Summary, Conclusions, Recommendations, and Implications for further Research. The main findings of previous chapters are brought together within the framework of the research questions and the general objective set in the introduction. We introduce the main conclusions of every chapter and implications of the analysis are drawn for policy making.

Chapter 2

Literature Review

Introduction

This chapter surveys the literature concerning the economic effects of immigration in the destination countries. Particular emphasis is given to articles that have an empirical orientation.

The economic effects of immigration in destination societies are a hotly contested field. The issue raises a number of questions, e.g. do immigrants lower wages and employment of native workers? Is immigration a drain on the welfare state? Do immigrants help the economy to grow? Etc.

Divided public opinions on immigration reflect the basic economic conflicts. For example- those who own labour-intensive businesses such as restaurants, farms, landscaping companies or garment factories are likely to say immigration helps. Immigrants provide a ready source of relatively cheap labour that keeps business running and elevates profits. On the other hand native born high-school dropouts seeking for work are likely to say immigration hurts. Immigrants often take entry-level jobs at lower wages than natives accept-e.g. see Jaegar (2007). The impact on other groups e.g. - taxpayers, consumers - is open to a variety of interpretations.

Immigration, in general, has many economic consequences for the receiving country, and attempts to analyse them abound in the literature. A large volume of the economic literature has focussed on immigration's possible impact on native workers' wages and their employment (see chapter 2.2 "The Labour Market Effects of Immigration" e.g. Card (1990, 2001), Dustmann, Fabbri and Preston (2005), Manacorda, Manning and Wadsworth (2012), Ottaviano and Peri (2012), in response to concerns about the impact of immigration on labour markets. In the UK the impact of migration on the labour market has become a contentious issue in public and

Political debate, with critics suggesting that immigration reduces wages or employment for the UK born population. This argument has become particularly prominent since the arrival of large numbers of migrants from Central and Eastern Europe since 2004. In this thesis the economic effects of migration in the major destination countries are examined with more focus on the UK experience.

The economic effects of immigrants in the destination country have often been a subject of fairly confused debate. The main argument is how the benefits and harm ("impact") of immigration are distributed throughout the economy. It is important to clarify at the outset the definition of "impact" that is used for the purpose of this thesis. "Economic impacts" are defined broadly to include i) the macro-economic effects of immigration in the UK, focusing on inflation, aggregate demand and aggregate supply and ii) the effects of immigration on the labour market in the UK, focusing on wages and employment / self-employment – the focus of the empirical work presented here. The thesis does not discuss the wider consequences of immigration, for example the effects on the demand for public services such as education and health provision, or the implications for cultural diversity and social cohesion.

Several episodes in recent history provide interesting precedents for assessing the economic impacts of immigration-some examples of the economic consequences on the labour markets due to migration are presented in the pages below. In Germany during the 1950s and 1960s, the logic behind the *gastarbeiter* "guest worker" system² for example, was almost entirely one of economic benefits. At that time there was demand for cheap labour in Germany's booming post-war economy. Germany signed a series of bilateral recruitment agreements with a number of countries. The core of these agreements included the recruitment of Gastarbeiter (guest workers), almost exclusively in the industrial sector, for jobs that required few

²During the 1950s and 1960s, West Germany signed bilateral recruitment agreements with Italy in 1955, Greece and Spain in 1960, Ireland and Turkey in 1961, Morocco in 1963, Portugal in 1964, Tunisia in 1965, and Yugoslavia in 1968. These agreements allowed the recruitment of Gastarbeiter to work in the industrial sector for jobs that required few qualifications. http://en.wikipedia.org/wiki/Gastarbeiter

qualifications. Weizsäcker (2008) argues that the share of guest workers in the workforce of the vehicle manufacturing sector grew quickly to over 25%. This, coupled with German excellence in engineering, was a great recipe for economic success. In spite of outsourcing, Germany still benefits from the automobile cluster that was created back then: about every seventh job in Germany depends on it (Weizsäcker 2008).

In 1962, around 900,000 individuals of European origin living in Algeria moved to France, increasing the French labour force by 1.6 per cent. The war between France and the Algerian independence movements from 1954 to 1962, led Algeria gaining its independence from France. Upon independence, in 1962, large numbers of European-Algerians fled to France, in fear of the FLN's (National Liberation Front) revenge, within a few months (Jauffret, 1993). Research into the labour market effects of this substantial migration, see Hunt (1992), found that at most the impact was to reduce wages in the regions they were settled by 0.8 per cent and raise unemployment by 0.2 percentage points.

In 1974, approximately 600,000 colonists returned to Portugal from the African colonies of Angola and Mozambique. Empirical research by Carrington and DeLima, (1994) found no impact on the Portuguese labour market. In 1980 around 125,000 Cubans entered Miami, increasing the local labour force by 7 per cent. Card (1990) assessed the impact of their immigration on resident unskilled labour from different ethnicities; the study found that only Cubans appeared to have been negatively affected.

In this chapter we examine areas in which there is empirical support, as well as theoretical rationale, for the hypothesis that immigration causes effects in the host economy; these areas are confined by the definition we use for the economic impacts of migration in this thesis (see page 27). Consequently the survey focuses, mainly, on the labour market and macroeconomic consequences of migration. There is abundant literature concerning the effects of immigration in the *host labour market* -mostly in wages and employment, in *international trade*-it is found that immigrants' networks are associated with larger trade flows between countries of origin and the country where they settle, and the *macroeconomic effects* of migration –mostly in aggregate demand, aggregate supply and consumer price index.

The survey attempts to summarise the consensus view, where such exists, concerning the relationship between immigration and the following aspects of a destination economy:

- International trade
- The labour market
- The macroeconomic effects

Attention is also given to:

- The skill levels of immigrants
- The economic assimilation of immigrants
- The earnings of immigrants

These perspectives are explored in the following pages.

2.1 Immigration and Trade

Evidence for the positive effect of immigration on trade between immigrants' destination and home countries has been found in a series of studies. Papers by Gould (1994), Head and Ries (1998), Girma and Yu (2000) show that immigration influences positively both imports and exports of the United States, Canada and the UK respectively. Further studies document positive effects, e.g. Head and Ries (2002), White (2008 & 2009), Lewer and Berg (2010), Ghatak, Daly and Silaghi (2009), Hatzigeorgiou (2010), Giovanni and Francisco (2010), Chen and Jacks (2012) and Leitao, Dima and Dima (2012). This literature has shown that immigrants can play an important role in bilateral trade by reducing trade barriers, when the classical trade practices cannot.

The majority of the existing literature explains that immigration influences bilateral trade by using several channels. These include: immigrants use their knowledge about their home countries' social institutions and markets; immigrants show a preference for their home-land products; immigrants know, not surprisingly, how to reduce transaction costs of bilateral trade with their home countries; immigrants have

personal contacts or business connections with their home countries. Also, they have cultural connections and they share common values with their co-patriots which mean credibility can be developed more easily when they initiate commercial relationships. All of these reasons are quite important since each can facilitate trade expansion between the destination and home countries.

Basic international trade theory, supported by some of the contemporary research literature - see, for example, Anderson and Wincoop (2001), and Caliendo and Parro (2009), argues that an increase in bilateral trade increases the overall welfare of both nations. One, however, might expect that a disaggregated perspective could identify winners and losers at the sectoral level. Domestic producers whose products can be substituted by imported goods may lose out relative to those whose products are complements for the imports. Hence, from the perspective of this present study we should not assume that, wherever immigration is found to promote trade, the welfare consequences are unambiguously positive.

Some important questions are: what is the role of immigrants in trade? What is their role in bilateral trade between UK and their home countries? How much do they affect imports/exports more generally? To what extent have immigration and trade benefited the natives of the receiving country?

Gould (1994) finds that US trade with 47 trading partners during 1970–1986 was positively correlated with immigration. Initially the impact on US exports appeared to be greater than on US imports; however, immigration-linked import expansion for the US eventually outweighed the export-expansion. This could be the result of continuing immigrant demand for home country products. Surprisingly, immigrant skill level did not appear to play a role in the deployment of their home country knowledge to enhance trade. The study finds that, on average, the trade-enhancing effect of immigrants' shows up after assimilation, specifically living in the USA for at least 3.8 years. The economic impact per additional immigrant was found to vary from about \$4 (Philippines) to \$48000 (Singapore) in additional exports in 1986, and about \$6 (Philippines) to \$29000 (Singapore) in additional imports.

Using Canadian trade data with 136 trading partners Head and Ries (1998) find that a 10% increase in the stock of immigrants is associated with a 1–1.3% increase in **30** | P a g e

Canadian exports and a 3.1–3.9% increase in Canadian imports. They estimate that, on average, each immigrant generates about \$3000 in exports and \$8000 in imports. In addition to this, Import varieties in Canada grew by 76% in the period from 1988 to 2007 according to Chen and Jacks (2012). The study argues that the enhanced immigration flows may be responsible for 25% of this variety growth.

Girma and Yu (2000) study the bilateral trade between the UK and 48 trading partners, (26 Commonwealth and 22 non-Commonwealth countries), and find that a 10% increase in the stock of immigrants (non-Commonwealth countries) increases the UK's exports to those countries by 1.6%. The effect of immigrants from the Commonwealth countries on the UK's exports to them was statistically insignificant. It seems that since the UK has long standing and high volume trade connections with the Commonwealth countries, the additional effect of recent immigration is small.

More recent studies (reviewed below) enhance the above conclusions about the positive effect of immigrants on bilateral trade. The finding of noticeable effects is not surprising, taking into consideration that the immigrant population in the UK, as in most other Western countries, is around 12% of the overall population³.

Wagner, Head and Ries (2002) using cross-province variation in international trade and immigration patterns for Canada estimate that for each additional immigrant beyond the 1995 level would raise exports by \$312 and imports by \$994. Another paper from White (2008) examining US trade with 62 nations using data from the period 1989–2001 finds positive links between immigration and the measures of Intra Industry Trade across all home country income classifications. Immigrants from low and lower middle income countries, generally speaking, however, drive the immigrant– Intra Industry Trade link. According to the study a 10 percent increase in immigrant stock levels generates increases in Intra Industry Trade relative to interindustry trade ranging from 0.43 percent (for immigrants from high-income countries) to 2.1 percent (for immigrants from low-income countries).

³ Annual Population Survey, ONS (2011)

Further research by White (2009) enhances his previous findings. He argues that the immigrant-trade relationship in the US varies based on degree of product differentiation and by home country per-capita income. The imports and exports of differentiated goods increase more because of migration than does the trade in homogenous goods. Immigrants from low income countries have a bigger effect on bilateral trade than immigrants from high income countries. Stronger effects for differentiated goods and for countries that are culturally distant from Spain are found by an immigration-trade investigation in Spanish provinces between 1995 and 2008 (Peri & Requena, 2010). The paper shows that immigrants reduce the fixed cost of exporting and significantly increase exports. Tadesse and White (2007) argue that greater cultural differences between the United States and a trading partner reduce state-level exports to that country. Immigration however is found to exert effects that partially offset the trade inhibiting effects due to cultural distance.

Lewer and Berg (2010) also finds that immigration stimulates bi-lateral trade between 16 OECD countries and a large set of immigrant source countries for the years 1991--2000 primarily by increasing foreign direct investment flows back to the source countries, also creating trade networks between immigrants in destination and native countries, and finally raising income in immigrant destination countries. Dunlevy (2006) examining the pro-trade effects of migration in US shows that the greater the 'language distance' of the foreign born group from English, the greater is the pro-trade effect of that immigrant group for USA exports to their country of origin. Intuitively, we might expect that high skilled immigrants are in a better position than the low skilled ones to take advantage of the information they possess regarding their home country trade markets, though this expectation has not always been empirically validated (e.g. Gould, 1994).

A paper by Mundra (2005) in the USA shows that immigration effect is positive for finished products exports but not for intermediate goods. This result is in contrast to earlier studies for the US in particular by Gould (1994) where the immigrant effect is positive for all US bilateral trade. This result indicates that the effect of immigration on trade varies over the time and what is valid today might not be in the future.

Using gravity models to explain the effect of immigration on bilateral trade is the favourite technique for guite a few researchers. They estimate bilateral trade flows based on the economic sizes of two countries and the distance between them. Very often they use the GDP size and the capitals' distance between the immigrants' host and home countries respectively, see, e.g. Girma and Yu (2000); Co, Euzent, and Martin (2004); Ghatak, Daly and Silaghi (2009); Blanes-Cristóbal (2003), Hatzigeorgiou (2010) and Leitao, Dima and Dima (2012). All of these studies show evidence of positive effects of the immigration-link on bilateral trade. However, not much literature exists that takes into account other ways of measuring the distance between home and host countries. Instead of, or additional to, simple geographical distance, there may be other measures of the gap between an immigrant's home and destination environments. These may include 'language distance', as in Dunlevy (2006), or 'cultural distance', as in Tadesse and White (2007), or 'religious distance' etc. Migrants may favour countries that are both economically and cultural familiar, see 'The Economist (March 10th-16th 2012) for a discussion from which the following indicative examples have been extracted. Christians comprise only a third of the world's immigrants but they make up approximately three quarters of foreigners living in America, a primarily Christian country in terms of its predominant culture. Similarly, 56% of immigrants into the EU are Christian. Saudi Arabia, a Muslim country, attracts a large proportion of the Muslim immigrant cohort.

Co, Euzent, and Martin (2004), examine the export effect of immigration into the U.S. using state level export data to 28 immigrant source countries in 1993. They find for each additional immigrant from a developed country, on average, \$11458 to \$22999 additional exports, and for each additional immigrant from a developing country, on average, \$1468 to \$4139 additional exports. Ghatak, Daly and Silaghi (2009), analyse the determinants of bilateral trade flows between the UK and some Central and Eastern European countries that lately joined the EU: Romania, Bulgaria, the Czech Republic, Poland, Hungary and Slovakia. They find that the influence of immigrants is higher for the case of imports than it is for exports.

Seemingly counter-examples are found in the literature; see for example Blanes-Cristóbal (2003) and Piperakis, Milner and Wright, (2003). These studies find that immigration influence host countries exports more than their imports; Blanes-

Chapter 2: Literature Review

Cristóbal (2003) examining the impact of immigration on Spanish bilateral trade finds positive effects on exports and insignificant effects on imports due to migration. Similarly, Piperakis, Milner and Wright, (2003) investigate the impact of immigration on Greek bilateral trade. The study shows that immigration had a positive impact on the volume of Greece's bilateral exports, but no effect on its bilateral imports. In the cases of Spain and Greece we see adverse results in comparison to the studies for other countries, however these results are similar with that of the U.S. in the early 70s, see Gould (1994). Hence, we might expect that eventually, as immigration increases in Spain and Greece, like in the U.S, immigration-linked imports in these countries will increase and probably outweigh their immigration-linked exports.

Using data for Sweden and 180 partner countries between 2002 and 2007, Hatzigeorgiou (2010) investigates the link between immigration and trade flows for Sweden. He finds that immigrants manage to improve the flow of information between Sweden and their former home countries. The study argues that immigration can be used as an instrument for increased foreign trade. Leitao, Dima and Dima (2012) examine the relationship between intra-industry trade and immigration flows using a gravity model for the period 1995-2008 amongst Portugal and European Union Member States (EU-27). The study shows a positive correlation between immigration and intra-industry trade and indicates that immigration can reduce transaction costs between home and host country.

White and Tadesse (2007) investigate Australian trade with 101 partners for the period 1989-2000. This study finds that previous political circumstances still affects the immigration influence in Australia's bilateral trade. Although the White Australia policy⁴ ended in 1973, the study shows that immigrants from nations that were afforded preference under the above policy exert greater influence on Australia's bilateral trade with their home countries than do immigrants from other nations.

⁴ The term White Australia Policy comprises various historical policies that intentionally restricted non-white immigration to Australia. It came into fruition with Federation in 1901, and the policies were progressively dismantled between 1949 and 1973' (Wikipedia 2012- *en.wikipedia.org/wiki/White_Australia_policy*)

From the above studies there is clear evidence that immigration enhances the bilateral trade between destination and home countries and it seems that, in most cases, the balance of trade is in favour of the home countries' exports.

The essential point is that we have trade creation and international trade theory explains how both nations gain from trade; important factors that affect trade in both sending and receiving countries include:

- Comparative advantage -due to differences in labour productivity.
- Absolute cost advantage country exports goods that are more expensive abroad and imports goods that are cheaper abroad.
- Endogenous advantage- goods are traded because they are not available from local production.

It is worth borrowing form Borjas (2006) the following conclusion; 'An important lesson, worth remembering when thinking about the gains from immigration, is that if international trade is to benefit the economy as a whole, some sectors of the economy typically lose. In short: no pain, no gain.'
2.2 The Labour Market Effects of Immigration

It is widely believed that as immigrants enter the UK labour market they compete with natives for jobs. This additional labour supply is thought to cause an unemployment increase and a downward pressure on real wages. Arguably, immigration expands the domestic labour force differentially in different skill groups. According to some of the existing literature, see Borjas (2006), Winter-Ebmer & Zimmermann (1998), Camarota (1997) & Lee (1992), these changes in the size or composition of the labour force can sometimes harm the labour market prospects of some groups of native workers.

Theoretically, a surge of immigrants in the host country, in the short term, should be a shock for the native workers. Graph 2.1 illustrates the textbook expectations regarding the effects of migration in the destination labour market.





Where:

Total (s)= labour supply of natives+ labour supply of immigrants

Natives (s) = labour supply of natives

Immigrants (s) = labour supply of immigrants

L = labour

W = wages

D = demand of labour and wages

E = employment of natives + immigrants

C = full-employment labour supply of natives

B = employment of natives before immigration

A = employment of natives after immigration

W0 = wages before immigration

W1 = wages after immigration

E0= equilibrium before immigration

E1 = equilibrium after immigration

Un,0 = unemployment of natives before immigration

Un,1 = extra unemployment of natives after immigration

An influx of immigrants in the host country is expected to substantially influence the employment level and the wages in the economy. Observing graph 2.1 above, we can see the host country economy before and after immigration.

Graph 2.1 shows that after immigration the equilibrium point shifts left from E0 to E1. This means that the wages decrease from W0 to W1 and the employment increases from B to E. The employment of natives decreases from B to A and is replaced by immigrant workers. One, could conclude that the host economy increases after immigration, because we have more output (more employment -maybe at given productivity levels) and lower cost per unit due to reduced wages. This result will probably keep happy the employers and maybe the government. However, the native workers will see their economic status worsening since their unemployment level from Un,0=BC before migration, increases to Un,0+Un,1=BC+AB after migration, and their wages to become smaller.

The preceding account has presented the labour market effects of immigration that might be expected on the basis of textbook supply and demand arguments. However, in the real world immigration is a phenomenon that causes different externalities and attracts different political interferences from one host country to another. In the following pages we present a large body of literature (reviewed below) discussing the labour market effects of immigration, and covering all the major immigrant-receiving countries. Important questions addressed within this literature are:

- Do immigrants affect the employment status for native workers?
- Do immigrants affect the wages/salaries of natives?

Other questions that are discussed within the literature include: Are immigrants and natives substitutes or complements in production? How do immigrants perform in the receiving labour market? Why and how do immigrants suffer disadvantage in the competition for jobs? Who are the ones who gain from immigration and who lose?

2.2.1 Immigration and employment

A large number of papers, see e.g. Dustmann, Fabbri and Preston (2005); Heid and Larch (2012); Roed and Schone (2012); Jean and Jimenez (2011); Friedberg and Hunt (1995); Withers & Pope (1985); Toda & Yamamoto (1995) and Alan Morris & Fiona Sun (1999) find no significant effects of immigration on unemployment.

Dustmann, Fabbri and Preston (2005) provide an empirical investigation of the way immigration affects labour market outcomes of native born workers in Britain. These considerations suggest that the effects immigration may have on the labour market outcomes (employment & wages) of resident workers are not clear, they depend most importantly on the way immigration affects the skill mix of the resident population, as well as the way the economy may adjust to changes in the skill mix.

Heid and Larch (2012) use data from 24 OECD countries over the period from 1997 to 2007 in order to account for unobserved heterogeneity as well as the potential endogeneity of migration flows and the high persistence of unemployment. The study concludes that there is no significant effect of immigration on unemployment on average. Roed and Schone (2012), find no strong evidence for any effects of immigration on natives' unemployment in the Norwegian labour market.

Further research by Jean and Jimenez (2011) covering eighteen OECD countries over the period 1984-2003 shows no significant effect of immigration on unemployment in the long run. The paper however argues that there may be a temporary, negative, impact on natives' unemployment, depending upon the policy framework.

Previous empirical analysis of the United States and other countries, see (Friedberg and Hunt 1995), finds no strong evidence of economically significant negative effects on natives (employment & wages). Even for those natives who should be the closest substitutes with immigrant labour, they have not found significantly negative effects as a result of increased immigration. Withers & Pope (1985) contribute to the debate on immigration and unemployment in Australia. Their study cannot find any evidence that immigrants take jobs from natives; similarly Toda & Yamamoto (1995) and Alan Morris & Fiona Sun (1999) using Australian and New Zealand data find no effect of immigration on Australians' and New Zealanders' jobs.

In contrast to the above results, possible negative impacts of labour market outcomes are found by Lee (1992); Rudolf Winter-Ebmer and Klaus Zimmermann (1998) and Angrist and Kugler (2003); These studies find some evidence of immigrants' negative effects on natives' employment.

Lee (1992) argues that immigration contributes to high unemployment rates in Canada. Rudolf Winter-Ebmer and Klaus Zimmermann (1998) examine the employment effects of migration from the ten Central and Eastern European countries [(CEECs), the Visegrad-4 (Czech Republic, Hungary, Slovak Republic and Poland), the Balkan-3 (Bulgaria, Rumania and Slovenia), and the Baltic-3 (Estonia, Latvia and Lithuania)] in Austria and Germany. They find that in Austria immigration exhibits negative effects on native employment and wages, and yet has no effects on total employment. On the other hand immigration does not harm employment and wages in Germany. It also seems that natives are complements to migrants, especially to those from East Europe. Angrist and Kugler (2003) find small, mostly negative, immigration effects in the EU labour market. Their study implies that there are more native job losses in countries with restrictive institutions, especially restricted product markets.

Regarding the assumption of "perfect substitutability" between native and immigrant labour; it seems that no solid evidence can be found. Studies such as Catalina Amuedo-Dorantes, and Sara de la Rica (2009) examining the Spanish labour market show that foreign-born workers do not appear to be substitutes for similarly skilled native workers. Instead they find that immigration affected the occupational distribution of natives. Thus immigrants took over mostly the manual jobs, with native workers relocating to white collar jobs.

Similarly, Dustmann, Frattini and Preston (2008) find, for the UK, that natives and immigrants of comparable skills do not compete for the same jobs, which can help explain the lack of a significant impact of immigration on native wages. In theory immigrants lower the price of factors with which they are perfect substitutes and raise the price of factors where they are perfect complements. The existing literature does not give clear answers because, probably, immigrants and natives are neither perfect substitutes, nor perfect complements, and it seems that the effects will vary through time and across host countries.

Overall, the majority of the studies conclude that evidence is unclear as to whether the employment status of natives is affected negatively by immigration and they do not support the popular notion of the catastrophic effect of immigrants on natives' jobs.

2.2.2 Immigration and wages

The effects of immigration on average wages are found to be small; more significant effects have been found regarding other features of the wage distribution. Research suggests that immigration has negative effects in the earnings of low skill or unskilled workers; on the other hand it is found that in most cases medium and high skilled workers benefit from immigration. Finally the wage effects of immigration are likely to be higher for resident workers who are migrants themselves see (e.g. Addison and Worswick; 2002, Borjas; 2006, Camarota; 1997, Islam and Fausten; 2008, Gianmarco and Peri; 2012, Manacorda, Manning and Wadsworth; 2012).

As in the debate regarding immigration and employment, the literature shows that the estimated wage effects from immigration are far from being dramatic.

Addison and Worswick (2002) use a cross-section analysis to estimate the impact of immigration on natives' wages for Australia. The study finds no evidence that immigration has a negative impact on natives' wages. Borjas (2006) finds that the immigrant influx of the 1980s and 1990s in USA, in short run, lowers the wages of native workers, particularly of those workers at the bottom and top of the education distribution. For high school dropouts the wage falls by 7.4 per cent and for college graduates by 3.6 per cent. In contrast, the wage of high school graduates and workers with some college education falls only by around 2 per cent. He also finds that immigration causes substantial wealth redistribution. By 2000 immigration reduces the total earnings accruing to native workers by 3.1 percent of GDP and increases the income accruing to native employers by 3.1 percent of GDP. In 2002 workers lose around \$278 billion while employers gain \$300 billion.

A close relationship between skill levels and wage effects from immigration is found by some studies, see e.g. Camarota (1997) and Islam and Fausten (2008). By using a cross sectional study Camarota (1997) in the USA finds that the primary negative effect of immigration on earnings is felt in low-skilled occupations. Another study from Islam and Fausten (2008) in the Australia labour market finds negative wage effects from unskilled immigrants and positive wage effects from skilled migrants reflecting the fact that these latter can choose to go to relatively high wage occupations. They also find that overall immigrants who are skilled have high levels of productivity and adapt rapidly to conditions in the host country's labour market and thus they can make a significant contribution to economic growth. On the other hand, low skilled immigrants lacking the skills and qualifications that potential employers demand may find it difficult to adapt.

Another study by Catalina Amuedo-Dorantes and Sara de la Rica (2008), has failed to document significant effects of immigration on the wages of less-educated natives, both in the U.S. as well as in Spain. As it is also noted by Ottaviano and Peri (2006), this is not surprising given that the effect of immigration depends on the degree of substitution between native and immigrant workers within each education group. If native and immigrant workers of similar educational attainment possess productive skills that lead them to specialize in different occupations, it is reasonable to find a small or null impact of immigration on natives' wages as immigrants and natives are not competing for the same jobs.

A large inflow of foreign-born workers, as has already been mentioned, increases the supply of labour and depresses real wages, especially, for unskilled workers. In some countries, wages cannot be reduced below a certain level due to the minimum wage defined by law, thus, at least the minimum earnings of natives are protected. However, natives in countries with high percentages of illegal immigration suffer from the low wages (even below the minimum level). These wages are not declared (they are under the table); also illegal immigrants declare themselves as legal thus evidence through research is not easy to be found. Sarris and Zografakis (1999) examining the impact of illegal immigration in the Greek economy show that illegal immigrants decrease real disposable income of households headed by an unskilled person but favour all other households. The ones, who lose, however, made up about 37% of the Greek economy.

Further studies see (e.g. Gianmarco and Peri; 2012, Manacorda, Manning and Wadsworth; 2012), contribute to the debate of immigration effects on wages in the host country; these studies enhance previous findings about weak or insignificant effects on wages of natives and the negative effects on wages of previous immigrants. Ottaviano and Peri (2012) estimate the effects of immigration on the wages of native US workers. They find a small positive effect on average native wages (0.6%) and a substantial negative effect (-6.7%) on wages of previous immigrants in the long run. Manacorda, Manning and Wadsworth, (2012) Using a pooled time series of British cross-sectional micro data on male wages and employment from the mid-1970s to the mid-2000s, find no significant effect on the wages of native-born workers in the UK. However they find that immigration has primarily reduced the wages of immigrants-and in particular of university educated immigrants.

One could probably expect that an increase in labour supply through immigration, in a given labour market, could lower the wages of competing workers and increase the wages of complementary workers. The majority of the existing literature (see examples below) however finds no clear evidence on this.

Card (2001), Orrenius and Zavodny (2007) Friedberg (2001), Corrado (2009), and Islam (2009), are some of the studies focusing on the effect of immigration within occupations. Card (2001) using data from the 1990 US census, estimates the relationship between immigrant inflows and wages for occupational groups. He finds, in most cases, negative effects; immigration reduces wages and employment for low skilled natives. These findings are being enhanced by later research in the USA see Orrenius and Zavodny (2007). The study estimates the effect of immigration inflows on wages within occupational groups in the USA. The results show a significant negative impact on unskilled natives; there is no effect on natives in skilled occupations. Friedberg (2001), using Israeli micro data studies examine the impact of Russian immigration by occupation on Israeli wages and employment. She does not find evidence of an adverse effect on natives. Corrado (2009) investigates the complementarity/substitution between immigrants and natives in England and Wales. The study finds that immigrants do not harm natives' employment status; instead immigrants and natives appear to be complements in production. However evidence is shown that new immigrants displace earlier immigrants especially those with no or low qualifications.

Empirical work from Islam (2009) on the Canadian labour market shows that native Canadians and recent immigrants (after 1978) are mostly complements in production, (a 10% increase in the supply of recent immigrants lead to a 1.6% wage increase to native born workers). On the other hand older immigrants (before 1978) and Canadian born workers are neither substitutes nor complements. However, he finds that recent and older immigrants are substitutes; he also finds proof that recent immigrants compete with older immigrants for the same jobs in the Canadian labour market.

Ethnicity and Immigrant type appear to play an important role in the performance of immigrants in the UK labour market, see Clark & Lindley (2009). According to their

study low skill natives and white immigrants perform better than low skill non-white immigrants in terms of employment and earnings. Non-whites do not manage to erode this deficit over time. On the other hand highly educated non-whites perform as well as their white counterparts. Also evidence is found that non-whites are being discriminated in the UK labour market (Blackaby et all. 2002). This notion is enhanced by the studies of Becker (1971) and Clark, Drinkwater and Leslie (1997).

A general conclusion from the available literature is that, apart from a few exceptions, immigration has very small or no effect on employment and wages of native workers.

The effect of immigration on native labour seems to be dependent upon the distribution of skills between immigrants and natives and on the characteristics of the host economy. If the skill distribution of immigrants matches that of natives, immigration does not affect the relative supply of skills and thus does not change the structure of wages. By contrast, if immigrants are less skilled than natives, immigration shifts the distribution of earned income toward the more skilled, and conversely if immigrants are more skilled than natives. The wage effects of immigration are likely to be greater for resident workers who are migrants themselves. Finally for both wages and employment, short run effects of immigration differ from long run effects: any declines in the wages and employment in the long run.

Overall, it seems that the labour market effects of immigration, i.e. its impact upon employment levels and wages, are not uniform across natives. There is empirical support, as well as theoretical rationale, for the hypothesis that immigration expands the host economy and thus its employment opportunities. The better-paid of these opportunities tend to benefit native workers but low skill native workers who, generally, are not in a position to take advantage of such opportunities find themselves in competition with immigrants at the lower end of the wage distribution.

2.3 The Macroeconomic Impact of Immigration

Immigrants who travel to another country to work increase the available supply of labour and also increase the aggregate demand in the host economy. Free migration of labour appears to be advocated much less than free capital movements for the reasons that immigrants generate externalities (socioeconomic & cultural). Arguably, it is also widely believed that the notion of nation becomes more ambiguous. However, a belief in free markets suggests free trade of all goods and free mobility of all factors. This is one of the EU principles. The EU member states have agreed on the need to promote improved working conditions and an improved standard of living for workers. Freedom of movement of workers is a binding provision among the objectives of social policy outlined in the TEU (Treaties of the European Union), see Hitiris (1998).

Economic theory argues that, an influx of migrants lowers the capital/labour ratio, lowers the real wage and raises the return on capital. Finally, as a whole, natives gain from the net welfare that is being created.

As it has already been shown in discussion of the short-run labour market effects of immigration, the gains of the employers can be greater than the losses of the native workers. In the long run, however, there can be macroeconomic arguments that suggest natives will neither gain nor lose. In the short run, returns to capital might be improved by immigration – both through a depressing effect on wages of low skilled workers and also through technical efficiency gains that follow from having a larger pool of highly skilled workers. In the longer run, the investment that is stimulated by improved returns to capital may return the capital/labour ratio to an equilibrium level at which the marginal product of capital and thus real wages revert to their original levels.

To examine the macroeconomic impact of immigration in the UK and other migrant receiving countries we investigate the effects of immigration on:

- Inflation
- Aggregate supply
- Labour supply
- Capital stock
- and Agregate demand

2.3.1 Immigration and inflation

Much of the literature, see Cortes (2008), Frattini (2008), Zachariadis (2011), Lach (2007), argues that immigration acts to keep the prices down especially of low-skilled labour. This means that the prices of unskilled-intensive goods and services⁵ tend to be reduced, thereby the welfare of the consumers of these goods raise. It seems that higher average salaries for UK workers would have increased the costs for employers who would have seen their profits shrinking unless raising their prices and thereby boosting the inflation.

Cortes's study (2008) reveals evidence that in the United States without the immigration influx to fill the skills gaps it is likely that earnings and consequently inflation would have raised at a faster rate. He uses prices and immigration data across US cities and finds that, at current immigration levels, a 10 per cent increase in the share of low-skilled immigrants in the labour force decreases the price of immigrant intensive services, due to reduced wages, by 2 per cent.

Blanchflower (2007) discusses the impact of the recent migration from Eastern Europe on the UK Economy. In his speech he argues that the recent immigration into UK from the A8 Eastern European countries (the countries that joined EU in 2004) lowered the inflationary pressures. This effect was caused since the supply potential of the economy was raised more than the demand due to immigration.

⁵ Unskilled intensive goods and services are the low-wage intensive goods and services, such as restaurants, bars, take-away food, washing and dry cleaning and hairdressing, etc. According to Fischer, A.M., Kaufman, D., & Wehrmuller, S., (2009).

Zachariadis (2011) examines the relation between immigration and prices for 304 selected items across 140 cities in 90 countries over the period 1990 to 2006. The price levels were assembled by the Economist Intelligence Unit (EIU). This includes prices of more than one hundred distinct individual goods. The study shows that aggregate immigration has a negative impact on international relative prices of the selected items.

Immigrants, like natives, have to satisfy essential needs for goods and services such as food, clothes, accommodation, medical care etc. Thus, the inflow of immigrants adds to the overall level of spending in the UK economy and one, might expect positive effects on prices. Inflation from migration can be caused if the aggregate demand of immigrants exceeds their aggregate supply.

The literature (reviewed below) finds that there are a number of reasons that affect immigrants' spending behaviour. Studies by Awad & Elhiraika (2003), and Fischer, Kaufman & Wehrmuller (2009), show that the immigrants' spending behaviour depends on how long they expect to remain in the host country, the level of prices and wages in the host country relative in their home country, the socio-economic level of the immigrants and their cultural origin. Immigrants, usually, spend more time in market research than natives do- see, Lach (2007), and they also work harder and save because they face substantial familial and social pressures from their home and host countries. Immigration, mostly, reduces the price growth of labour-intensive goods and services see Frattini (2008).

Awad & Elhiraika (2003), survey 3600 households in UAE (United Arabic Emirates) and find that the cultural background is important on the saving behaviour of the immigrant households. Immigrants from developing countries show generally uniform socioeconomic characteristics. Pakistani and Indian immigrants, however, show higher average saving rates than Arab immigrants, although they show relatively lower average incomes.

Lach (2007) examining the CPI (consumer price index) effect of the inflow of a large number of immigrants from the former Soviet Union countries into Israel during **47** | P a g e

1990 finds that a one percentage-point increase in the ratio of immigrants to natives decreases prices by 0.5 percentage point. The study finds that immigration reduces the prices through better, in comparison to natives, market research and higher price elasticities.

Fischer, Kaufman & Wehrmuller (2009) examine the effect of European immigration in the prices of 1080 items in 138 municipalities in Switzerland between 2001 and 2005. They find that immigration reduces the price growth of goods and services by only around 0.05%. However separating European immigrants into two main groups-Germans and immigrants from South Europe (Spain, Portugal, Italy, Serbia and Turkey) they find that Germans respond stronger to sales than the others. They also find that Germans are more elastic than the Swiss.

Frattini (2008), examines the price change over 300 items and investigates the role of immigration on prices of goods and services in the UK between 1995 and 2006. The study shows that immigration has a significant but limited negative effect for the low-wage intensive non-traded goods and services, such as restaurants, bars, take-away food, washing and dry cleaning and hairdressing. On the other hand the study finds statistically significant but weak evidence that immigration affects positively traded goods which show high demand by low income earners such as low-value grocery goods.

Overall, most of the literature finds that newly arrived immigrants have a higher price elasticity of demand (in absolute values) than the native population, at least in the short run. When this occurs and immigration is large enough, retail companies, probably try to attract the new customers offering more competitive prices for their goods and services. Hence immigration can have a significant effect on inflation through its direct effect on markets.

Economic theory suggests that there is an inverse relationship between unemployment and inflation. We have to accept a trade-off between inflation and unemployment; we cannot lower both. In actual historical experience, countries have experienced high unemployment coupled with high inflation (an anathema for the governments) especially during the 1970s

The Phillips Curve is a curve showing the theoretical relationship between unemployment and inflation. There are two time frames for Phillips curve analysis: (See graph 2.2 below):

- a) The short run Phillips curve
- b) The long run Phillips curve



Where: SRPC 1= short run Phillips Curve 1 SRPC 2= short run Phillips Curve 2

In the short run if inflation rises above the expected rate then unemployment falls below its natural rate. The short run Phillips Curve is also known as the expectations-augmented Phillips curve, since it shifts up when expectations for higher inflation rise.

The curve SRPC 1 slopes down from left to right and tell us simply we either have to accept increased inflation or increased unemployment.

In SRPC 2, inflation expectations are higher so higher unemployment is required to keep inflation at any given target level.

The long run Phillips Curve is vertical at the natural unemployment. The long run Phillips Curve tells us that any anticipated inflation is possible at the natural unemployment rate.

According to this theory, if the unemployment rate drops below its natural rate then the demand for labour tends be higher, hence the wages raise quickly, the increase of the cost for goods and services follows and inflation rises. The central bank then, usually, takes action by increasing the interest rates. The result will be expensive borrowing for companies and for individuals, so the growth and the consumption will slowdown. As a result the economy will become smaller and weaker.

A study by Bentolila, Dolado & Jimeno (2008), shows that immigration can play a key role in helping inflation and unemployment to remain low in the host country's economy. It is known that when inflation is low the central banks tend to keep the interest rates low fuelling the economy with cheap loans. So the immigration effect on inflation according to this study can indirectly help the economy to grow, thus keeping unemployment low.

Bentolila, Dolado & Jimeno (2008) examine the interaction amongst immigration, unemployment and inflation in Spain over the period 1995-2006.

The study shows that unemployment decreased substantially from 22% to 8%, while inflation remained nearly unchanged, initially falling from 4% to 2% and then after 2000 climbing again to 3-4%. Immigration was sharply increased from about 350,000 in 1991 to about 4.1 million in 2006. The study provides evidence that the fall in the average unemployment rate over the last 8 years would have caused an increase in the inflation rate by an estimated 2.5% per year. However, the high influx of immigrants in low wages industries offset this potential inflation by an estimated 2.2% per year. From this empirical study it seems that an influx of immigrants, in the short run, can maintain the inflation rate unchanged although unemployment falls below its natural rate, see graph 2.3 below.





 ϕ = inflation

U1= Unemployment before migration

U2= Unemployment after migration

The curve SRPC 1 (before migration) slopes down from left to right showing a combination of unemployment and inflation. In the next slope SPRC 2 (after migration) inflation expectations are not higher. The result shows lower unemployment and unchanged inflation.

Investigating further the effects of immigration on inflation it is found that there are contrasting effects in the relationship between immigration and prices when we examine the immigration effects on housing cost.

Directly focused on the impact of immigrants on housing price and supply studies ,e.g. see Lee & Tutchener (2001), Duffy, Gerald & Kearney (2005), Saiz (2006) and Gonzalez & Ortega (2013), argue that immigration has a positive effect on rents and housing prices in the destination areas. The demand for rents increases in the short run, and then the housing price increase follows.

Lee & Tutchener (2001) examining the house prices in Canada during the 80s and 90s find that immigration ties closely to the housing price take off for the leading immigration cities of Toronto and Vancouver. These cities were attracting both, plain

foreign workers and very rich business immigrants. Thus immigration enhanced the inflating house and rental cost.

Duffy, Gerald & Kearney (2005) examine the rising of house prices in Ireland. They find that house prices in Ireland doubled between 1996 and 2002. The big surge of immigrants during this period is responsible for approximately 10 per cent of the total housing demand.

Saiz (2006) uses an empirical model to examine the immigration effect in housing rents and prices in American cities. The study uses data of immigration inflows for 1993 metropolitan areas from 1983 to 1997 and finds positive effects of immigration on demand for rents and housing prices. An immigration inflow equal to 1% of a city's population causes an average increase in housing rents and prices of about 1%.

A recent study by Gonzalez and Ortega (2013) contributes further to this debate. They argue that immigration is responsible for an annual increase in housing prices of about 2 percent, and for a 1.2–1.5 percent increase in housing units over the period 2000-2010 in Spain.

The examined literature shows that immigration affects positively the rents and housing prices while for any other good or service the effect in prices is generally negative.

Overall the effect of immigration on inflation appears to be negative. On one hand Immigration has positive effects in prices of some goods and services such as housing and renting due to an increase of demand of those products in the host country. On the other hand since immigrants' purchasing power parity, on average, is lower than that of natives; immigrant easier than natives accept and receive lower paid jobs at given productivity levels. So marginal costs, probably, tend to fall as immigration increases and that helps companies to better control their prices. Also immigrants are more mobile and they spend more time doing market research for better prices in comparison to natives. Hence, now the effects of immigration in prices are probably negative at least in the short term. The balance of the above opposite effects in prices indicates the effect of immigration on inflation.

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2.3.2 Immigration and aggregate supply

Arguably immigration affects the aggregate supply of the host economy. A surge of immigrants in the host labour market causes an increase in the proportion of the population in the labour force (taking into consideration that the proportion of immigrants who are of working age is typically higher than for natives)⁶.

Economic theory suggests that the supply capacity of the economy depends on the amount of capital and labour, and the efficiency with which capital and labour are being combined so as to produce output. Immigrants increase the labour force and theoretically they may encourage companies to invest in more equipment and machinery, hence the supply capacity of the economy increases.

Research findings (see, e.g., Card; 2009, Olney; 2013) suggest that immigration stimulates investment and increases the size of the economy. Card (2009) asserts that the expansion of firms by adding establishments is consistently due to migration into the U.S.A. Olney (2013) finds that immigration has a positive impact on the establishment of new firms in U.S. cities. Most of these firms are small size, low-skill intensive industries.

2.3.3 Immigration and labour supply

Mundra (2005) points out that most of the literature argues that migrants tend to go where labour demand is high and they tend to settle where there are already big immigrant populations.

An economic decision to migrate will probably reflect a comparison of perceived living standards in the host and the source countries. Posso (2012) argues that there

⁶ See Quarterly Labour Force Survey (QLFS), conducted by the Office for National Statistics (ONS), and represent quarterly (October-December) cross-sections over the period 1992-2010.

is significant positive relationship between remittances and aggregate labour supply. The study uses international data sources in order to examine the effect of remittances on labour supply choice among a sample of sixty-six developing nations.

The main assumption of the seminal Harris–Todaro model (1970) is that the migration decision is based on expected income differentials between rural and urban areas, net of migration costs. Based on this theory we expect that an individual will attempt to migrate if the destination market offers higher net returns. So;

$$PM_t = F(G_t) \tag{1}$$

Where PM_t is the probability that the individual moves in time t and G_t is the discount net gain from moving.

$$G_t = U_t - Y_t - C_t \tag{2}$$

Where U_t is the present value of the expected real income stream if the individual migrates in time period t, Y_t is the present value of the expected real income stream in the current location at time t, and C_t are the costs of migration.

If $G_t > 0$ then the individual is assumed to migrate.

Immigrants from countries with lower standards of living than that of the United Kingdom will, according to this argument, consistently be motivated to travel to the UK because of an expectation of higher wages. On the other hand, potential immigrants from countries with standards of living similar to the United Kingdom's, may find that their motivation fluctuates with cyclical movements in wages and the probability of finding work. See, Bartel (1979), Ellis, Barff and Renard (1993), Dustman and Yoram (2007), Cushing & Christiadi (2008).

Bartel (1979) investigating the geographical mobility of the population in the United States finds that there is a close relation between migration and work. She concludes that job-transfer-initiated moves led to higher earnings, while other kinds of job-change-initiated moves did not.

Ellis, Barff and Renard (1993) investigate the migration patterns of occupational groups in the USA. The study finds that there are differences in movement behaviour among occupations and also among the industrial sectors. Individuals in high-skill occupations are more likely to move and are more willing to move long distances than those in unskilled occupations.

Dustman and Yoram (2007) discuss migration that is temporary. The study considers three motives for temporary migration: (i) differences in relative prices between host and home country, (ii) complementarities between consumption and the location where consumption takes place, and (iii) the possibility of accumulating human capital abroad, which enhances the immigrant's earnings potential back home.

Cushing & Christiadi (2008), examine the relationship between individuals' occupational and destination choice in the United States. The study finds that individuals are more likely to choose the same occupation they had before relocation. Education affects their occupation choice - also whites are more likely to choose professional and managerial occupations than non-whites.

A net inflow of immigrants normally increases the aggregate supply of labour to companies. Immigrants may also have a further impact on labour supply if their skill composition and the hours they are willing to work are different than that of the average UK worker. Most of the available literature argues that the shift in labour supply due to immigration lowers the real wage of competing native workers. Additionally, as long as the native supply curve is upward sloping, immigration is expected to reduce the amount of labour supplied by the native workforce.

What is important to the companies is how easily job seekers can fill vacancies. Frijters, Shields & Price (2005) examining the main immigration groups in the UK find that immigrant job search is less successful than that of natives; also ethnic minority UK born are less successful than the white UK born men in their search for employment. Surprisingly, white male immigrants' probability of finding a job is most similar to that of an average white UK born male especially in the long term (24 months unemployment duration). Black immigrants and, especially, South Asian immigrant men are much less likely to find a job than all other groups, regardless of the time horizon. Finally other (ethnic minority) immigrants have a similar job-finding probability to that of ethnic minority UK born men.

2.3.4 Immigration and capital stock

As has already been discussed, when immigrants enter the host country the population and labour force increase, hence the demand for goods and services increases. This leads companies to look for more capital and labour; as the work force increases, the output that is produced from an additional unit of capital increases. The companies' expectations for higher revenues rise since the number of the potential consumers increases due to migration. Hence new capital is expected to be generated. However this is a theoretical approach since the economic impact of inward migration heavily depends on the labour market context of the host country. The economic impact depends on the skill composition of the existing population and of the would-be immigrants, on how flexible the labour market institutions are and how rapidly the demand for labour is growing. If the inflow of immigrants contains highly skilled individuals who are capable of innovative work in the R & D sector then technical progress could be accelerated, leading to more productive combination of capital and labour.

Research by Lewis (2006) and Cohen and Hsien (2000), shows that immigration positively influences the capital accumulation in the host country.

Lewis's (2006) paper explores the impact of local workers skill supply on the use of automation technologies at manufacturing plants in the USA. The study finds that companies' investment decisions may be affected by the balance between skilled and unskilled workers. So if immigration affects the skill mix of the host country then there are incentives for the companies to introduce new capital intensive technologies. Cohen and Hsien (2000) investigate the effect of more than 710,000 Soviet Jewish immigrants into the Israeli economy in the early 1990s. The study shows that the working age population was increased by 15%. The rate of return on capital was increased sharply and this led to a sustained increase in investment in machinery and equipment.

Overall it seems that an inflow of immigrants eventually leads to an increase in the size of the capital stock and therefore the supply capacity of the economy.

2.3.5 Immigration and aggregate demand

It has already been argued that newly arriving labour generates demand for locally produced goods and so the labour and production markets reach a new equilibrium at new wage and employment rates.

Mundra, K. (2005), examining the effects of immigration in the United States economy shows that different immigrant groups with different occupations and different settlement patterns enter the host country as human beings with different cultures, cuisines and life styles. They have different demand patterns than natives and, in particular, demand products from their home countries, thus influencing imports. An inflow of immigrants will boost the level of demand, as well as supply. The increasing aggregate demand prompts an increase in the size of the capital stock and this investment is itself a further increase in aggregate demand.

A net inflow of immigrants can also affect other components of demand. Gott and Johnston (2002) argue that immigration can affect government spending in the UK. And also an inflow of immigrants can affect the demand for UK exports, as discussed above (see immigration and trade).

Endogenous growth theory suggests that the rate of growth of the economy depends in part upon the extent of "learning by doing", and thus upon the level of activity. This provides a possibility of increasing returns to scale - Increased aggregate demand, for instance through government spending, or higher exports, gives a potential for further increases in productivity. So, since immigration can affect aggregate demand, it therefore can potentially influence the growth rate of the host economy.

2.3.6 The overall macroeconomic effect of immigration

Classical economic theory predicts that, in the short run, when aggregate demand and aggregate supply increase then GDP increases. This leads firms to raise their prices, hence inflation is being triggered, and also many consumers decide to buy less due to high prices. Eventually, as inflation escalates, in the long run, real GDP falls back. However from the literature we examined in this survey it has been shown that migration can have a positive macroeconomic effect in the destination economy. The interference of migration causes higher aggregate demand and higher aggregate supply keeping the inflation low which results in real GDP permanent increase. See graph 2.4.





Where

LAS₀= Long-run aggregate Supply curve before immigration LAS₁= Long-run aggregate Supply curve after immigration SAS₀=Short-run aggregate Supply curve before immigration SAS₁= Short-run aggregate Supply curve after immigration AD₀= Aggregate demand curve before immigration AD₁= Aggregate demand curve after immigration P₀= Price level before immigration P₁= Price level after immigration Yo=GDP before immigration Y1=GDP after immigration

In graph 2.4 we can see the equilibrium of the host economy before and after immigration.

An increase in aggregate demand shifts the aggregate demand curve from AD₀ to AD₁. Real GDP increases from Y₀ to Y₁ and the SAS curve moves downwards. In the short run equilibrium, real GDP is Y₁ and the price level falls to P₁. In this situation there is a deflationary gap⁷. The money wage rate falls (immigrants receive lower wages than natives) and the short-run aggregate supply curve shifts rightwards from SAS₀ to SAS₁. As it shifts, it intersects the aggregate demand curve AD₁ at lower price level and increases real GDP level. Eventually in the long-run LAS₀ shifts rightwards to LAS₁ and real GDP shifts from Y₀ to Y₁.

Examining the macroeconomic impact of immigration in the host economy we saw that immigration increases the levels of both aggregate demand and aggregate supply. This leads to an increase of the economic growth rate. Also most of the available literature argues that immigration affects the balance between demand and supply in a way that keeps inflationary pressure low. So it can be concluded that natives gain twice since immigration boosts the growth rate of their economy and eases inflation.

⁷ The available literature provides evidence that immigration either keeps inflation unchanged or lowers it tackling the inflationary pressures from the aggregate demand and supply. In graph 1.4 we use the second evidence and we assume that immigration lowers the inflation.

2.4 Skill level of immigrants and economic returns

As human capital is an important factor of production, the skills that immigrants bring to the labour market are, arguably, of considerable interest in the host country. More educated immigrants are more effective in the transition to the destination country and they benefit relatively more from the education they bring from their homeland and from any additional education they may acquire in their new country, see Ferrer and Riddell (2008) and Danceshvary (1993). Previous research has found evidence within the relationship between earnings and education, see Card (1999). Undoubtedly higher education leads to higher probability of work, higher earnings and more prestigious jobs. However, foreign qualifications increase the likelihood of mismatch between credentials and occupations, see Lindley (2007) & Battu and Sloane (2004), with different ethnic groups to exhibit different levels of mismatch.

Ferrer and Riddell (2008) use 1981 to 2001 Census data to analyse the contribution of credentials to immigrant earnings in Canada. They find that immigrants without postsecondary credentials receive lower returns to years of schooling and experience than the natives. In contrast, immigrants who have completed higher educational programs receive substantial earnings associated with their credentials. These earnings are as *high* as the natives' ones. Also they find that immigrants who move young to Canada and complete their education there are not discounted by the Canadian labour market.

Highly educated immigrant and native workers are found to be imperfect substitutes in the US labour market, see Danceshvary (1993) and Peri & Sparber (2011). Danceshvary (1993) examines the earnings differentials between college educated immigrants and natives in the USA. The paper argues that one half of all professional immigrants come from the potential pool of foreign students or exchange visitors. These immigrants are most likely to be fluent in English and have obtained relevant skills and knowledge. The research was confined to the non-black native and immigrant males with at least one degree and of age 24-65. The study shows that immigrants are more likely to be in engineering, health and postsecondary education, while natives are more likely to be in managerial,

humanities and technical occupations. The study finds a lack of difference in returns to education and U.S labour market experience between natives and immigrants.

Peri and Sparber (2011) contribute to the debate by arguing that immigrants in the United States with graduate degrees specialize in occupations demanding quantitative and analytical skills, whereas their native-born counterparts specialize in occupations requiring interactive and communication skills.

Mismatch between foreign qualifications and occupations has been documented by a large body of literature, see (e.g. Lindley; 2007, Battu and Sloane; 2004, Imai, Stacey and Warman; 2011, Tani; 2012, Aleksynska and Tritah;2012)

Lindley (2007) examines the incidence of over and under education and the effect on earnings for immigrants and natives who hold UK qualifications. This study shows that, in terms of highest British NVQ (National Vocational Qualification) levels, immigrants are better educated on average compared to native born workers. According to the study the most recent immigration surges are more likely to experience over-education, however no strong evidence of economic assimilation was found. All non-white native men (with the exception of Black Caribbean natives), Black African immigrant men, other non-white immigrant men, as well as Indian and Pakistani native women are more likely to be over-educated compared to white natives. In terms of the returns to education and the effect of over-education on earnings, South Asian men (immigrants and natives), White immigrant men, Black native women, White native women and White immigrant women all exhibit high penalties on earnings and the reason is the varying level of mismatch between education and occupation.

Battu and Sloane (2004) examine the utilisation of education across ethnic minorities in the UK. They show that workers from different ethnic groups have varying levels of mismatch between education and occupation and also that the holding of foreign qualifications increases the likelihood of mismatch for members of some ethnic groups but reduce it for others. For non-whites, the study reveals evidence that the effect of an over-education on earnings is larger for immigrants compared to those born in the UK.

Imai, Stacey and Warman (2011) examine the ability of male immigrants to transfer their occupational human capital in the Canadian labour market. They find that the initial employments in Canada for those with previous high skilled jobs in the source countries are worse than their previous occupations before they migrate.

Further studies discover that variations in the returns to foreign education across source countries are related to differences in school quality in the country of origin. Bratsberg & Terrell (2002), Bratsberg & Ragan (2002) for the U.S find significant differences on earnings between immigrants who completed their education in the U.S. and those who did not. Hartog & Zorlu (2009) shows no returns to education for refugees admitted to The Netherlands.

Bratsberg & Terrell (2002) use 1980 and 1990 U.S census data and investigate the rates of return to education for male immigrants from 67 countries. They examine the influence of source country school quality on the returns to education of immigrants in the U.S. labour market. The study reveals that the return to education is high, sometimes similar to that of natives, for immigrants who come from nations with high-quality education such as Japan, Australia, Canada and northern European countries, with the lowest returns to education of immigrants from nations with generally low quality education systems such as the Caribbean countries.

Bratsberg and Ragan (2002) use 1970, 1980 and 1990 U.S. census data for male immigrants, from 87 nations, and compare the returns to education of immigrants who complete their schooling in the U.S.A and those who completed their schooling in the source country. The study shows that returns to education are higher for immigrants: a) from developed countries with English as official language, b) when immigrants complete their schooling in the U.S.A., and c) when their level of education exceeds eleven years of study.

Another study by Hartog & Zorlu (2009) contributes to the literature showing that the school quality acquired in the source country matters in the destination country. They use data on refugees admitted to The Netherlands that include registration of education in their homeland. Refugees are people from developing countries with political instability and maybe war. The paper investigates the quality and reliability of

the registrations and then uses them to assess effects on refugees' economic position during the first 5 years after arrival. They find that for refugees higher educations acquired at home generally do not pay off during the first 5 years in the Dutch labour market.

Human capital is an important factor of production and arguably it is widely believed that an inflow of low quality workers can lower the average human capital, forcing the host economy towards a lower welfare level while highly skilled immigrants can have positive welfare effects in the host country see Carillo & Vinci (1999). An influx of immigrants will possibly involve changes of the labour skill composition in the host country. Economic theory argues that changes in the labour skill composition might lead to disequilibrium between supply and demand of different labour types at existing wages, prices and output levels. Restoration of equilibrium will cause short run changes in employment and wages levels and also may require long run changes in the host economy.

Carillo & Vinci (1999) analyse the impact of both the number of immigrants and their human capital on the welfare of the host country. The study shows that if immigrants' human capital is higher than that of natives then the host country benefits; there is a positive interrelation between the skills of natives, the skills of immigrants and the firms' level of physical capital. On the other hand if immigrants' human capital is lower than that of natives then there may be a negative impact on the welfare of natives, on the skills of native workers and on the physical capital of firms.

The foreign labour market experience appears to be valued less in the destination country. Studies by Aydemir & Skuterud (2005), Funkhouser & Trejo (1995) in Canada and USA respectively show lack of returns to foreign experience. The papers show a decline to returns over time which is, largely, due to shifting source country composition from English speaking, European to non-English speaking and non-European source countries. Both studies emphasize the importance of accounting for where immigrant human capital was acquired. Foreign experience for both Canada and USA appear to account for lower returns for immigrants from developing countries.

Aydemir and Skuterud (2005) use 1981, 1986, 1991, 1996 and 2001 Canadian Censuses data to explore causes of the deterioration in entry earnings of immigrant men and women who entered the Canadian labour market from the late 1960s to the early 1990s. The study finds that the foreign labour market experience is being discounted in the Canadian labour market. The shift of new immigrant cohorts away from the traditional European source countries to non- traditional Asian source countries and their inconsistency in one of the official languages causes a strong decline in new immigrants entry wage returns. In contrast to other papers see, Bratsberg and Ragan (2002), this study finds weak or no evidence that declining returns to foreign education are responsible for the deterioration.

Funkhouser and Trejo (1995) use 1940-1980 Census data to examine the education and earnings of male immigrants in the USA. They find that the share of immigrants originating from Europe and Canada fell sharply during the post war period, whereas immigration from Asia and Latin America increased. Immigrants who arrived during 1980s are less skilled than 1970s arrivals, who themselves are much less skilled than earlier immigrants. Only immigrants who came at the very end of the 1980s are more skilled than those who arrived earlier in the decade. The study shows that more recent immigrants in the USA are less educated and have been less successful in the labour market than their predecessors.

Overall, most of the studies indicate that immigrants arriving young in the host country are much more similar to native-born workers than to their adult-arrival counterparts. Education appears to be a core variable in analyses of immigrants' economic success in the host countries. Immigrant years of schooling and immigrant work experience accumulated before arrival are generally valued less than host country schooling and work experience of comparable natives. The returns to foreign education and work experience across source countries are related to differences in school quality and GPD level in the country of origin.

2.5 Immigrants' economic assimilation

Evidence has been documented by a series of papers arguing that immigrants have a strong incentive to acquire human capital which is specific to the labour market of the host country, see Chiswick (1978), Abramitzky, Boustan, Leah and Eriksson (2012), Dustman (1994), thus quickly improving their relative position in the foreign labour market.

Most of the studies show that the assimilation process reduces the employment and earnings gap between immigrants and natives, see (e.g. Kossoudji; 1988, Heather and Friedberg; 2000, Kuhn, and Trejo; 2006), until immigrants, eventually, diminish the gap with the natives substantially. The methodology these studies use allows identification of an assimilation profile and an indication of whether immigrants eventually 'catch up' to the labour market outcomes of natives.

An early study by Chiswick (1978) analyses the earnings of foreign-born white men aged 25-64 using 1970 U.S census of population data. The study shows that upon arrival immigrants earn substantially less than natives. After five years in the U.S they earn 10 per cent less than the natives. However white immigrants appear to be positively self-selected and this result in that after 13 years their earnings are approximately equal with natives and 6 per cent higher after 20 years. Overall in 1970 white adult immigrants earned 1 per cent less than their native counter parts. A recent study by Abramitzky, Boustan, Leah and Eriksson (2012) contribute to this debate; they use cross-sectional data to examine the assimilation process of the millions of European immigrants entered the US during the age of mass migration⁸. The study finds that immigrants initially faced an earnings penalty by receiving low-paid jobs. However they experienced rapid assimilation over time and they escalated at the stage enjoying the same occupations and rates with natives.

⁸ The age of mass migration is referred to mass migration that took place between Europe and the New World -North and South America and Australasia- between 1850 and 1914. During this period around 55 million Europeans migrated to the New World.

Salehin, and Breunig (2012) use a panel data model for the period 2001-2009 to examine the wage gap and assimilation of immigrants in Australia. They find that years of residency in Australia is a strong factor of economic assimilation. The wage gap for all immigrant men is larger than what is usually found by other studies. Recent immigrants face a smaller wage gap compared with earlier immigrant cohorts, especially from those who arrived in Australia before 1976.

Dustman (1994) using data from the German labour market shows that immigrants' economic and social assimilations are correlated. The study shows that education, years of residence and language proficiency strongly affect the assimilation process. Personal characteristics such as the nationality and the family context are also important with intermarried immigrants to assimilate faster.

The majority of the literature that examines the economic assimilation of immigrants in the destination countries sees immigrants as sole individuals assimilating in a large unknown labour market. However there are a respectable number of studies that examine the economic assimilation of immigrants as ethnic groups see (e.g. Hatton and Leigh; 2011 and Yaya; 2012). These studies assert that the characteristics of the immigrant ethnic groups are as important as the individual characteristics in determining immigrants' assimilation; for example the longer the immigrant community has been established, the better its members assimilate.

By using data from a 5% sample of the 1980, 1990 and 2000 US censuses Hatton and Leigh (2011) contribute to the debate by arguing that immigrants integrate to the host countries as communities not as individuals. Yaya, (2012), use a crosssectional regression to analyze the determinants of income and education inequality across immigrant groups in the USA. The data are from the American Community Survey (ACS) 2010 cohort. He argues that immigrant groups have been well assimilated as soon as they exhibit income and education distributions similar to that of natives.

More literature, see Kossoudji (1988), Heather, Friedberg (2000), Kuhn, & Trejo (2006), Amuedo-Dorantes, & De la Rica, (2007), and Friedberg (2000), enhances the notion that the assimilation process depends to a large extend on immigrants **66** [P a g e

status. Kossoudji, (1988), uses data from the 1976 Survey of Income and Education (SIE) and examines the assimilation of employment and earnings for foreign born Hispanic men, foreign born East Asian men and for native white men in the United States of America. The study suggests as in Barry & Chiswick (1980), Hatton and Leigh; (2011) and Yaya; 2012, that immigrants' assimilation process differs by ethnic group. White natives and Asians show a much higher return to U.S. experience than that of Hispanics. Also the timing of immigration appears to be more important than the time immigrants spend in the host country with immigrants who arrive early and complete their education in U.S to assimilate quickly.

Heather, Kuhn, & Trejo, (2006), use data from the 1981 and 1991 Australian and Canadian censuses and the 1980 and 1990 U.S. census and estimate the assimilation process of foreign born men in the three countries. They find that after arrival in the host countries all immigrants, initially, exhibit higher unemployment than natives. The employment deficit they experience appears to be much higher in Australia and in the U.S than in Canada. In terms of earnings the study shows that upon arrival the penalty in returns is very large in United States, smaller in Canada and it is actually negative in Australia. During their first decade in Australia and United States, the majority of immigrants, exhibit their employment assimilation process, whereas in Canada it rises more continuously with duration of residence. Earnings grow with duration of staying the most for immigrants in the U.S and the least for immigrants in Australia.

Amuedo-Dorantes, & De la Rica, (2007) examine the assimilation process of recent immigrant waves to the Spanish labour market. They use data from the 2001 Population Census and from the 2002 Earnings Structure Survey. According to the study, immigrants face higher unemployment rates than similarly skilled natives upon arrival. The employment deficit varies by gender and immigrants' origin from 4% to 15% in comparison to their native counterparts. They find that the immigrants with the fastest assimilation rate are the Latino ones, probably due to their Spanish language proficiency advantage, while on the other side African immigrants show no assimilation patterns.

Friedberg (2000) analyses the earnings assimilation of immigrants in Israel. The survey uses a 1983 sample of 54103 individuals and examines the earnings of male immigrants aged 25-65. It is found that upon arrival immigrants earn approximately 25% less than natives. The returns to foreign education and work experience are higher for European and American immigrants than for Asian and African ones. Assimilation is obtained with the residence duration in Israel with educated immigrants to assimilate faster.

Further literature by Barry & Chiswick (1980), Shields and Wheatley Price (1998) & Clark & Lindley (2009), shows that the immigrants' type and ethnicity play a very important role in the assimilation process. They find substantial differences in the labour market performance among different ethnic groups. White immigrants appear to be more successful in the foreign markets than their non-white counterparts. Some studies show that non-whites receive differential treatment in the UK labour market, see Blackaby et al. (2002). However non-white immigrants with tertiary education, see Clark & Lindley (2009) are as successful as their white counterparts.

Barry & Chiswick (1980) examine the earnings of white and coloured male immigrants in Britain. They use a single cross section of the 1972 General Household Survey including 10.000 households in Britain. The paper discovers that white immigrants earn approximately as much as their native counterparts. Nonwhite immigrants have about 25% lower earnings, other things equal. The study finds no statistically significant role for years since migration, controlling for other things.

Shields and Wheatley Price (1998) use LFS data from 1992 to 1994 and examine immigrant earnings in the UK. The study finds differences in earnings between white and non-white immigrants. Human capital obtained in the UK is rewarded better in the UK labour market than human capital obtained abroad. White natives receive higher returns in comparison to any other ethnic group that acquired UK education. Native-born non-whites and white (other) immigrants benefit more from this education than their non-white immigrant counterparts.

Blackaby et al. (2002) find evidence that non-whites receive differential treatment in the UK labour market. The study focuses on British born ethnic groups and shows that blacks and Pakistanis exhibit severe disadvantages in earning and employment levels.

Clark & Lindley (2009) use Labour Force Survey data over the period 1993–2004 and estimate employment and earnings for white and non-white immigrants in the UK. The study distinguishes the immigrants into two categories, a) those who arrived to enter the labour market and b) those that arrived to complete their education. White immigrants appear to be more successful than their non-white counterparts in terms of employment and earnings. They find that amongst immigrants who arrived to enter the labour market, whites (immigrants and natives) have approximately the same employment rate in contrast for non-whites who are lower by up to 9%. Amongst immigrants who arrived to complete their education, highly qualified nonwhites appear as successful as their white counterparts. Relative to white natives, labour market outcomes for all immigrant groups have a tendency to decline with age.

Further research by Edin et al. (2000) and Husted et al. (2004) in Swedish and Danish labour markets respectively finds partial assimilation. Both Nordic studies, as in Barry & Chiswick (1980), Shields and Wheatley Price (1998) & Clark & Lindley (2009), explain that the assimilation process is closely related with the ethnicity and the type of immigrants. Edin, LaLonde and Aslund (2000) use 1970-1990 longitudinal data on immigration to Sweden and examine the earnings assimilation effects for Nordic, OECD and non-OECD immigrants. The study shows that non-OECD immigrants, initially, exhibit bigger earnings disadvantages in comparison to their Nordic and OECD counterparts. However a few years after arrival non-OECD immigrants are the only group that shows significant earnings assimilation effects. Further the study discovers that neither immigrants from OECD countries (including Nordic immigrants) nor non-OECD immigrants reach earnings parity with natives.

Husted, Skyt Nielsen, Rosholm and Smith (2004) use 1995 sample data of individuals and immigrants aged 20-59 years in Denmark and estimate the assimilation effects on employment and wages in the Danish labour market. They

use a panel selection model and they find as in Edin, LaLonde and Aslund (2000) that immigrants assimilate partially to natives, but that the assimilation process depends on immigrant status. The labour market outcomes of those initially admitted as refugees fall significantly short of other immigrant groups and of natives.

Concentration in enclaves does not offer economic benefits to immigrants in the UK according to Clark and Drinkwater (2002). Instead minority groups living in highly concentrated areas experience higher unemployment rates. In this thesis by using 2006-2010 QLFS data (see chapter five) we find that concentration of some immigrant communities within national enclaves enhance the self-employment rate of their members while there are negative effects for others.

Further studies discover that the socioeconomic situation of the receiving country also matters in the assimilation process, see Durkin (1998), Barth et al. (2004), Chiswick and Miller (2012). The assimilation is not just a process that solely depends on the duration of stay and the immigrants' status.

Durkin (1998) uses a theoretical model examining the welfare impact of immigration and the increasing ethnic diversity. The study concludes that the welfare can rise if the diversity caused by immigration increases the level of human capital in the destination country. It has also been suggested that assimilation cannot be achieved if the home country is too diverse or too homogenous since the cost of assimilation exceeds the benefits.

In periods of economic worsening immigrants appear to suffer more than natives, see Barth et al. (2004), and the impact upon assimilation is negative. Barth, Bratsberg and Raaum (2004) use Norwegian register data from 1980 to 1996 and examine the unemployment effects on immigrants and natives earnings in Norwegian labour market. They find that the earnings gap between natives and immigrants is significantly greater when unemployment is high.

Negative assimilation has been found for certain groups of immigrants living in the United States. This occurs only for those with highly transferable internationally skills (Chiswick and Miller; 2012). According to the study this arises from a 'decline in the

wages afforded by skills coincident with the duration of residence and it occurs only for immigrants from English-speaking developed countries'. Immigrants from other countries experience positive assimilation. Further to the above conclusion the study asserts that negative assimilation occurs for immigrants from English-speaking developed countries living in Australia and for immigrants from Nordic countries living in Sweden.

Using data for recent trends in migrants' flows and stock in the UK (OECD 2010), ⁹ table 2.1 and graph 2.5 suggest, as in Barth et al. (2004), that immigrants form a more susceptible group than natives; in periods of high average unemployment, e.g. 1995, the unemployment gap between natives and immigrants is very high in favour of natives. In periods of low average unemployment, e.g. 2008, the unemployment gap between natives to close.

Macroeconomic indicators: United Kingdom					Average	
Annual growth%	1995	2000	2007	2008	1997-2002	2003-2008
Real GDP	3.1	3.9	2.6	0.5	3.1	2.3
GDP/capita	2.8	3.6	1.9	-0.1	2.8	1.7
Unemployment	8.6	5.5	5.4	5.7	5.8	5.2

Source: OECD 2010

In table 2.1 it is shown that in 1995 the average unemployment is relatively high 8.6%, the unemployment rates for foreign-born men and women are 14% and 11% respectively- approximately 50% higher than the unemployment rates for native-born men and women 9.9% and 6.7% respectively (see graph 2.5) Five years later in 2000 the macroeconomic indicators improve and the average unemployment drops to 5.5% but the unemployment rates are still significantly higher for immigrants. However it seems that for the next 8 years the economy is stable and strong and the average unemployment remains low. Then the assimilation process works and the

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unemployment rate gap between natives and immigrants shrinks substantially and becomes much smaller than 8 years before.



Arguably, immigrants' language proficiency in the host country is an important factor of economic assimilation. A series of studies, (see Chiswick and Miller; 2002, Chiswick, Lee and Miller; 2005, Chiswick and Miller; 2012, Bleakley and Chin; 2004), document evidence that immigrants who are fluent in the destination country receive significantly higher labour market returns than those who are not fluent. Immigrants' language skills found to be related to their time of residence, age at entry, and educational background. Also more general host country human capital (like intermarriages) has positive effects on immigrants' earnings; see Meng and Gregory (2005).

Chiswick and Miller (2002) find a strong correlation between immigrants' language competence and earnings in the destination country. The study uses data from the 1990 U.S Census of Population regarding adult foreign-born men from non-English speaking countries. They find that the ones who are fluent in English earn about 14% more than those lacking fluency.

Chiswick, Lee and Miller (2005) examine the level and growth in earnings of adult male immigrants in their first 3.5 years in Australia. They use longitudinal data of Immigrants aged 15 years and over who arrived in Australia form September 1993 to

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August 1995. The study shows that the English language proficiency, the Australian work experience and the credentials acquired in Australia are valued more than any other qualifications or work experience migrants might have. So immigrants with high level of the above human capital see their earnings grow faster than the ones with lower similar human capital. However, after 3.5 years in Australia assimilation seems that it does not occur. This result cannot be surprising since most of the literature shows that immigrants need 10 years or more in the destination labour market so as to assimilate with the natives. Chiswick and Miller (2012) suggest that the degree of assimilation of immigrants is related with the linguistic distance between home and host countries.

A clearly positive effect of English language proficiency on earnings has been found by Bleakley and Chin (2004), Using individual-level data from the 1990 U.S. Census, among immigrants who moved to the United States as children. The study finds that young children learn English easier than their adolescent and adult counterparts and that results in, as adults, to receive higher labour market returns than individuals who migrated older in the U.S.A.

Meng and Gregory (2005) use 1981-1996 data from the Australian census and like Dustman (1994) they find that intermarried immigrants earn significantly higher incomes than endogenously married immigrants or immigrants intermarried into another ethnic group.

The literature shows that immigrants in most countries exhibit lower employment and wage levels compared to natives. The explanation given by most of the studies has to do with the human capital differences between immigrants and natives. The macroeconomic situation and the social diversity of the host country are some further explanations. Also some researchers believe that in some cases discrimination against immigrants is another reason. A series of studies in the U.K show that non-white immigrants receive lower rewards to given levels of human capital than the white ones, see Barry & Chiswick (1980) & Shields and Wheatley Price (1998). However non-white immigrants with higher education, see Clark & Lindley (2009) are the same successful as their white counterparts.

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Most of the assimilation studies claim that the initial gap in wages and employment between immigrants and natives tend to close overtime. They find that immigrants' earnings increase at a decreasing rate. This happens due to investments in host country human capital (e.g. credential acquisition, language proficiency acquisition and more general host country human capital) by immigrants.

Conclusions

Immigrants are self-selective workers with particular set skills and attributes. The Neoclassical theory as a dominant theory in migration economics assumes that individuals only move to a new country that maximizes their well-being.

Literature of specific migration experience has been surveyed in this chapter so as to summarise the economic effects of migration in the host labour markets. A series of studies find that immigration enhances the bilateral trade between home and host countries leading to trade creation. In most cases it is found that the home countries benefit more than the destination countries because their exports increase more than their imports due to immigration. This occurs due to a number of reasons such as immigrants having a high desire to consume their home country products, they have better knowledge of their home land markets; they reduce the transaction costs etc. Also, it seems that the bilateral effects analysis, in most of the available literature, is based solely on the immigrants' side - their countries of origin, skill levels etc. The literature has not yet thoroughly considered the receiving environment – the host country's size, industrial mix, stage of development, immigration policies etc., and the extent to which these factors influence cross-border trade.

The distribution of skills between natives and immigrants appear to play a key role in the effects of migration on the native labour force. It is found that the wages of the low skilled natives are influenced little but negatively by low skilled immigrant workers. However the higher wages of the skilled natives seem unchanged. Furthermore most of the literature finds evidence of no or very small effect of immigration on employment. Immigrants in the destination country are also consumers and they have to satisfy needs such as housing, food, clothes, etc. This causes an increase in the aggregate demand of the host country. Additionally immigrants are also part of the work force and thus they contribute to the production of goods and services in the host market. This leads to an increase of the aggregate supply.

Most of the literature argues that immigration acts so as to keep the prices low and thus ease the inflation. The only sector of the economy that suffers inflation because of immigration is the housing sector. The increase in demand of the houses due to migration, according to most of the studies, is higher than the supply of new houses. However the evidence suggests that the overall immigration effect in the balance between the aggregate demand and supply in the host economy is negative and thus keeps the inflationary pressure low. This leads to real GDP increase.

Education appears as one of the most important variables in analyses of immigrants' economic success in the destination country. However schooling and work experience acquired before migration are valued less than education and experience obtained in the destination country. Immigrants who arrive young in the host country show much more employment and earnings similarities to native-born workers than to their adult-arrival counterparts. Furthermore immigrants show a strong incentive to acquire human capital which is specific in the local labour market. When this occurs, immigrants assimilate faster and the initial gap in wages and employment between immigrants and natives tends to close over time.

Chapter 3

Context and Foundations - A discussion of (i) the recent history of UK immigration, (ii) the characteristics of immigrants as revealed by LFS data, (iii) the methodological approach to be taken in later chapters.

Introduction

This chapter begins with a brief analysis of migration flows into the UK during recent decades. This is followed by a brief historical overview of how migration has featured within British political discourse during the post-war era. In the third part we extract information from a sequence of Labour Force Surveys in order to track the evolution of the main socioeconomic and demographic characteristics of natives and immigrants over the period 1992-2010 and compare them. Finally in the fourth part the limitations of the methodology employed for the empirical research topics in chapters 4 and 5 are justified and explained.

3.1 Migration Flows in the UK

The total number of foreign born residents in the United Kingdom in 2010¹⁰ reached 7.23 million- 11.78% of the population according to the 2011 Annual Population Survey by the ONS (office of national statistics). More than thirty per cent of all foreigners are from the European Union (2.33 million), of which 839,000 came from the 2004 A8 European accession countries mainly from Poland (550,000). Approximately, another thirty per cent are Asians (approximately 2.2 million), mostly from India (693,000) and Pakistan (433,000). The number of African citizens also rose to approximately 1.05 million .Graph 3.1 shows the 25 most common countries of birth for the foreign residents in the UK in 2010.



Source: Annual Population Survey (APS)/Labour Force Survey (LFS), ONS, 2011

An estimated 591,000 people arrived to live in the UK in 2010, see table 3.1. This is not significantly different to the previous years (567,000) in 2009 and (590,000) in 2008. Long-term immigration to the UK remained at similar levels to those seen in the last 5 years. An estimated 229,000 people emigrated from the UK in 2010, down from all previous years e.g. 368,000 in 2009 or 427,000 in 2008 etc., see table 3.1.

¹⁰ Our statistical analysis ends in 2010 and any change, in the topics we examine, after 2010 has not been investigated.

The drop from 2008 and 2009 was due to a decrease in the number of British and EU citizens leaving the UK for at least a year. Net migration (the difference between immigration and emigration) into the UK was 252,000 in 2010. This was 53,000 higher than 2009. This change is primarily a result of decreased outflows in 2010 compared to 2009 according to the Office for National Statistics (2011) - Long-term international migration (LTIM) for the UK (2000-2010) and gives a net migration figure that is similar to the level in 2004 and around 20% higher than the average over the last 5 years. The net increase of migration is substantial during the whole decade, especially for the years 2004, 2007 and 2010.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Inflow	479	481	516	511	589	567	596	574	590	567	591
Outflow	321	309	363	363	344	361	398	341	427	368	229
Balance	158	172	153	148	245	206	198	233	163	199	252

Table 3.1Migration flows in the UK per annum (thousands)

Source: Office for National Statistics (2011): Long-term international migration (LTIM) for the UK 2000-2010

In the last decade the increase in the immigration of foreign citizens largely reflects a rise in immigration from the European Union where no visa restrictions apply, especially from the new countries joined the union in 2004 and after, see graph 3.2. There have also been increases in net immigration from most other parts of the world. Among these the most important areas are the New Commonwealth, particularly the Indian subcontinent, Old Commonwealth countries (including South Africa), and the US.



Graph 3.2

Source: Office for National Statistics (2011): Long-term international migration (LTIM) for the UK 2000-2010

The most common reason for migrating into the UK in 2010, see (ONS 2011, Statistical Bulletin: Migration Statistics 2011) was formal study with an estimated 238,000 (40 per cent) compared with 211,000 in 2009. Immigration for work related reasons (definite job to go to or looking for work) was the next most common reason for immigration with an estimated 203,000 (34 per cent) and compares with 193,000 in 2009. Those stating reasons for immigration to "accompany/join" (presumably relatives) were estimated at 80,000 (13 per cent) in 2010. Most immigrants to the UK are young adults. In 2009 nearly half of all people entering the UK were aged 25–44. The number of asylum applications, according to the International Migration Outlook, OECD 2010, fell from 25.670 in 2008 to 24.250 in 2009, in particular due to a decrease in the number of applications in the second half of the year. Recent studies, (see Hatton and Tani 2005), show that these migration flows are, mostly, determined by economic conditions at home and abroad.

Immigration in the UK appears to be in a sustained increase the last decades. The overall flow of migrants to the UK is graphed in Figure 3.3. These data are from the United Nations, Department of Economic and Social Affairs, Population Division (2009) and show migration flows to the UK for the period 1970-2007. Net migration in the UK from negative -35.770 per annum in the 1970s and -1.820 in the 1980s turned to positive 62.520 per annum in the 1990s and increased more to 181.400 per annum during 2000s-until 2007.

The net migration of foreign citizens was however always positive. Hatton and Tani (2005) using International Passenger Survey (IPS) show that net migration of foreign citizens increased from 38,200 per annum in the 1970s to 44,600 in the 1980s and then even higher to 85,300 per annum in the 1990s. Obviously, the net migration of foreign citizens figures are the balance of much larger flows.



Graph 3.3

Source: United Nations, Department of Economic and Social Affairs, Population Division (2009).

3.2 Post war migration and politics in the UK

After the end of the Second World War the economies of the Western European countries began to grow rapidly, see Eichengreen (1996). Clearly the domestic workers could not satisfy the labour demand of these economies. According to Hansen (2003) most of the northern European countries looked first to south Europe, believing that such migrants could be assimilated easier into their labour markets. During that period it was not possible for the UK to attract workers from Eastern Europe due to the Iron Curtain. Also immigrants from South Europe were choosing other Central European countries as more attractive destinations than the UK due to the sluggishness of the British Economy during the early post-war years. However the UK as a former colonial power had strong relations with her ex-colonies and thus access to a huge pool of potential immigrants.

In 1948 for reasons irrelevant to immigration policy, see Carter, Green & Halpern (1996), the British government adopted legislation that transformed all colonial British subjects into citizens of the United Kingdom and Colonies. This new policy gave the right to all colonial citizens to enter the UK and to enjoy all social and political rights that the native UK citizens had and actually opened the doors for immigration. From the early to mid-1950s the British labour market could offer full employment to the new arrivals satisfying its domestic labour demand. During this period some 500,000 migrants, mostly young, single men, travelled to the UK, see Waters (1997). To understand these developments and try to weigh the influences of state policy and public opinion on policy development we need to explore British politics in the 1950s and 1960s when key decisions about immigration and race relations were made.

In the 1950s the main political powers in the UK were supporting different political ideas regarding migration, see Hansen and King (2001); the Labour party was largely in favour of colonial migration; the conservative party was more divided: their imperialist right was unwilling to exclude Canadians, Australians and New Zealanders, while the Moderates did not want to exclude only non-white colonial immigrants. There were some public displays of hostility towards the non-whites and in the late summer 1958 riots broke out. Groups of white natives in Notting Hill,

London, and in Nottingham, see Miles (1984), attacked coloured immigrants. The nonstop increase of the new arrivals carried the immigration topic to the top of the political agenda and in 1962 the Commonwealth Immigrants Act ended the open door policy towards the Commonwealth; see (Commonwealth Immigrants Act, 1962). Two years later, the Labour government was in power, and it guickly recognised that family reunification meant that every pre-1962 migrant would bring in two to four subsequent migrants in the form of his family members. It abandoned its previous commitment to open borders and extended immigration controls in 1965, (Hansen 2002). Britain effectively closed the door on large-scale labour migration with legislation between 1962 and 1971 before the economic downturn of 1973 prompted other European countries to do likewise, (Geddes 2003). However the family reunion for colonial migrants in the UK continued during 1970s, see Castles & Miller (2009), and by the 1980s the colonial immigrants and their descendants had become large social groups. During the 1990s the immigrants' arrivals continued showing a sharp increase-see page 80. The 1971 immigration Act, generally, replaced all previous legislation on immigration (Dummett 1978); the core of the legislation was strong control procedures, which included new legal distinctions between the rights of the UK born/UK passport-holders and people from former British colonies. Restrictive policy continued under Labour and Conservative governments through the following decades (Migration Policy Institute, 2009)

Britain has been called "Europe's would-be zero immigration country", see (Layton-Henry, 1994). Discussing the reasons for this the study links this to Britain's postimperial downsizing from a global colonial, to a regional European power after the WWII. Paul (1997) emphasises state racism and the 'whitewashing' of Britain to argue that racist hostility to black and Asian immigrants underpinned stringent immigration legislation. A counter argument is put by Hansen (2000) who argues that British immigration and citizenship policy can better be understood as publicdriven rather than state racism: the advocates of strict controls were appeased while some space was created for the antidiscrimination legislation that laid the foundations for the British version of multiculturalism. These echoes the conclusions of Freeman (1994) who argued that British immigration policy can be understood as an example of 'responsible issue management' by government in the face of public hostility to immigrant newcomers. In these terms, public opinion has played an

important part in shaping government responses to immigration. The counterargument is that the shaping of the debate in which state actors play a key role has the effect of establishing the parameters of debate (Statham, 2001).

There a number of immigration policies focusing on integration of migrants in the UK. All of these policies are in various ways race-conscious and they are made up of three elements: anti-discrimination legislation, educational policy and policies for the police, (Focus Miration UK, 2014). An anti-discrimination framework gradually developed since the 1960s, always under a Labour government. This legislation has been extended several times in the last fifty years with the most recent changes in 2000. It's focus is to extend the prohibition on discrimination to employment, housing, credit, and insurance facilities, (Focus Miration UK, 2014). The government has enacted educational policies to remove race-based differences, for example prior to 2005 there were approximately 7,000 Christian schools receiving state funding. By contrast, only five of some 110 full-time Muslim schools in the UK were receiving state funding, a result described by the House of Lords as "institutionally racist." The government's response to this has been to propose funding for Muslim schools (Focus Miration UK, 2014). Finaly police officers receive race-awareness training so as to crack down the use of racist language within the police force.

The more recent reforms to UK immigration policy, see Hatton and Tani (2005), aim to make immigration easier for certain groups; the EU expansion in 2004 brought 10 new members and the expansion of 2007 added another two; many nationals, according to Castles & Miller (2009), of the new countries moved in the UK to seek work. After the 2004 'A8' enlargement there was a strong increase in net inflows of immigrants from Eastern Europe. This was partially the result of a political decision-the UK (along with Ireland and Sweden) did not impose temporary restrictions, as the rest of the EU countries did, on the employment of A8 nationals in the UK (The Migration Observatory 2014).

Since the onset of the economic crisis (in 2008) the unemployment rate has been going up, mostly affecting the lower end of the labour market, with these households suffering particularly from low growth in earnings and reduced access to borrowing - intensified by the effect of high inflation which has eroded their real spending power -

ONS (2012). All these reasons have encouraged the British government to show active consideration of possible future policy initiatives regarding immigration. In the year to June 2012 the number of work-related visas issued fell by 7% while 21% fewer student visas were handed out -The Economist (20-26/10/2012). There are concerns that businesses which have relied on imported skills such as those in the Silicon Roundabout¹¹ and in the City will suffer. Also there are worries that Britain's higher-education sector will be damaged due to restrictions applied to foreign students- The Economist (20-26/10/2012).

Conclusions

The primary outcome from the literature we examined, regarding the immigration history and politics in the UK, is that the British policy concerning immigration over the course of the twentieth century has been determined by a mixture of economic and political imperatives. our conclusions align with those of Layton-Henry, (1994) who argues that "the success in controlling immigration is due in part to Britain's parliamentary government, which is more responsive to xenophobic public opinion".

¹¹ The Silicon Roundabout -the cluster of technology start-ups near the Old Street junction in east London

3.3 Data analysis and contrasting profiles between natives and immigrants

The following pages briefly compare how the socio-economic and demographic characteristics of native born and immigrants have changed in the UK over the last two decades.

The data for the purpose of this thesis are drawn from the quarterly Labour Force Survey (QLFS), conducted by the Office for National Statistics (ONS), and represent quarterly (October-December) cross-sections over the period 1992-2010. The sampled population consists of all individuals, including children and elderly persons, who lived in The UK during a particular period. The quarterly survey interviews sample sizes from around 150.000 respondents in early 1990s, decreasing to around 110.000 respondents in late 2000s; the proportion of immigrants¹² in the samples increases from 6.82% in 1992 to 10.41% in 2010, reflecting the increased immigrant population in the UK of recent years.

The LFS survey questions that provide the demographic and socioeconomic information required for this study have been included in each quarterly survey for the period 1992-2010. Where the questions have undergone some modification occurred during that period, this is explained below.

The Quarterly Labour Force Surveys (QLFS) provide adequate sample sizes for analysing immigrant and ethnic minority groups. The variables cover the final quarter of each year and show information on earnings, employment and socio-economic characteristics such as age and sex, but also human capital information in the form of years of schooling and the highest qualification held by the respondent.

Our data analysis covers the period 1992-2010, however for some of the socioeconomic characteristics the required information is available for fewer years, for instance the questions for: *highest qualification, economic activity* and *gross weekly income* cover only the years 1993-2010. In the Question; *Major occupation,* for the

¹² The definition of a immigrant used by the ONS and also recommended by the United Nations is someone who was born outside the UK but resides in the country for more than a year.

period 1992-2000, certain sets of professions are used to describe the occupations of the individuals, but for the years 2001-2010 the sets of the professions change slightly; In this study we use the period 2001-2010.

Contrasting profiles between natives and immigrants

In this section we analyse some of the most important socioeconomic and demographic characteristics of the labour force in the UK. These characteristics include information among native men, immigrant men, native women and immigrant women; they are:

- age
- country of birth
- years of residence in the UK
- how many hours per week do you usually work in your main job including overtime
- highest qualification
- high degree already held
- economic activity (employed, unemployed, inactive, under 16)
- self-employment status
- age when completed full time education
- major occupation
- gross pay- weekly from main job

3.3.1 Age

For the period under investigation, 1992-2010, the average age difference between natives and immigrants in the UK has been declining time over time. In 1992 the average age of immigrants was around 41 years old -substantially higher than the natives' average age that was around 37 years old.

In both groups, natives and immigrants, men always appear to have a relatively smaller average age than women, see graph 3.4. Since 1992 the immigrants' average age (for all immigrants, men and women) increases reaching a peak of 42 years old in 2000 and thereafter there is a steady decrease down to 39 years old in 2010, meeting the natives' average age (for all natives, men and women) which meanwhile has been increasing steadily since 1992.

The reasons for the immigrants' average age decrease can be found in the fact that the number of young immigrants entering the UK increases with an increasing rate in the recent years, reflecting possibly, the relatively large young immigrant cohorts that entered the UK after the last two EU expansions in 2004 and 2007. The natives' average age increase can be possibly explained due to the life expectancy increase (ONS 2011), and probably, due to the relatively stable fertility rate after 1973 (ONS 2011).



Graph 3.4 Average ages of natives and immigrants in UK over time

QLFS data, quarterly (Oct-Dec) cross sectional 1992-2010

Checking the descriptive statistics of the series age (see tables 3.5, 3.6, 3.7 & 3.8 in the appendix), we can see that the mean and median for each year from 1992-2010 are nearly the same for immigrant men and women. In 1992 the age group 3-28

years old makes up the bottom 25% of the immigrant population while the upper quartile is 55 years of age. Eighteen years later in 2010 the upper and lower quartiles do not change significantly, however the medians go down from 40 and 39 years old for immigrant men and women respectively in 1992 to 38 and 37 years old for immigrant men and women in 2010.

3.3.2 Years of residence in the UK

The average years of immigrants' residence in the UK show a downwards trend from 23 years in 1992 to 18 years in 2010; in table 3.2 below we can see the means and the medians for the series *years of residence in the UK*, for foreign born men and women in the UK. The sharp decrease of the medians during the last decade indicates the significant presence of recent immigrants within the UK immigrant population in recent years.

1992	1998	2004	2010
23.31	23.12	20.51	18.83
23.00	23.00	15.00	10.00
22.50	22.59	21.08	18.43
21.00	21.00	15.00	11.00
	1992 23.31 23.00 22.50 21.00	1992 1998 23.31 23.12 23.00 23.00 22.50 22.59 21.00 21.00	19921998200423.3123.1220.5123.0023.0015.0022.5022.5921.0821.0021.0015.00

 Table 3.2 Years of immigrants' residence in the UK (mean & median)

LFS data, quarterly (Oct-Dec) cross sectional 1992-2010

The abrupt increase of immigration in 2000s in the UK; especially after the EU two expansions in 2004 and 2007 respectively and from commonwealth countries, explains the changes in mean and median.

3.3.3 How many hours per week do you usually work in your main job including overtime

The data analysis finds that for all the examined years, from 1992 until 2010, immigrants work more hours per week than their UK counterparts. In table 3.3 below

we can see the hours per week for the four selected years; what is interesting is that for immigrant and native men the weekly working hours decrease slightly over years while for immigrant and native women the working hours increase slightly.

Year	1992	1998	2004	2010
Native men (h/w)	46.53	46.19	45.93	44.98
Immigrant men (h/w)	48.30	47.00	46.83	46.18
Native women (h/w)	35.88	35.58	36.05	36.12
Immigrant women (h/w)	38.64	38.86	39.24	39.00

Table 3.3 Average hours per week including overtime (h/w)

LFS data, quarterly (Oct-Dec) cross sectional 1992-2010

It seems that immigrants who enter the UK are determined to work hard enjoying, possibly, the relatively high wages of the UK labour market. Immigration theories support the idea that the main reason of migration is the expected higher net income in the new country and research seems to indicate that immigrants are determined to work hard, accepting jobs more readily than natives, matching natives' productivity levels - and possibly with lower wages.

3.3.4 Highest qualification

The educational background of immigrants in the UK stretches among the highly qualified and the unskilled ones see graphs 3.5 & 3.6. The percentages of immigrants holding degrees in 1993 were 16.56% and 10.65% for men and women respectively; significantly higher than the percentages of native degree holders (see graph 3.5). Seventeen years later in 2010 the percentages of immigrants with degrees has increased to 27.54% and 25.66% for men and women respectively. On the other hand the UK labour market still attracts high percentages of unskilled foreign labour. The percentages of foreign workers without skills in 1993 were 23.96% and 28.49% for men and women respectively; higher than the percentages of the unskilled native workers. By the time the percentages of unskilled immigrants

decline dramatically to 12.65% and 15.91% for men and women respectively in 2010; however they are still higher than the percentages of the unskilled natives (see graph 3.6).



Graph 3.5 Percentages of natives and Immigrants holding degrees in the UK

LFS data, quarterly (Oct-Dec) cross sectional 1993-2010





LFS data, quarterly (Oct-Dec) cross sectional 1993-2010

3.3.5 Higher degree already held

The UK labour market attracts very highly educated foreign workers. The percentages of immigrants with PhD, Masters and other postgraduate qualifications are higher than the percentages of their equivalent natives and show a continuous increase. In table 3.4 below, we can see the percentages of immigrants and natives with PhDs and Masters for the years 1993 and 2010.

	PhD holders	s %	Masters holders %		
Year	1993	2010	1993	2010	
Native men	0.66	1.11	1.22	3.47	
Immigrant men	1.62	3.02	3.07	7.46	
Native women	0.18	0.58	0.57	2.64	
Immigrant women	0.46	1.33	1.55	7.11	

LFS data, quarterly (Oct-Dec) cross sectional 1992-2010

3.3.6 Age when completed full time education

Increasingly, immigrants appear to receive, on average, more schooling than natives, see graph 3.4. In 1992 the average ages of finishing schooling for men and women immigrants were 18.21 and 17.68 years old respectively; the schooling difference with the natives was then less than one year; natives' average age of finishing schooling were 16.58 for men and 16.57 years for women.

By 2010, however, the difference between immigrants and natives in full time education was around two years; the average ages at which immigrant men and women finished their full time education were 19.61 and 19.23 years old respectively. For natives the comparative figures were 17.49 and 17.45 years see tables 3.9, 3.10, 3.11 & 3.12 in the appendix.





3.3.7 Major occupation

Although skill levels amongst immigrants entering the UK labour market have been increasing in recent years, the jobs these immigrants receive are arguably worse than previously. For instance, in 2001 the percentages of immigrants that were holding positions such as managers and senior officials were higher than the UK-born (see graphs 3.5 & 3.6). However, nine years later, in 2010, these percentages were shrunk and natives were more successful in taking these jobs. Professional occupations seem to be an area where immigrants traditionally show high concentration. On the other hand immigrants also show high percentages in the bottom end of the jobs spectrum - for example, the number of elementary positions immigrants receive has rocketed in recent years, see graph 3.7.





LFS data, quarterly (Oct-Dec) cross sectional 2001-2010



LFS data, quarterly (Oct-Dec) cross sectional 2001-2010

In 2001 immigrants and natives were sharing the same percentages in elementary occupations; all groups show percentages at around 12% (see graph 3.7). However 9 years later immigrants' percentage working in elementary occupations has increased to over 17% while natives' percentage has reduced slightly- below 11%.





Although the skill level of immigrants has improved in recent years we see that they receive lower level jobs. A possible explanation could be that, due to recent large inflows of migrants, the newcomers have not fully assimilated yet into the UK labour market. Another explanation might be that since natives' skill level has also increased the competition for better jobs is more intense.

3.3.8 Economic activity (employed, unemployed, inactive, under 16)

Migration literature finds that during tough economic periods the economic activity of immigrants worsens in the host country as noted by Durkin (1998) and Bath et al. (2004) - see literature review chapter. By examining the data samples for the years 1993-2010, see graph 3.8, we can see that in the early period of relatively high unemployment; the unemployment gap between natives and immigrants is very high in favour of natives, for example in 1993 when the unemployment for native men and women is relatively high 12.46% and 7.82% respectively; the unemployment for immigrants is much higher reaching 21.43% and 12.67% for men and women respectively. The economic boom of 2000s contributed to a period of low unemployment and during this period the unemployment gap between natives and immigrants tends to close; for example, in 2004 the unemployment rates for natives are 4.83% for men and 3.89% for women, while for immigrant men and women are 6.93% and 6.68% respectively, close to those of natives. This lasted until the onset

of the economic crisis in 2008. During the recent years of recession unemployment has risen more steeply for immigrants than for natives.



Graph 3.8 The unemployment rates of natives and immigrants in UK

QLFS data, quarterly (Oct-Dec) cross sectional 1993-2010

When interpreting these figures it is important to note that the percentage of immigrants who are of working age (older than 16 and younger than 64) is higher than for natives (see QLFS 1993-2010), which inflates the recorded unemployment rate for the former. Thus immigrants appear to be more employable than natives even though their employment is more sensitive to downturns in the economy.

3.3.9 Self-employment

On a closer examination of the data we find that the overall self-employment propensity of immigrants has declined the last two decades. Graph 3.9 shows the percentage of employed individuals (natives and immigrants) who are self-employed during the years 1992-2010. The first decade there is a clear advantage in favour of immigrants. The second decade the gap closes- immigrants' self-employment rate declined- and natives' one did not change.





3.3.10 Gross pay- weekly from main job

The data shows that immigrants who are in employment have higher average weekly incomes than the UK-born. For most of the period 1993-2010 (see graph 3.10) immigrant men and women earn more than their UK counterparts-it is only after 2006 when the average weekly incomes for UK and foreign born males appear to converge. These higher average incomes imply that working age immigrants that are in employment are likely to be greater contributors to the UK economy than the UK-born.



Graph 3.10 Gross average weekly incomes of natives and immigrants in UK over time

Disaggregating the data for all the examined years (see tables 3.13, 3.14, 3.15 & 3.16 in the appendix) it is found that immigrants have different distributions of income

QLFS data, quarterly (Oct-Dec) cross sectional 1992-2010

than that of natives. Foreign born populations in the UK are overrepresented at the upper or lower ends of income distributions. For example in 2010 the 10th percentiles of the series: *native men average gross weekly income* and *immigrant men average gross weekly income* show £180 and £150 average gross weekly incomes for native and immigrant men while the 95th percentiles show £1327 and £1538 average gross weekly incomes respectively. This can be explained; first, immigrants work more average weekly hours than the UK-born and secondly, immigrants are more likely than natives to be at either the very high or the very low extremes of the education/skills spectrum.

Conclusions

The main findings from the data analysis are:

- Immigrants' experiences tend to be more polarised than non-migrants, with LFS data showing that they are concentrated at both the upper and lower end of the skills, and income spectra;
- The proportion of immigrants who are of working age exceeds that of natives;
- Economic downturns have a higher impact on immigrant employment than for that of natives;
- Immigrants who are in employment work more hours and have higher average incomes than their UK-born colleagues;
- The self-employment rates of immigrants and natives are converging but remain higher for immigrants for all the years we examine

The greater employability of immigrants, their greater tendency to occupy the upper extreme of the skills and income spectra, their greater propensity for self-employment – as revealed by inspection of the LFS data, all give grounds for arguing that immigrants' make a positive contribution to the UK economy which, on a pro rata basis, may at least equal that of natives.

3.4 Methodological approaches and data.

Introduction

In this part of the thesis we discuss the limitations of the methodology employed and the rationale for undertaking the particular type of secondary data analysis in the empirical chapters 4 and 5. In part 3.4.1 we explain how regression analysis can proceed either by separating out the sample into different groups for analysis or by using dummy variables and interaction terms to model differences between groups. In part 3.4.2 we extend our analysis examining whether some particular econometric models are applicable to investigate the behaviour of a variety of types of individual. In part 3.4.3 we introduce the chosen methodologies used for the empirical research in chapters 4 and 5. We discuss the variety of methodological approaches in the existing literature that deals with topics similar to these in this thesis. We also discuss the nature of the data in the existing literature and also the nature of the LFS data sets we use in this thesis.

3.4.1 Regression analysis with dummy variables and interaction terms

Regression analysis can proceed either by separating out the sample into different groups for analysis or by using dummy variables and interaction terms to model differences between groups. In both empirical exercises, chapters 4 and 5 in this thesis we model the relationships between independent and dependent variables by using dummy variables and interaction terms.

When we have dichotomous (binary) regressors, we construct 'indicators' –dummy variables. For example, for gender, we could construct a binary variable called 'male' and code it 1 if the person is male and 0 if the person is female. Suppose gender were the only variable in the model:

$$\hat{Y}_i = b_0 + b_1 Male_i$$

(3.1)

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Suppose Y =expected weekly wage, the expected value of Y for a male, then, would be $b_0 + b_1$, and the expected value of Y for a female ($Male_i = 0$) would be just bo.In this example, "female" has been selected as the reference category (also known as "base" or "comparison" group) and b_1 is a measure of how far the other group (male) differs from this reference group. Interestingly, the t-test on the b₁ parameter in this case would be identical to the t test we could perform on the difference in the mean of Y for males and females.

When we have a qualitative variable with k > 2 we can select one of these to be the reference category and then provide individually dummy variables as indicators for each of the remaining k - 1 categories. For example, if race is coded as white / black / other we might construct a dummy for 'white' and a dummy for 'black,' then we have the following model:

$$\hat{Y}_i = b_0 + b_1 White_i + b_2 Black_i$$
(3.2)

When 'white'=1, we get: $\hat{Y}_i = b_0 + b_1$ (3.3)

When 'black'=1, we get:
$$\hat{Y}_i = b_0 + b_2$$
 (3.4)

But, when we come across an individual who is 'other', both dummy coefficients drop from the model, and we're left with: $\hat{Y}_i = b_0$ (3.5)

Including an additional dummy variable for the reference group, 'other', would be a mistake since this creates a multicolinear set of explanatory variables - with $Other_i = 1 - (White_i + Black_i)$ for all individuals.

The examples discussed so far have permitted the conditional mean of the dependent variable to differ between groups of respondents. It is also possible to use dummy variables to model the possibility that the impact of other explanatory factors differs across groups. This involves constructing "interaction terms".

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For example, suppose we were interested in how education relates to gross weekly earnings, net of gender. Then, we might construct a model like:

$$\hat{Y}_i = b_0 + b_1 Education_i + b_2 Male_i + e_i$$
(3.6)

In this model education has the same effect on gross weekly earnings for men and for women. This is often an unrealistic assumption; we might expect different slopes for different groups. In this case, we need to come up with some way of capturing this difference in slopes.

The simplest interactions involve the interaction between a dummy variable and a continuous variable. In the education, gender, and gross weekly earnings example, we may expect that education's effect varies across gender, and we may wish to model this differential effect. A model which does so might look like:

$$\hat{Y}_i = b_0 + b_1 Education_i + b_2 Male_i + b_3 (Education_i \times Male_i) + e_i$$
(3.7)

This model differs from the previous one, because it includes a 'statistical interaction term,' Education × Male. This additional variable is easy to construct—it is simply the multiple of each individual's education value and their gender. For women (Male = 0), the reference group, this interaction term is 0, but for men, the interaction term is equal to their education level (Education×1).

This yields the following equations for men and women:

$$Y_{men} = (b_0 + b_2) + (b_1 + b_3) Education_i + e_i$$
(3.8)

$$Y_{women} = b_0 + b_1 Education_i + e_i$$
(3.9)

In the equation for men, I have consolidated the effects of education into a single term, so that the difference in education slopes for men and women is apparent. We still have an expected shift for men and relative to women (b₂), but we now also allow the effect of education to vary by gender, and have a model in which we can test whether this variation in the education effect is significantly non-zero.

The literature of migration economics abounds with studies that use dummy variables and/or interaction terms (e.g. Banerjee 1983; Zhao 1999, Mata and Pendakur 1999; Islam and Fausten 2008; Card 2009). These studies use dummy variables in order to include nominal level variables in the regression analysis. They also use interaction variables to explore the possibility that explanatory variables influence the effects that second explanatory variables have on the dependent variable.

3.4.2 Modelling separate categories jointly vs. separately

In this part of the study we develop arguments further, based on the material introduced above - in 3.4.1. The situation to be discussed is one where an econometric investigation is exploring the behaviour of a variety of types of individual in order to discover whether some particular model might be applicable to all types.

A simple example might be an attempt to construct a summary explanation for individuals' decision to become self-employed and apply this explanation to both males and females. It is likely that many potentially relevant explanatory factors can be proposed. Perhaps not all of these are observed in the available data. The explanatory factors may have quantitatively different effects across the two sexes, in fact some may be relevant to only one of the two types of individual.

The question to be discussed here is whether, in such a situation, the econometric modelling must be conducted separately for the two groups.

For illustration of the econometric arguments, consider the case where the variable to be explained is Y and there is a single explanatory factor, Z. Survey data is available for N individuals, of whom N_w are women. Since the sequencing of survey responses is irrelevant for statistical analysis, we simplify exposition by sequencing the responses so that all female responses precede the male responses.

If the investigator assumes that the relationship between Y and Z is linear and identical for males and females, this can be presented as

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$$Y_i = \alpha + \beta Z_i + u_i \tag{3.10}$$

Here, α , β are parameters to be estimated and u_i is a random unobserved error that prevents an exact fit of $Y_i = \alpha + \beta Z_i$ for the *i*th individual.

If the investigator wishes to admit the possibility that the parameter values are different for the two types of individual, this can be accommodated by writing the model as

$$Y_i = \alpha_F F_i + \alpha_M M_i + \beta_F F_i Z_i + \beta_M M_i Z_i + u_i$$
(3.11)

Here, F_i , M_i are indicator variables, with female respondents having $F_i = 1$, $M_i = 0$ and male respondents having $F_i = 0$, $M_i = 1$. The use of these indicator variables ensures that for female respondents the model reduces to $Y_i = \alpha_F + \beta_F Z_i + u_i$ and for male respondents the model is $Y_i = \alpha_M + \beta_M Z_i + u_i$. Model (3.11) thus permits different parameter values for the two types of individual. These differing parameters can be estimated simultaneously; the data matrix for the regressors is:

$$\begin{bmatrix} F_{1} & M_{1} & F_{1}Z_{1} & M_{1}Z_{1} \\ \vdots & \vdots & \vdots & \vdots \\ F_{NW} & M_{NW} & F_{NW}Z_{NW} & M_{NW}Z_{NW} \\ F_{NW+1} & M_{NW+1} & F_{NW+1}Z_{NW+1} & M_{NW+1}Z_{NW+1} \\ \vdots & \vdots & \vdots & \vdots \\ F_{N} & M_{N} & F_{N}Z_{N} & M_{N}Z_{N} \end{bmatrix} = \begin{bmatrix} 1 & 0 & Z_{1} & 0 \\ \vdots & \vdots & \vdots \\ 1 & 0 & Z_{NW} & 0 \\ 0 & 1 & 0 & Z_{NW}^{+1} \\ \vdots & \vdots & \vdots \\ 0 & 1 & 0 & Z_{N} \end{bmatrix}$$

Equivalently, and more commonly, the model permitting different parameter values for different types of respondent can be written as

$$Y_i = \alpha + \alpha_M M_i + \beta Z_i + \beta_M M_i Z_i + u_i$$
(3.12a)

And the data matrix is

$$\begin{bmatrix} 1 & 0 & Z_{1} & 0 \\ \vdots & \vdots & \vdots & \vdots \\ 1 & 0 & Z_{N_{W}} & 0 \\ 1 & 1 & Z_{N_{W}+1} & Z_{N_{W}+1} \\ \vdots & \vdots & \vdots & \vdots \\ 1 & 1 & Z_{N} & Z_{N} \end{bmatrix}$$
(3.12b)

In this type of exposition one category of individual, here females $(M_i = 0)$, is selected as a reference case, modelled as $Y_i = \alpha + \beta Z_i + u_i$ and individuals in the other category, where $M_i = 1$, are modelled as $Y_i = (\alpha + \alpha_M) + (\beta + \beta_M)Z_i + u_i$, allowing their parameter values to differ from the reference case.

In (3.12a) the term $\beta_M M_i Z_i$ is called an "interaction term" because it involves the interaction of two variables - the basic explanatory factor, Z, and an indicator variable, M, that "switches on" only for one category of respondents.

One advantage of modelling the two categories of individual simultaneously, by the use of interaction terms, as in (3.12), is that this approach supports testing of the important hypothesis that both groups may be satisfactorily modelled using the same numerical values for at least some of the parameters. For example, the hypothesis that *Z* has a similar effect in both groups could be tested as $H_0: \beta_M = 0$, with the test statistic being the t-statistic for β_M . Other types of hypothesis may be tested when the categories are modelled jointly. Here, for example, the hypothesis that this explanatory factor is only relevant for males, i.e. $\beta = 0$, could be tested via the t-statistic on $\hat{\beta}$; the hypothesis that the effect is zero for males could be tested by a Wald test with null hypothesis $H_0: \beta_M + \beta = 0$.

The arguments given so far support the proposition that the use of interaction variables makes it unnecessary to separate the categories of individual for econometric modelling. There are some caveats. Firstly, the standard assumptions regarding the error term in a regression model include the assumption that it has the same variance at every observation. When two categories of individual are analysed together, as in (3.12), the implicit assumption is that the degree of random variation

around the regression line is the same for both groups ("homoscedasticity"). If this assumption is a false representation of actual behaviour then the regression has "heteroscedastic errors". It is well known that heteroscedasticity does not introduce bias into least squares estimation. It does, however, reduce the precision of estimation - rendering standard t-statistics larger than is warranted and thus potentially misleading inferential judgements. This problem is avoided if the different categories of individuals are modelled separately but this alternative approach can also lead to a loss of precision. If any explanatory factor might have equal weight in both categories – e.g. β_M possibly equal to zero in (3.12), then it is easy to test and apply this restriction when the several categories are jointly modelled. Applying correct restrictions improves estimation precision so, conversely, being unable to readily apply them or test their validity - as when the categories of individual are modelled separately, fails to achieve the improved precision. In considering which of the two modelling approaches - joint or separate, is to be preferred it is worth noting that the problem of heteroscedasticity can be addressed by weighted Least Squares estimation or, more simply, by employing heteroscedasticity-adjusted standard errors.

In the special case when parameter values differ across categories of respondent for *all* terms in the model then there is no advantage to modelling the categories jointly. To see this, we can rewrite (3.12) as

$$Y_i = \alpha + \beta Z_i + \alpha_M M_i + \beta_M M_i Z_i + u_i$$
(3.13a)

And the data matrix is

$$X = \begin{bmatrix} 1 & Z_1 & 0 & 0 \\ \vdots & \vdots & \vdots & \vdots \\ 1 & Z_{NW} & 0 & 0 \\ 1 & Z_{NW+1} & 1 & Z_{NW+1} \\ \vdots & \vdots & \vdots & \vdots \\ 1 & Z_N & 1 & Z_N \end{bmatrix}$$
(3.13b)

Using Y to represent the column of observations Y_i , $i = 1 \cdots N$, the OLS estimator for (3.13a) is $(X'X)^{-1}X'Y$ but in this special case X is lower triangular, so X'X and hence

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 $(X'X)^{-1}$ are block diagonal. OLS estimation of the joint model then becomes computationally equivalent to applying OLS separately to the two categories and this is additionally a convenient way to achieve weighted least squares estimation for the joint model, as can be appropriate if the two categories of individuals exhibit different levels of variation around the modelled component of their behaviour.

In practice, an investigator may have in mind a large number of potentially relevant explanatory factors. For some of these it may be well known that their effects differ significantly across categories of respondent but, for others, exploring this possibility might be an aspect of the investigation and so better addressed by joint modelling of several categories of respondent.

In the illustrative examples considered above, there are only two categories of respondent but in practice it may often be the case that there is more than one dimension along which categories of respondent can be defined. For example, an investigator might consider that gender (2 categories), ethnicity (say 5 categories), and location (say 10 categories) potentially modify the influence of other explanatory factors. In this example, there would be $2 \times 5 \times 10 = 100$ gender-ethnicity-location categories and dividing the responses from even a large sample of respondents between this many categories can lead to an insufficient number of observations to support statistical analysis in some or all cases. Separately modelling the different categories then becomes infeasible and, even if the number of available observations is sufficiently generous to make it feasible, the managing and reporting of such a large number of separate modelling exercises is likely to offer substantial practical difficulties.

3.4.3 Limitations of the methodology employed and the rationale for undertaking the particular type of secondary data analysis.

There are a number of methodological approaches, in the contemporary literature, that are used to investigate immigrants' labour market experiences in their destination countries – for example, as in this thesis, their earnings power or self-employment rates.

These methodologies aim to identify the causal factors that underlie immigrants' decisions, for example, to migrate or to then become self-employed, and also address the personal and social consequences of migration.

The frameworks used in these papers are simplifications of complex real-world processes that may or not be adequately expressed mathematically (Greenwood 1985). Some methodologies respond to such complexity by attempting only qualitative analysis of individual life experiences, hopefully generating ideas about the phenomena of interest but making reduced claims to generality.

Quantitative empirical studies, however, typically assume the existence of underpinning regularities, stable in time and/or common in cross-section that can be rationalised as expressing key determinants of individual life experiences.

Statistical methods are used to discover these key determinants and the sign and size of their influence, summarising these features as a "model" that is presumed to be applicable beyond the individuals studied. An individual's life experiences are then understood as reflecting, on the one hand, the implications of the shared model for that individual and, on the other hand, the consequences of personal factors not captured within the model.

A fundamental assumption of this modelling approach is that, because the model is relevant for all individuals, observation of a large number of individuals and statistical analysis of the resulting data can be a basis for separating the part of their individual behaviours that represents personal idiosyncrasies from the part that reflects the universally applicable model. In this way, survey data can be used to estimate detailed aspects of the model, such as parameter values, that cannot be posited on

the basis of a priori theoretical arguments, or by referenced to existing qualitative research.

Methodologies that have been used in the relevant literature: In chapter 4 (Changes in earnings power of low skilled immigrants in the UK), we examine how changes in the demographic compositions of these broadly described low skill groups account for some of the changes in relative wages. For example, if there was a net decrease in the age of the immigrant population or in the years they spend in the UK or a net increase in the number of immigrants from countries whose educational system confer relatively less human capital valued by the UK labour market; then we would expect that the average wages of the immigrant population in the UK would have declined. Chapter 4 attempts a quantitative assessment of the relative importance of various factors that might account for changes in the earning power of low-skilled immigrants.

Some literature (e.g. Jaeger 2007, studying immigrants in the USA) uses the term 'quality' to refer to the average relative wage value in the U.S. labour market of particular demographic characteristics, such as age, ethnicity, country of origin, time spent in the U.S. etc. Of course these differences may arise from factors other than efficiency in production, such as discrimination. To estimate changes in the earnings distribution among various groups of workers, some of the methodological tools commonly used by researchers are linear regression models and production function approaches. Traditionally most of these studies employ cross-sectional data sets, for their analysis, see e.g. Freeman (1979), Bound and Johnson (1989), both papers document evidence that changes in the demographic composition of the labour force can cause changes in the wage structure.

Freeman (1979) examines the effect of the increased number of young persons on the U.S. labour market on their earnings relative to the earnings of older workers for the period March 1969 - March 1978. The study finds that the age-earnings profile of male workers appears to be significantly influenced by the age composition of the work force. By contrast, the age-earnings profile of female workers, which tends to be quite flat, appears to be little influenced by the age composition of the female work force, possibly because the intermittent work experience of women makes younger women and older women closer substitutes in production. The data used in
this study are cross-sections from U.S. Bureau of the Census and the methodical approach is a linear regression model -see equation 3.14.

$$lnW_{ij} = \alpha_{ij} + \Sigma b_{ij}E_iA_j + c_{ij}R_{ij} + \mu_{ij}$$
(3.14)

Where W_{ij} weekly or annual earnings of workers in the *i*th education and *j*th age groups; E_i and A_j are dichotomous dummy variables indicating individuals in the different education and age groups. Interacting E_i and A_j Freeman (1979) might expect that education's effect varies across age. Finally R_{ij} is a dummy variable indicating if the respondent is black and μ_{ij} is the error term.

Bound and Johnson (1989) examine the changes in the wage structure in the U.S. labour market during the 1980's. There were three major changes in the earnings distribution in the United States during this period. The study suggests that the major cause of the dramatic movements in the earnings structure during the 1980's may have been some combination of changes in both production technology and the average relative quality of different labour groups, such as changes in the education, work experience etc. So as to evaluate all potential changes the researchers set out a model that includes all of them. To do this they took all observations of non-agricultural employees between the ages 18 and 64 from the 1979 and 1987 Current Population surveys. There are i labour groups that work in j industries-the production function for industry j in the i labour inputs is:

$$Q_{j=} \left[\sum_{i=1}^{i=I} \delta_{ij} \left(b_{ij} N_{ij} \right)^{(\sigma-1)/\sigma} \right]^{\sigma/(\sigma-1)}$$
(3.15)

Where Q_j is the output of the *j*th industry, N_{ij} is the employment level of group *t* in industry *j*, b_i an index of the efficiency level of group *t*, σ is the elasticity of intrafactor substitution and the δ_{ij} are share parameters-see Bound and Johnson (1989) The marginal physical product of N_{ij} is:

$$MP_{ij} = \delta_{ij} b_i^{1-1/\sigma} Q N_{ij}^{1/\sigma}$$
(3.16)

The wage rate of group *i* in industry *j* is:

$$W_{ij} = R_{ij} W_{icj} \tag{3.17}$$

 R_{ij} refers to changes in the industrial distribution of employment that caused by shifts in the composition of product demand or by changes in technology. W_{icj} is the competitive wage for that labour group.

Our methodology in empirical study in Chapter 4 (examine how changes in demographic compositions of low skill groups, affect changes in relative wages) aligns with the methodologies used in the papers we discussed above (Freeman; 1979, Bound and Johnson; 1989). These papers argue that changes in demographic composition of the labour force can cause changes in the wage structure.

In chapter 5 (immigrant's entrepreneurial success in the UK) we use a binominal logistic regression model so as to assess the self-employment rates of the various immigrant groups in the UK. Binary response models -probit and logit are widely used by researchers who try to identify the factors that determine self-employability see e.g. Schuetze 2005, Benz and Frey 2008, Fairlie (2014) etc. Opinion regarding the selection between binary response models is that the probit and logit give similar results except when modelling rare events. The logit and probit functions both map the entire real number line onto the interval from zero to unity, making them suitable for modelling binary outcomes. They are practically similar, except that the logit has slightly flatter tails-see graph 3.11.



Borjas (1986) developed a binary outcome (employment vs. self-employment) framework which compares the market wage an immigrant would earn as a salaried worker, W_i with the expected net income from self-employment, Y_i . This framework uses a similar approach to the seminal Harris-Todaro (1970) model - which explains the migration decision based on expected income differentials between rural and urban areas, net of migration cost.

Borjas' paper defines the index function:

$$I_i = Y_i - W_i = X_i \pi + V_i \tag{3.18}$$

Where X_i is the vector of observable socioeconomic characteristics which affects Y_i and/or W_i . If I_i is positive the immigrant becomes self-employed and is a salaried worker otherwise. The probability of self-employment is then given by:

$$P_{i} = \Pr[I_{i} > 0] = \Pr[V_{i} > -X_{i} \pi]$$
(3.19)

The parameter vector π can be estimated (up to a factor of proportionality) once the stochastic nature of the disturbance V_i is specified.

Schuetze 2005 analyse the key features of the self-employment experiences of immigrants in Canada and the impacts of available immigration policy mechanisms on the outcomes. Adopting the framework developed by Borjas (1986), a cross-sectional self-employment probability equation is estimated by probit for the group of employed immigrants. The main conclusion is that the assimilation process involves a transition from wage employment to self-employment and that this process is not stable over time. Benz and Frey 2008 use logit regressions to evaluate aspect linking happiness and employment. They study panel data from three European countries: Germany, Great Britain and Switzerland. Using job satisfaction as a proxy measure for utility from work they find that the self-employed enjoy considerably higher job satisfaction than employees in all three countries considered. Using several logit regressions Fairlie (2014) analyse The Absence of the African-American Owned Business. The study suggests that racial differences in asset levels and probabilities of having self-employed fathers explain a large part of the black/white gap in the entry rate, but almost none of the gap in the exit rate.

Other methodological approaches, apart from logit and probit, so as to assess selfemployability, can be found in the literature, e.g. log linear models- see Mata and Pendakur (1999), interview based studies- see Basu and Altinay (2002). Such studies investigating the factors determinants of self-employability use both crosssectional data, as in Chapter 5, and also longitudinal data that tracks individuals over a period of time-they also employ both quantitative and qualitative research methods. Mata and Pendakur (1999) use a longitudinal approach using information provided by four censuses to describe the pattern of self-employment of male immigrants who arrived in Canada the period 1946-60. They use a log linear model comprising education, age, self-employment and industrial brunch. In particular the independent variables of the model are constructed as the main effects variables e.g. age, education, industry etc. and the two way, three way and four way interaction age*education*industry. terms age*education, e.g. age*education*industry*immigrant status. Basu and Altinay (2002), using an interview based (qualitative) research framework, examine the interaction between culture and immigrant entrepreneurship with reference to London's ethnic minorities. Their study finds that; differences in family background, migration motives, religion, family links, business experience, educational attainment and other factors result in diversity in business entry motives, patterns of start-up finance, the nature of businesses, and the degree of reliance on co-ethnic labour and customers among the different ethnic groups.

Data: The majority of the studies in contemporary literature dealing with the employment, wages, immigration or ethnic minorities use "secondary" data. The key individual-level surveys of the labour market in the UK are the Labour Force Surveys (LFS) and the Annual Population Survey (APS). These are cross-sectional repeated survey data. Other datasets may be of relevance depending on the nature of the research question, for example The Family Resources Survey (FRS) that contains information about income, benefits and assets as well as a range of labour market variables; and The British Household Panel Survey (*BHPS*) which is a key resource in this field *for* researchers *who* wish *to* study individual change over time using panel data. Using LFS data we have the advantages of large sample sizes and large range of variables. However we are aware that self-reporting respondents' answers can be inconsistent and also survey – sample error has to be considered when using

such data. The LFS surveys are representative of the entire population of the UK; Key measures include economic activity and inactivity, all aspects of people's work, job-search for the unemployed, education and training, income from work and benefits-see (LFS User Guide Volume 2). A very large number of immigration studies in the UK use LFS data for their analysis- see e.g. Shields and Price (1998)-The earnings of male immigrants in England; Dustmann and Weiss (2007)-Return Migration: Theory and Empirical evidence; Manacorda, Manning and Wadsworth (2006)-The Impact of Immigration on the Structure of Male Wages: Theory and Evidence from Britain etc.

Methodologies used in chapters 4 & 5: In this thesis we use i) a log linear regression model so as to examine how demographic composition changes in the cohorts of native and immigrant low skill workers in the UK have influenced their earnings changes over the period 2001-2010 and ii) a binominal logit model to assess the determinants of self-employability of the different immigrant groups in the UK. The data we use in both empirical exercises are taken from the regularly repeated large scale Labour Force Survey (LFS). This quarterly cross-sectional survey has a relatively complicated sampling design, the implications of which are discussed in some detail in chapter 4- page 119.

In chapter 4 (changes in the earnings power of low skilled immigrants in the UK), we adopt the framework used by Jaeger 2007. We use a log linear regression model to estimate the wages of the four groups we examine (low skilled native men, low skilled native women, low skilled immigrant men and low skilled immigrant women) using 2001 data-see equation 3.20:

$$\ln(W_{jg,l}) = a_{jg} + \beta_{jg1} X_{jg1,l} + \beta_{jg2} X_{jg2,l} \dots + \beta_{jgn} X_{jgn,l} + u_{jg,l}$$
(3.20)

where:

j,g, i index nativity, gender and respondent identity

 $\ln(W_{jg,i})$ is log hourly wage for respondent *i* in the *jg* group in 2001

X_{jg1} ... X_{jgn} are causal factors, each used in one or more of the fitted equations

 u_{jg} is an error term

The next step is to examine if changes in the composition of the low skilled groups have affected their average weekly earnings over the years we examine. To do sowe use the coefficients obtained from those regressions with 2001 data. Then we use the average demographic characteristics to predict the average log wage within each group in both 2001 and 2010-see equation 3.21. The difference between 2001 and 2010 in the mean log predicted wage provides an estimate of how compositional changes within groups (e.g. age, occupational attainment, years of schooling etc.) would have affected wages.

$$\Delta w_{jg} = \sum_{k=1}^{k=K} \widehat{\beta}_{jg01,k} \left(\overline{h}_{jgk,2010} - \overline{h}_{jgk,2001} \right)$$
(3.21)

Where K is the number of characteristics in the 2001-based log wage regression¹³, $\hat{\beta}_{jg01,k}$ is the estimated coefficient on characteristic k in that regression and $\bar{h}_{jgk,t}$ is the mean value of characteristic k for this group at time t. Equation (3.21) provides predictions of the real wage change, relative to 2001, to be expected for a "representative" member of the *jg* nativity-gender group.

In chapter 5 (immigrant's entrepreneurial success in the UK) we assess the factors responsible for the immigrants self-employment in the UK. We construct a model for the likelihood of an individual immigrant working as self-employed, utilising personal, household and environmental socio-economic characteristics as regressors to ensure that the predicted probability of self-employment remains within the required (0,1) limits, we employ a logit model, which has the form:

$$\log \left[\frac{P(y_i = 1)}{1 - P(y_i = 1)} \right] = \alpha + \sum_{j} \beta_j x_{ij} + e_i$$
(3.22)

¹³For some groups, some characteristics have coefficients set to zero prior to estimation.

Where $y_i = 1$ indicates that the *ith* individual is self-employed, and $x_i = x_{1i}, x_{2i}, \dots, x_{ki}$ are the values that some specified causal factors take for this individual. Here, α and $\beta_1, \beta_2, \dots, \beta_i$, are coefficients to be estimated. Estimations are by numerical Maximum Likelihood with the disturbances $\{e_i\}$ assumed independent and normally distributed.

Conclusions

Migration models attempt to explain the causes or consequences of personal, family, or aggregate interregional or international migration. These factors may be modelled theoretically or empirically. Arguably the best empirical models have good theoretical underpinnings. Although the modelling undertaken here is empirical and does not lay out any formal theoretical analysis, it is essentially founded in microeconomic theory, where individual behaviour is seen as driven by rational self-interested decision making by that individual. In chapter 5 we implicitly assume that self-employment is a conscious decision by which an individual seeks to better their own circumstances and we explore the factors that determine when such a decision becomes more or less likely. In chapter 4 we examine how the earning power of lower skilled workers those without higher education has changed during the first decade of this century, with a particular interest in low-skilled migrants. Earning power within the destination labour market is a key driver in the seminal Harris-Todaro (1970) theoretical microeconomic model, where individuals decide whether or not to migrate based upon a comparison of the costs of migration with the earnings differential between origin and destination labour markets.

Chapter 4

Changes in the earnings power of low skilled immigrants in the UK

Introduction

This chapter examines the changes in the average earnings power of low skilled workers in the UK over the period 2001-2010 by using a real wages function approach. Our main finding is that the earnings gap within the UK between foreign and domestic low skilled workers has widened during the decade. Our results show a small increase in the real wages of the low skilled native workers and a decrease in the real wages of the low skilled immigrants, especially for males. This reflects the increase of immigrants among the elementary occupations during this period. In contrast, natives' shares among such occupations have decreased slightly. The increase in the net migration flow after 2003, mainly from EU A8 and new commonwealth countries, reduced the mean age and years of residency for immigrants in the UK. This reduced the average extent of assimilation within the low-skilled immigrant cohort overall, arguably reducing their access to better paid jobs.

The continuing influx of workers from other countries to the UK, arguably, prompts concerns about the effects of immigration on the output/productivity of the UK firms. Economic models find that labour market effects of immigration depend mostly on the structure of the receiving economy, as well as the skill mix of immigrants relative to native population (Borjas 1995).

The fraction of the UK population composed of the foreign-born reached 11.78 percent in 2010, the highest in seventy years ONS (2011). Borjas (1995) argues that the impact of immigration in the host country depends crucially on the relative skill distributions of immigrants and natives. Haskel and Martin (1993) document that

labour force skill shortages lower the labour productivity, Lacomba and Lagos (2010) find that low skill immigrants have a low average productivity. Ottaviano & Peri (2013) argue that immigrants affect firms' productivity and growth through their impact on localized externalities.

As we have seen (see chapter 3) immigrants in the UK show high concentration at both the upper and lower end of the skills; so, such concerns (about the labour force output) are particularly widespread among less-skilled workers; the proportion of immigrants without any qualifications is substantially higher than that of their native born counterparts.

Several previous studies (discussed below) suggest that immigration flows may affect output mix, and wages in the destination country. Peri (2009) uses a large inflow of immigrants in the USA and finds that foreign born workers increase the total factor productivity; but they decrease the capital intensity and the skill-bias of the production technologies. Refining the estimates by accounting for important problems related to the endogeneity of immigrant inflow some of the researchers identified only small effects of immigration on wages (Card, 2001) while others found large negative effects (Borjas, Friedman and Katz, 1997). In more recent studies, however, the latter view of a large negative impact of immigration on wages, particularly of low skill workers, seems to have gained momentum. Studies by Borjas, (2003), followed by Borjas and Katz (2005) and Borjas (2006) use a similar empirical approach to assess immigration effects on wages. In contrast to previous studies that exploit the geographic clustering of immigrants and use differences across local labour markets to identify the impact of immigration; these papers pay a close attention to the characteristics that define a skill group and, in particular, by using the insight that both schooling and work experience play a role in defining a skill group. By using national data from five decennial U.S. censuses (1960-2000) these studies find that U.S. workers lost, on average, about 3% of the real value of their wages due to immigration over the period 1980-2000 and that this loss reached almost 9% for native workers without a high school degree (Borjas, 2003) at least in the short run.

In this chapter, "Earning Power of Low skill Immigrants", we divide low skilled labour market participants into two groups: natives and immigrants and then subdivide each of these groups into males and females. Further subdivision could, in principle be specified by reference to categorical characteristics such as ethnicity or country of origin but in practice that is likely to create some sub-groups in which the number of LFS respondents is too small to support statistical analysis. We prefer to account for such heterogeneity within our four defined groups by the use of dummy variables and interaction terms (see the discussion in chapter 3). There are a number of papers that treat immigrants as a single group, see e.g. Islam and Fausten (2008), Altonji and Card (1991), Jeagar (2007), Islam and Fausten (2008). These studies examine the effect of immigration flows on aggregate labour market outcomes. They investigate the effects of the different skill levels and different genders of immigrants but they do not focus on different races or ethnicities. The empirical estimations are based on wage equations that take into account macroeconomic aspects of the economy such as unemployment rate, productivity etc. Potential endogeneity problems due to selection and self-selection of immigrants are addressed by using various instrumental variable approaches that exploit occupational attainment or antecedent immigration policy and labour market outcomes.

Altonji and Card 1991 use variation in the fraction of immigrants across 120 different cities in the US to measure the effects of immigration on the wage and employment outcomes of low skilled natives. They find that immigration does not affect the employment rates of low skilled natives but it causes negative effects on native wages. The study implies that an inflow of immigrants equal to 1 per cent of the population of a metropolitan area reduces average weekly earnings of low skilled natives by an estimated 1.2 percent.

Islam and Fausten (2008) use macro data to investigate the impact of the relative growth of skilled migration on the structure of Australian wages. Their main finding is that there is no robust evidence that immigration exerts discernible adverse consequence on wages in the Australian labour market. The examination of the skill composition of migration flows supports the many prevailing empirical findings that immigration need not cause labour market outcomes to deteriorate. In fact, there is some evidence that overall immigration may exert positive effects on wages in Australia.

Jaeger (2007) investigates the real hourly wages for the nativity × sex × skill groups within the 50 largest metropolitan areas of the U.S. The paper presents changes in the log relative real wage of natives and immigrants. He finds that within all sex × skill groups, immigrants' wages fell by more or rose by less than their native counterparts. For men, the wage gap between immigrants and natives grew by between 4.1 and 7.5 percent while for women the change was between 1.7 and 4.9 percent. This decline in the relative wages of immigrants continues the trend noted by LaLonde and Topel (1991) for the 1970s. The methodology we use so as to examine the changes in the earnings power of low skilled workers in the UK in this chapter is the Jaeger's (2007) approach above. This is discussed and explained in the following pages-below.

In the theoretical analysis of the labour market effects of immigration a distinction is typically made between skilled and unskilled labour. The skill composition of the labour force can be affected if the skill compositions of immigrants and natives do not match. This might lead to market disequilibrium (at least in the short run) as the supply and demand for different labour types at existing wages and output levels change. In this empirical study we only look at the low skilled segment of the UK labour market; the reason for this is that the majority of workers in the UK are low skilled – see page 123 for further discussion.

The contribution of immigrants to the UK economy, among other factors, is also clearly related to their earnings power. In this study we use Jaeger's (2007) methodology so as to estimate the changes in average real wages within the low skill labour force in the UK over the period 2001-2010. We use educational attainment as a proxy for skill; for natives we define as low skilled workers those without a higher education qualification and refer to this henceforth as the *"hiqual"* criterion for constructing a low skilled sub-sample. For immigrants, so as to avoid the risk of miss-representing skill due to a number of foreign qualifications that are different to the UK equivalent and thus possibly miss-recorded in the LFS data, we use two alternative criteria for defining low skill. Firstly, we apply the *"hiqual"* criterion, as for natives. Secondly, as an alternative criterion for identifying low-skilled immigrant **118** | P a g e

workers, we define as low skilled those who completed their full time education at age 18 or younger. This criterion, henceforth *"edage"* is discussed in detail in page 123. So, for low skilled immigrants we estimate the real wages model twice – once with each of the two skills criteria, and compare the findings.

In particular we measure the change in hourly earnings of the following groups:

- Low skilled native men
- Low skilled native women
- Low skilled immigrant men "hiqual"
- Low skilled immigrant women "hiqual"
- Low skilled immigrant men "edage"
- Low skilled immigrant women "edage"

We first examine the changes in the average characteristics for each of the above groups during the decade. We then estimate a log wage equation for each of the six groups using 2001 data. These regressions are then used to predict the log wage for a person with average characteristics within each group in both 2001 and 2010. Because the coefficient estimates are obtained from 2001 data, the wage predictions are at constant (2001) prices. The difference between 2001 and 2010 in the predicted wage for a group thus provides an estimate of the real wage change and hence the earnings power change from 2001 to 2010 within that sub-group of the low skill labour force in the UK.

4.1 Data

The data is drawn from the Quarterly Labour Force Survey (QLFS), conducted by the Office for National Statistics (ONS), and consists of quarterly (October-December) cross-sections for the years studied. The Labour Force Survey has a complex sample structure with each respondent being interviewed for five consecutive quarterly "waves" and twenty per cent of the sample being replaced each quarter (Rafferty 2008). The dataset thus represents a 'rotating panel,' with a fifth of the panel being refreshed at each quarter. In this empirical study, "*Changes in* the Earning Power of Low skill Immigrant", we employ earnings information. The LFS collects earnings information from an individual respondent at two points in time, namely in their initial (wave 1) interview and also in their final (wave 5) interview. In order to avoid replication of information from a single individual we have used only wave 1 respondents from the October/December quarter for each of the years 2002 – 2010. For the October/December quarter of 2001, both wave 1 and wave 5 respondents are included since the latter were not previously interviewed within the period covered by this study. Also, In accordance with EU regulations, the LFS moved from seasonal (spring, summer, autumn, winter) quarters to calendar quarters (January-March, April-June, July-September, October-December) in 2006. The last seasonal quarter dataset issued was the Quarterly Labour Force Survey, December 2005. The data sets prior to 2006 currently available from ESDS Government have been amended to calendar quarters. Thus the data sets for the period we examine, 2001-2010, are in a uniform format.

In this empirical study various data restrictions have been applied to the QLFS crosssections to form the final samples used in this study; (these are explained further below). The sample for 2001 consists of 2438 respondents (891 native men, 1295 native women, 69 immigrant men *"hiqual*", 70 immigrant women *"hiqual*", 55 immigrant men *"edage"* and 58 immigrant women *"edage"*) and the sample for 2010 consists of 1599 respondents (541 native men, 726 native women, 95 immigrant men *"hiqual"*, 100 immigrant women *"hiqual"*, 57 immigrant men *"edage"* and 80 immigrant women *"edage"*). Sample sizes for intermediate years are similar in magnitude.

The rest of this chapter is structured as follows:

In part 4.2 we examine the changes in the average demographic characteristics of the four groups over the period 2001-2010.

In part 4.3 we present the empirical model estimating the log hourly wages for the low skill labour force; also we discuss the explanatory variables.

In part 4.4 we present our findings in the average real wages change between 2001 and 2010.

Finally in part 4.5 we present our findings in the average real wages change for each year from 2001 until 2010.

4.2 Labour supply changes 2001-2010

In this section we examine the changes in the composition of the low skilled labour force in the UK over the period 2001-2010.

The data shows (see table 4.4 in the appendix) that changes in the percentages of workers for all groups and in all regions have varied during the decade. Higher changes appear in the immigrant groups. A substantial proportion of each gender/nativity group are working in the South East, South West, East of England and East Midlands regions in both 2001 and 2010.

During the decade the average ages of all low skilled groups we examine have changed, with natives' average age increasing to around 43 years old in 2010 whilst immigrants' average age went down to around 38-39 years old (see table 4.5 in the appendix). The average number of years that immigrants have lived in the UK has also decreased dramatically from around 23 years in 2001 to around 15 in 2010, reflecting the relatively large and relatively young immigrant cohorts entering the UK, especially, after the last two EU expansions in 2004 and 2007 and from the new common wealth countries (see chapter 3).

In this research we distinguish between immigrants from advanced and nonadvanced economies; this is motivated by published research findings and will be discussed more extensively in section 4.3 of this chapter. The percentage of immigrants from advanced economies, according to International Monetary Fund (IMF) 2011 definition for advanced countries, was reduced noticeably over the period 2001-2010 (see table 4.5 in the appendix), suggesting significant structural changes in the origin of immigrant cohorts during that decade.

The last decade the increase in immigration largely reflects the rise in the movement of workers from the European Union where no visa restrictions apply (ONS, Longterm international migration 2010), especially from the new member states that joined the union in 2004 and after (see chapter 3). Also there have been increases in net migration from most other parts of the world. Among these the most important areas are the New Commonwealth, particularly the Indian subcontinent, Old Commonwealth countries (including South Africa), and the US.

Between 2001 and 2010 the immigrant share in most occupation categories increased, with the largest relative increase occurring among the elementary occupations (see chapter 3). During this period the native workers show a slight improvement with fewer working in lower paid occupations and increasing their share in the higher paid jobs (see table 4.5 in the appendix).

4.3 Empirical model

A wage model employing theoretically relevant causal factors is presented in reduced form as equation (4.1) below. Variants of this model are estimated separately for low-skilled individuals from each of the groups: native men, native women, immigrant men and immigrant women in both samples (hiqual and edage), using 2001 QLFS data.

$$\ln(W_{jg,i}) = a_{jg} + \beta_{jg1}X_{jg1,i} + \beta_{jg2}X_{jg2,i} \dots + \beta_{jgn}X_{jgn,i} + u_{jg,i}$$
(4.1)

where:

J,g,t index nativity, gender and respondent identity

 $\ln(W_{jg,i})$ is log hourly wage for respondent *i* in the *jg* group in 2001

 $X_{jg1} \dots X_{jgn}$ are causal factors, each used in one or more of the fitted equations u_{jg} is an error term

The causal factors include age, years of residency, occupation, schooling, country of origin; some may be excluded from the fitted equation for a particular group, as irrelevant or insignificant.

In this study we use educational attainment as a proxy for skill and define the low skilled labour force as workers who do not have a Higher Education qualification.

The low skill labour force currently has a significant role in the UK, constituting approximately 70% of native workers and 65% of immigrant workers in the 2010 QLFS data employed in this study. The LFS records educational gualifications but interviewers may record an immigrant's gualifications as "other" where the terminology of the overseas educational system is unfamiliar or the UK equivalent is not obvious. This risk of miss-representation is considerably lower for Higher Education, where the terminology "degree" is relatively consistent across countries.¹⁴. Nevertheless, for robustness, this present study also makes use of the LFS variable recording the age at which full-time education was completed. In this case we consider as low skilled those with 'other qualifications' who completed their full time education at the age of 18 or younger. It could be argued that "qualifications achieved" and "years of education" measure different aspects of skills acquisition. Jenkins and Sabates, (2007) argue that the two measures do not have the same meaning; Educational qualifications are official documents that certify an individual has reached a certain level of competence in one field of education or in a group of fields of education. Years of education merely assume that the longer the individual stayed in education, the higher the level of attainment. However, there is presumably in general a high correlation between the two measures and we shall see that the results obtained here are not sensitive to the choice of measurement.

For modelling low skilled natives' real wage changes, we use "highest qualification" as a proxy for skill level since the risk of unfamiliar qualifications being classified as "other" is negligible. In the case of low skilled immigrants we estimate the real wages model twice – once with each of the two skills proxies, and compare the findings.

A number of restrictions are placed on the domain of applicability of the model. We do not include respondents who continued in full time secondary education after the age of 18, treating these as outliers. Furthermore respondents were only included if they were working in the reference week of the survey. Finally, foreigners were only

¹⁴ Before 2011, the official procedure was to classify all foreign qualifications as 'other'. However, this did not always apply in practice as sometimes the interviewer was not aware the qualification had been obtained abroad. The evidence from LFS users is that this often applies in regards to higher level qualifications such as degrees, where similar terminology is used across countries. Therefore, degrees were often classified as degrees (ESDS Government Helpdesk, University of Manchester, 25 October 2012)

included if they had lived more than a year in the UK, thus qualifying for immigrant status according to the definition of the UN¹⁵.

As we have seen (see chapter 3) the educational background of immigrants in the UK is very diverse throughout the decade 2001 – 2010, immigrants do appear more likely than their native counterparts to be without any qualification¹⁶. To accommodate any difference in the wages between high school graduates and high school "dropouts" we use a 0/1 dummy variable (D15) to indicate when a respondent has no educational qualifications (D15=1).Unfortunately we cannot estimate the effect of English language proficiency on the average earnings of the low skill immigrants as such proficiency is not measured in the QLFS (Quarterly Labour Force Surveys). English language ability is, however, positively correlated with the length of residence in Britain and negatively related to age on arrival (Modood *et al.*, 1997) and both of these variables are included in the list of potential causal factors.

Previous studies have found evidence that immigrants from different countries have different earnings potentials in their destination countries, even conditional on other observable characteristics; see Battu and Sloane (2004) and Bratsberg & Terrell (2002) for the UK and the US respectively. Lindley (2007) & Battu and Sloane (2004) document a mismatch between foreign qualifications and occupations in the UK. All of these papers show that variations in the returns to foreign credentials across source countries are related to differences in school quality in the sending country. Immigrants from countries with generally low quality education systems, returns are lower. To control for these differences, we use the International Monetary Fund (IMF) 2011 definition for advanced economies. The IMF identifies 35 countries as "advanced economies comprise 65.8% of global nominal GDP and 52.1% of global GDP (PPP) in 2010. The examined samples data shows that in 2001 the immigrants

¹⁵ The UN defines migrants as persons who have lived outside their country of birth for 12 months or over.

The percentages of workers without a qualification have decreased dramatically for around 50% for all groups during the 10 years we examine (see chapter 2-highest qualification).

in the UK were around 41.5% and 58.5% from advanced and from non-advanced economies respectively. In 2010, contrastingly, the immigrant population was 29.1% and 70.9% from advanced and non-advanced economies respectively. We use the assumption that immigrants from advanced economies have the potential for higher earnings in comparison to immigrants from non-advanced economies due to possibility of higher quality of schooling. The regressions for immigrants therefore include a 0/1 dummy variable (D70) indicating whether an immigrant comes from an advanced (D70=1) or non-advanced (D70=0) economy. Table 4.5 in the appendix shows the relative proportions.

The independent variables, not all of which appear in the fitted equation for every gender/nativity group, are:

- The age of the respondents.
- The squared age of the respondents.
 - Capturing the typically decreasing rate of wages increase over the lifecycle.
- The occupations of the respondents.
 - Using dummy variables D1....D9, (managers and senior officials, professional occupations, associate professional and technical, administrative and secretarial, skilled trade occupations, personal service occupations, sales and customers service occupations, process, plant and machine operatives, elementary occupations).Table 4.5 in the appendix shows the proportions in each occupation.
- Years of residency in the UK (for immigrants).
- Age when finished full time education.
- A dummy variable indicating no qualifications.
- A dummy variable indicating an immigrant from an advanced economy.

Age and years of residency in the UK are used as experience related variables. Years of schooling is included in the list of potential causal factors because it is well established that education is one of the most important factors in determining income, In this study, however, it is found that the effect of schooling on the wages of low skilled immigrants dos not have a strong effect. Equation (4.1) can now be expressed, suppressing the respondent index, as follows. (Data and parameters are all subscripted "01" to indicate their attachment to the 2001 data.)

$$\begin{split} &\ln(lhrrate_{jg01}) = a_{jg01} + \beta_{jg01,1}(age_{jg01}) + \beta_{jg01,2}(age2_{jg01}) + \beta_{jg01,3}(edage_{jg01}) + \\ &\beta_{jg01,4}(resident_{jg01}) + \beta_{jg01,5}D1_{jg01} + \beta_{jg01,6}D1age_{jg01} + \\ &\beta_{jg01,7}D1age2_{jg01} + \dots + \beta_{jg01,29}D9_{jg01} + \beta_{jg01,30}D9age_{jg01} + \\ &\beta_{jg01,31}D9age2_{jg01} + \beta_{jg01,32}D15_{jg01} + \beta_{jg01,33}D70_{jg01} + u_{jg01} \end{split}$$

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(4.2)
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Where jg index nativity, gender lhrrate =log(hrrate), where hrrate = basic hourly rate (govt.schm.or empl.) age = age of respondents age2 = age^2 resident =years since you first arrived to UK edage =age when completed full time education

The dummy variables: D1 D9 are 0/1 for specific occupations D15 is 0/1, with 1 indicating no qualifications D70 is 0/1, with 1 indicating an immigrant from an advanced economy

The interactions: D1age = D1 * age D1age2 = D1 * age^2 . . . D9age = D9 * age D9age2 = D9 * age^2

Statistical significance, as indexed by the individual t-statistics for the estimated coefficients, was the basis for deciding whether or not terms remained within the finally preferred models. Model development was by step-wise reduction beginning from a general specification including the full range of key drivers and their interactions with contextualising effects. Each step in the reduction of this general specification to a preferred model consisted of removing a small number of the least significant terms, followed by re-estimation of the model before proceeding to the next step in model development.

The regressions for all groups are indicated in tables 4.13, 4.15, 4.17, 4.19, 4.21, 4.23 for the original models and in tables 4.14, 4.16, 4.18, 4.20, 4.22 & 4.24 for the selected models in the appendix. For all regressions (selected models) the coefficient of determination (R-square) ranges between 0.31 and 0.55, and the F-statistics confirm each model's significance.

The factors that are found important determining the wages of low skilled workers in the UK labour market are: age of the respondents, years of residency in the UK (for immigrants), educational attainment, occupation and country of origin (advanced or non-advanced economy for immigrants). All these factors are discussed and explained in detail below.

Age exerts positive but declining effects on wages for all groups;

This finding aligns with the majority of the literature which shows that as people age and gain work experience, their earnings increase in the early years, reach a peak around middle age, and a decline thereafter, see e.g. Saint-Pierre 1996, Skirbekk, V., 2003, Raisian (1979), OECD (1998). Using Canadian cross-sectional census data, Saint-Pierre (1996) finds that the earnings of men employed full time, full year declined after their mid-forties. Raisian (1979) argues that, average real wage peaks around middle age and then begins to decline. The return to added years of schooling is positive throughout. Finally, results show that wages increase with job experience throughout. A wage analysis provided by the OECD (1998) for 17 out of the 19 countries observed- shows the same pattern; in particular, the 25-29 age group earns on average 0.72 of what the 45-54 age group earns, while the 55-64 age group earns 0.91 of what the 44-54 age group does. Age-related differences in **127** | P a q e wages increase with the level of education. Skirbekk (2003) argues that individual job performance is found to decrease from around 50 years of age in German labour market. Productivity reductions at older ages are particularly strong for work tasks where problem solving, learning and speed are needed, while in jobs where experience and verbal abilities are important, older individuals' maintain a relatively high productivity level.

 Years of residency enhance the wages of low skilled immigrant men but has no return for low skilled immigrant women;

Generally immigrants' occupational status and expected earnings rise with duration of residence in the host country. Carliner (1980), Chiswick (1978), argue that time in the U.S. directly affects earnings and occupational attainment of immigrants. Chiswick and Miller (1985) find that immigrants' income increases with duration of residence, but McDonald and Worswick (1999) find that the wage gap for immigrants from non-English speaking backgrounds does not decrease with time spent in Australia, indicating little or no earnings assimilation.

In this study an *a priori* expectation that duration of residence for low skilled women might be important did not obtain empirical support. This result may indicate that lowskilled female immigrants do not participate in the labour force to the same extent as their male counterparts.

• The variables 'age' and 'years of residency' represent experience /assimilation in this study; 'age' show plausible diminishing marginal effects but 'years of residency' not, maybe because we examine low skilled groups.

Many studies find evidence that immigrant employment and occupational assimilation vary significantly by gender, origin and educational attainment, see e.g. Dorades and Rica (2006). The assimilation process reduces the employment and earnings gap between immigrants and natives, see (e.g. Kossoudji; 1988, Heather and Friedberg; 2000, Kuhn, and Trejo; 2006). In this study the variables 'age' and 'years of residency' represent experience /assimilation. We have already seen in pages 125 & 127 that 'age' - representing experience generally and 'years of residency' representing assimilation experience, are factors of wages growth in early years, a peak around middle age, and a decline thereafter.

 Not surprisingly, occupational attainment is found to be a relevant determinant of earnings power.

The influence of occupational category is not uniform across the different groups of low-skilled workers and, for immigrants, the effect is sensitive to the definition of low skill that is employed. It is found that skilled trade, plant and machine operatives and managers are the occupations in which the hourly rate is higher for low-skilled natives, both men and women. Regarding low skilled immigrants, working as a manager leads to higher wages for both men and women when "hiqual" is used to define low skill but not when "edage" is used to define low skill. Working as plant and machine operatives only leads to higher wages for low-skilled immigrant men, using the "edage" definition of low skill. Administrative and secretarial occupations lead to higher wages only for low skilled immigrant women when the "hiqual" definition of low skill is applied. This sensitivity of some of the conclusions to the definition of "low skill" is discussed further below (page 135). For those in elementary occupations, as might be expected, the wages are lower for all groups

• For immigrant men, coming from an *advanced economy* has a positive effect on earnings power; this effect is not present for immigrant women from advanced economies.

This finding suggests that the human capital immigrants' gain in their home countries via processes such as education and work experience and maybe other unobserved processes, e.g. cultural experience, is more likely to promote success in the UK labour market if gained in an advanced economy. Relevant literature finds similar results, see e.g. Dorades & Rica (2006) and Bratsberg & Terrell (2002). Examining the assimilation process of immigrants in the Spanish labour market Dorades and Rica (2006), find that EU15 immigrants do not display an employment or occupational gap with respect to natives, whereas immigrants originating from non-EU15, African or Latin American countries do. Yet, among the latter, non-EU15 and Latin American immigrants assimilate employment and occupation-wise, while there is limited evidence of labour market assimilation among African immigrants. Also Bratsberg & Terrell (2002) argue that there are returns to foreign education for

immigrants in the United States only if their education was gained in countries with similar/equivalent educational system as this in the US.

In case of low skilled immigrant women in this study, unlike males, their earnings power has been relatively insensitive to the level of economic development of their home country. This may possibly be because their intermittent work experience makes women from advanced economies and women from non-advanced economies closer substitutes in production, than is the case for males.

 For immigrant men, complete lack of educational qualifications reduces wages but – as opposed to natives, there is no significant return to extended education

Education is one of the most important variables so as to explain immigrants' earnings in the destination economies. This finding aligns with the vast majority of the relevant literature, see chapter 2 part 2.4 'Skill level of immigrants and economic returns,' e.g. Ferrer and Riddell (2008) and Danceshvary (1993), Card (1999) etc.

The literature also argues that returns to years of education for immigrants are lower than those for natives, see e.g. Lindley and Lenton (2006) and particularly very low for non-western immigrants, see e.g. Hardoy and Schone (2014), Kler (2006). Our data in this study show that for the year 2010 around 80% of immigrants were from non-advanced economies, see table 4.5 in the appendix, which might explains why there are no returns to extended education (the majority of advanced economies are in western countries, see table 4.2 in the appendix). Lindley and Lenton (2006) find that native born non-whites and immigrants are more likely to be over-educated in the UK labour market, even after conditioning on all other socio-economic factors. Hardoy and Schone (2014) shows that returns to one extra year of education is three times higher for ethnic Norwegians than for non-western immigrants. Finally Kler (2006) find that Asian non-English speaking immigrants, in Australian labour market, receive lower returns to required education, and they receive no returns to surplus education.

• For *immigrant women education*, generally, earns no return.

A complete lack of educational qualifications exerts no significant effect on the wages of low skilled women in the sample constructed according to the "edage" criterion. Only a small negative effect is observed in the "hiqual" sample. Apart from

this there is no correlation between low-skilled immigrant women's earnings and their educational attainment. The wages profile of low skilled female workers, which tends to be quite flat (see page 135), appears to not be influenced by years of schooling - possibly because their intermittent work experience or other non-observed factors, e.g cultural, exclude them from the opportunities for promotion and progress in their work environment.

4.4 Total change in average real wages of low skilled labour force between 2001 and 2010.

The total change in average real wages, Δw_{jg} for the four low skilled groups $jg \in (1,2)$ that we examine (native men, native women, immigrant men and immigrant women) is modelled as:

$$\Delta w_{jg} = \sum_{k=1}^{k=K} \hat{\beta}_{jg01,k} (\bar{h}_{jgk,2010} - \bar{h}_{jgk,2001})$$
(4.3)

Where K is the number of characteristics in the 2001-based log wage regression¹⁷, $\hat{\beta}_{jg01,k}$ is the estimated coefficient on characteristic k in that regression and $\bar{h}_{jgk,t}$ is the mean value of characteristic k for this group at time t. Equation (4.3) provides predictions of the real wage change, relative to 2001, to be expected for a "representative" member of the jg nativity-gender group. These predictions are presented in Table 4.7 in the appendix.

¹⁷For some groups, some characteristics have coefficients set to zero prior to estimation.

The results suggest that the average earning power of low skill UK-born men and women increased slightly - by 0.47% and 2.56% respectively, between 2001 and 2010. In contrast, the changes in that period to the average characteristics of low skill immigrant men and women have not led to any increase in the value placed upon their work by the labour market. In fact, when highest qualification (hiqual) is used as a proxy for skill in the immigrants' wages models, compositional changes in the cohort of low skill immigrant men have resulted in a significant decrease (11.07%) and low skill immigrant women have recorded a marginal decrease of 0.01% over the period. When using years of schooling completed (edage) as an alternative skills proxy for immigrants, we again see the same contrast between their real wage changes and that of the natives'. In detail, we estimate that the average expected real wage for immigrant men decreased by 11.20% and for immigrant women decreased by 3.75%, under the "edage" definition of low skill, see graph 4.1. The two definitions of "low skill" give the same broad brush conclusions of a large decrease in the earnings power of low skilled immigrant men and a more marginal decrease for low skill immigrant women. Since the two alternative definitions lead to two different samples of respondents it is not surprising that their results are not exactly the same. This is discussed below on page 135.



The total change in earnings power for a given group, Δw_{jg} , can be decomposed into subtotals associated with each characteristic: age, ethnicity, years of residency

in the UK, age when finishing full time education, country of origin (advanced - non advanced economy) and occupation, to indicate how changes in these several characteristics of the low skill immigrant cohort have impacted on their earnings power over the decade. Table 4.11 (4.11a, 4.11b & 4.11c in the appendix) presents the detail of this decomposition. The experience and assimilation variables (age and years of residency) are found to be key factors in the immigrants' earnings deterioration. Since 2004 the annual net in-migration rate of non-British citizens has nearly doubled in comparison to the years prior to 2004, see graph 4.2. This influx of relatively recent migrants within the last decade has had implications for the overall experience and assimilation profile of resident immigrants. The mean age and the mean years of residency in the UK of low skill male and female immigrants dropped substantially (see table 4.5 in the appendix) and greatly affected their real wages especially for men. For women, although the change in overall earnings was negative, it has not been as dramatic as it was for immigrant men. This reflects the fact that year of residency was found to be insignificant when estimating equation (4.3) for low skill immigrant women; the shortening of their assimilation experience has not had an effect similar to that expected by low skill immigrant males.



Graph 4.2

Although, there is not a significant effect from the years of schooling in the earnings of low skill immigrants, there is a negative effect for those, men and women, without a qualification (see table 4.6 in the appendix). The effect from the change in the mix

of country of origin (the share of immigrants from non-advanced economies increased while the share of immigrants from advanced economies decreased greatly-see table 4.6 in the appendix) is small for immigrant men while it is insignificant for Immigrant women. Literature shows that immigrants from advanced economies are more successful in destination markets, see Battu and Sloane (2004) and Bratsberg & Terrell (2002); in this study the effects, though positive and significantly different from zero, are small – probably because we examine low skill groups.

We found that the reductions in the mean age and years of residency affected the immigrants' assimilation process in the UK, arguably reducing their access to better paid jobs.

A large estimated coefficient suggests that changes in the occupational attainment (the share of immigrants among the elementary occupations increased substantially) are largely responsible for the immigrants earnings change (see table 4.6 in the appendix for the estimated size of the effect). For low skilled natives, small movements towards higher paid jobs (see table 4.5 in the appendix) improve their earnings. Changes in the mean age and educational attainment have minor effects in the overall wages change of natives.

4.5 Total change in average real wages of low skilled labour force for each year 2001-2010.

The methodology introduced above to estimate the earnings changes from 2001 to 2010 can also be applied to the intermediate years in order to examine how the pace of change may have varied within the overall period. As above, we use the coefficients of the 2001 regressions to estimate the hourly wage of a representative worker from each nativity/gender group and now do so at each intermediate year.

Graph 4.3 presents the log real wages for representative members of all groups we examine. For low skill immigrant men groups, using both the hiqual and edage criteria for defining low skill, the real log wages decline over the period studied, albeit with some fluctuations during the decade. The percentage decrease is similar for both definitions of low skill. The real wages of low skill immigrant women, for both 134 | P a a e

skill measures, decline slightly over the period 2001-2010. In contrast, real wages for low skilled native men and women rose moderately between 2001and 2007 and after that show a slight decline between 2008 and 2010 (see table 4.9 in the appendix).



Graph 4.4 shows a comparison of the 2001-2010 estimated log real wage change of low-skill immigrant groups, using both "hiqual" and "edage" definitions of low skill. Our findings show that, by either definition of low skill, the predicted wages decline over time. For immigrant women, the choice of definition for low-skill has only a marginal effect on the time path of wages. For immigrant men the difference is more pronounced, with average estimated real wages in the "edage" sample being above those of the "hiqual" sample. A plausible explanation of this difference might be that those in the "edage" sample might have more labour market experience since the "hiqual" sample may include individuals who spent time away from work studying for a higher qualification but failed to achieve it. Also looking into the compositional changes of the demographic characteristics of the respondents we can see that the average age of those in the "edage" sample is slightly higher than those in the "hiqual" sample, (see table 4.5 in the appendix)-age is found to be a strong factor determining income in our models. Furthermore the percentage in elementary occupations, a sector with low wages, of those in the "hiqual" sample is slightly higher than those in the "edage" sample (see table 4.5 in the appendix).



We have seen in part 4.4 –page 133 that changes in average age and years of residency are the main factors worsening low skill immigrant's expected wages. The ONS (2011)-International Passenger Survey (IPS) shows that there was a substantial increase in the net flow of immigrants after 2003 (see graph 4.5). This increase reflects the EU A8 expansion and also an increase in the arrivals from the new commonwealth nations. Changes in the net flow from other sources of migration such as EU 15, old commonwealth countries and rest of the world are small. The net flow of British citizens is negative especially during the period 2005-2009 (see table 4.12 in the appendix)



Graph 4.5

Source: ONS, International Passenger Survey (IPS) estimates of long-term international migration. Rolling annual data to Q1 2011/Year Ending data.

Conclusions

This study has found a weak increase in the expected real wages of low skill native workers and a decrease for low skill immigrant workers, dramatically so for males, over the period 2001-2010.

To explain the reasons for these results, we have seen that, firstly, the immigrants' share among elementary occupations – where marginal value product is expected to be relatively low, has increased substantially, especially for males (see graph 4.6). In contrast, natives' shares among such occupations have decreased slightly. Not surprisingly, since we examine low skilled labour, educational attainment has played a weak role in the average earnings change.

It is also relevant that during the 2000s the UK has witnessed the largest influx of immigrants, since the beginning of recorded migration history in the country. After 2003 the net flow of immigrants in the UK increased substantially from the EU A8 countries and from the new Commonwealth countries. This resulted in a reduction of the mean age and average years of residency of immigrants. It is well known that wage rates are typically age-related and increasing in the earlier stages of working life, which is predominantly the age range for immigrants in this study, see table 4.5 in the appendix. Also, we can note that assimilation studies, for example see Dustman (1994), Abramitzky, Boustan, Leah and Eriksson (2012), Salehin, and Breunig (2012), suggest that the gains to income from immigration become significant only after some delay, in most cases immigrants fully assimilate after thirteen years, see Chiswick (1978).

Turning from the demographic characteristics of the immigrants to the nature of the economic environment, we should note that the recent influx of immigrants to the UK have experienced a severe recession. This high surge of immigrants in a period of recession appears to have worsened their labour market status, especially for the low skilled, driving them to accept lower paid jobs. In contrast to what is said in public debates, the labour market situation of employed low skilled natives has not worsened.





Quarterly LFS, October-December 2001-2010

Chapter 5

Immigrants' entrepreneurial success in the UK

Introduction

We use Quarterly Labour Force Survey (QLFS) data from 2006-2010 to analyse the rate of entrepreneurship, defined as being self-employed, among different immigrant ethnic and national groups in the UK.

In this study we define an entrepreneur as someone who is self-employed. The term 'entrepreneurship' may in principle more broadly describe the activities of 'a person who undertakes a commercial venture' (Oxford English Dictionary), and could thus include (say) having a business interest which is not one's main employment. Nevertheless, previous studies see (e.g. Evans & Leighton; 1990, Antecol, & Schuetze; 2005 and Baptista, Escaria & Madruga; 2008) have treated self-employment as a principle example of entrepreneurial behaviour and, for a study that is focussed upon the immigrants' labour market experience, it seems appropriate to adopt this definition. Moreover, self-employment is the form of entrepreneurial behaviour for which data are provided by the Labour Force Survey.

A logit model of the determinants of self-employment is estimated with controls for human capital and demographic variables.

The model isolates the different rates of entrepreneurship for immigrants based on their demographic and socioeconomic characteristics. Our findings show that there are different entrepreneurial dynamics for immigrants of different national or ethnic origins in the UK. In part 5.6 we extend our analysis by focussing on the selfemployment rates of immigrants from the two top sending regions. These two regions are, firstly, the Central and Eastern European countries that joined the EU in 2004 and 2007 and, secondly, the Asian Commonwealth countries-particularly from

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the Indian subcontinent. We compare our findings from these key groups with each other and with the results obtained when analysing all groups. We expect that the drivers of entrepreneurship, the socioeconomic and demographic characteristics of immigrants of both groups are different, thus the likely impact on self-employment is different for each group. The results show that cultural differences may be the main factors differentiating the self-employment rates of both groups with Asians possibly relying on social networks more than Europeans and the latter appearing to be possibly more flexible in their choice of location within the UK.

Overall in this study we find three novel results, these are:

- In some cases, immigrants show a tendency to be more entrepreneurial in regions where individuals of the same national assembly are concentrated but exert negative effects for others.
- Higher education is negatively associated with the immigrants' selfemployment rates.
- Economic factors such as unemployment and households' gross disposable income are found to affect the self-employment likelihood of some particular immigrant groups.

In the last two decades, after the fall of the iron curtain, international migration has been characterised by sustained increase and deep changes. New destinations, new regions of origin and new flows have emerged. The Southern European countries have changed from traditional immigrant sending countries to immigrant receiving countries. In turn, the old immigrant receiving countries (Western Europe, Australia, USA etc) have been seeking for a new type of immigrant - highly talented with transferable skills that can be adapted to new technologies and/or investor funds. EU states have increasingly looked to address migration administration through cooperation with migrant-sending countries and the 'transit' countries through which

migrants travel to EU, see Boswell (2003). At the EU level, institutions such as the Commission and the Parliament, as well as some member states, push for a common, "harmonized" EU immigration policy, see Givens and Luedtke (2004).

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Increasing ethnic and racial diversity has been a defining feature for most western societies. Such diversity is in part a result of immigration, particularly for those metropolitan areas receiving large numbers of immigrants, like London. The adverse selection such immigrants experience in their destination labour markets can lead them to look beyond employment contracts for a source of income. The studies surveyed below show that the UK has offered opportunities for individuals of various ethnic origins and cultures to start their business ventures.

It has been well established by a series of papers (see below) that the main factors of immigrant success in the destination economies are: immigration policy and settlement patterns, assimilation over time (Chiswick 1978), (Dustman 1994) and (Amuedo-Dorantes, & De la Rica 2007), lower value of immigrant human capital (Bratsberg & Terrell 2002), (Bratsberg & Ragan 2002), origins of immigrants and the possibility of discrimination (Blackaby et al. 2002). Other determinants include labour market niches, social and cultural capital, and institutional contexts.

Immigrants' racial inequality in education, income, and wealth in the UK are also well studied and scholars have frequently noted that immigrant job search in the UK is less successful than that of the UK-born individuals (Frijters, Shields and Price, 2005), with immigrants found to often be more exposed to unemployment than the native population. Studies such as Elliott and Lindley (2006) have also found that immigrants are over-represented in the higher and lower pay occupational categories in the UK and regardless the occupation segregation they still pay a significant ethnic penalty.

What appear to be less understood are the large and persistent racial disparities in immigrants' business ownership and performance, and only in recent years has immigrant entrepreneurship emerged as an important research topic.

A large body of the research, see (e.g. Kloosternian and Rath; 2003 and Schuetze; 2005), in most cases finds that the rate of self-employment among immigrants is higher than that for the native-born, and that migrant entrepreneurship plays an important role in increasing the employment opportunities for ethnic segments in the urban population. This helps in solving structural labour market imbalances and also

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makes significant contributions to the revival of small businesses in the major immigrant-receiving cities. The UK experience, however, is not so optimistic; only a relatively small fraction of self-employed from most ethnic minority groups employ others, Clark and Drinkwater (2010).

5.1 Reasons immigrants decide to become self-employed

Structural and cultural factors have been identified by a large body of literature as significant for explaining why immigrants turn to self-employment, see Fairlie and Robb (2008), Wang (2010), Collins (2003), Waldinger and Aldrich (1990). These studies argue that immigrants are pushed to self-employment as a consequence of individual characteristics (e.g., age, gender, education, limited language skills), household characteristics (e.g., presence of family members who own businesses), or as a result of discrimination that makes difficult the option of other alternatives. Ethnic solidarity, a co-ethnic labour force, and an enclave economy are cultural factors that facilitate self-employment. According to Fairlie (2008) human capital such as prior business experience, high education, and language proficiency is fundamental to the start-up and growth of ethnic entrepreneurship. Borjas (1986) argues that 'as immigrants assimilate they are more likely to become selfemployed'. Also some countries try to motivate talented immigrants to start-up their business ventures. For example, Chile has launched a government funded program giving capital and visas to foreign entrepreneurs who want to start exploiting their ideas within its borders (The Economist 13th -19th October 2012). Australia, Canada, and the United Kingdom have certain legislation that allow entrepreneurs to immigrate and settle providing that they invest or bring with them certain "minimums" of capital to the country, see Mahroum (2001).

5.2 Empirical evidence

Studies in the UK, USA, Canada, Australia and Switzerland analyse further the characteristics of immigration entrepreneurship. In some countries the size of a foreign-born population appears to open entrepreneurial opportunities for immigrant business owners because they understand the product preferences and the language of their fellow consumers. For example, in Australia, ethnic group size and linguistic isolation among the workforce have been found to enhance immigrant entrepreneurship/ self-employment (Evans 1989). However evidence from the USA suggests the opposite; it has been found that the size of the local ethnic population does not enhance immigrant self-employment for either English proficient or limited-English-proficient men (Mora and Da' Vila 2005). Another study for England and Wales by Clark & Drinkwater (2000) finds that immigrants with low English fluency, and recent immigrants, are less likely than other members of ethnic minorities to be self-employed.

Roberts and Hiebert (1997), in an interview-based study of Indo-Canadian entrepreneurs in Vancouver Canada, find that the extended family plays an important role in the early stages of small companies, and that various forms of spousal support are important to the operation of these businesses. Married self-employed individuals have a simple way of diminishing their businesses risk - hire their spouses. Fairlie and Robb (2005) also argue that the children of business owners have a substantial higher probability of self-employment than the children of non-business owners.

Another interview-based study by Brettell and Alstatt (2007) in the USA shows the diverse paths to immigrant self-employment across a range of immigrant populations. The study identifies a biographical structure composed of the various phases that shape the status passage to self-employment. Immigrants actively accommodate constraints and take advantage of opportunities such as those offered in the ethnic and occupational niches of the labour market. Self-employment provides an important avenue for the social and economic incorporation of immigrants.
Levie (2007) examines the effects of migrant status and ethnicity on propensity to engage in entrepreneurship in the UK. The study finds that migration increases the odds of engaging in new business activity and that in-migrants (UK born entrepreneurs who have migrated within the UK) are more likely to start up a new business than immigrants.

Smallbone, Bertotti and Ekanem (2005) argue that Asian owned creative firms, in contrast with the low added value of most traditional Asian owned business in London, make significant contribution to London's creative sectors¹⁸.

In contrast with evidence collected in other developed countries about the selfemployment rates of immigrants, a recent study in Switzerland by Guerra, Patuelli and Maggi (2012), surprisingly, finds that immigrants are less entrepreneurial than natives. They also find that, as in other developed countries, immigrants experience higher unemployment rates than natives. Among other factors: local concentration of particular ethnic groups, cultural characteristics and language proficiency is found to be associated with immigrants' self-employment rates.

Further studies provide evidence that the influence of culture and race on entrepreneurship of immigrants is significant, see Collins (2003), Fairlie and Meyer (1996). Fairlie immigrants' and Robb (2008). Examining the post-war entrepreneurship in Australia, Collins (2003) finds that some immigrant groups, such as the Koreans, Greeks, Italians, Israelis, Cypriots and Lebanese, have higher rates of entrepreneurship than the Australian-born. While immigrants born in England, China, New Zealand, Canada and Pakistan have rates of entrepreneurship similar to the Australian average, other immigrants (those born in Taiwan, Singapore, Sri Lanka, Vietnam, and Turkey) have lower than average rates of entrepreneurship. Fairlie and Meyer (1996) argue that self-employment rates differ substantially across 60 ethnic and racial groups in the USA. They find that higher income immigrants have higher self-employment rates; earnings discrimination or poor language proficiency, opposite to other studies (Fairlie and Robb; 2008, Wang; 2010, Collins;

¹⁸ The most important London's creative sub-sectors are: video, film and photography, computer games and software, arts and antiques, architecture and advertising.

2003, Waldinger and Aldrich; 1990), do not often lead to self-employment. Fairlie and Robb (2008) examine the racial disparities in business ownership and performance in the United States- the study finds that only 5.1 percent of African American workers and 7.5 percent of Latino workers own businesses compared with more than 11 percent of white and Asian workers.

More recent papers, see Clark & Drinkwater (2009), Wang (2010), Georgarakos and Tatsiramos (2009) enhance the findings of the previous studies about the effect of culture and race on immigrant self-employment rates. Clark & Drinkwater (2009) assert that for Asian immigrants in the UK the self-employment rate has increased faster than that of natives while for Blacks it declines. Wang (2010) argues that whites and blacks are more likely to own businesses in newer immigration gateways in the USA while Hispanics and Asians are more likely to do so in the more established gateways. Georgarakos and Tatsiramos (2009) also find that there are different drivers of entrepreneurship for the different immigrant groups in the USA and their descendants. The study shows that independent work for Mexican and other Hispanic gatherings' is a stage from unemployment to occupation, while this is not the situation for African-American assemblies.

The majority conclusion from the growing literature on immigrants' self-employment shows that the selective nature of migration, the fact that immigrants face barriers to securing salaried jobs, including discrimination, language obstacles and poor access to information, and the fact that immigrants economic activities are often aimed at their communities of origin make immigrants vibrant entrepreneurial groups in their destination economies.

5.3 Data

The data is drawn from the Quarterly Labour Force Survey (QLFS), conducted by the office for National Statistics (ONS), and represents quarterly (October-December) cross-sections for the years 2006, 2007, 2008, 2009 & 2010 (some data limitations have been applied for the formation of the final samples used in this

survey and explained below). The sample size used for the above years consists of 42,168 respondents (19,665 immigrant men and 22,503 immigrant women). The large size and advanced quality of the data (The sampling design implies adequate coverage for immigrants - it uses stratification and avoids clustering) enables the testing of business engagement rates of the different migrant groups in the UK.

As has already been discussed in Chapter 4- page 120, LFS creates longitudinal datasets where respondents are interviewed for five consecutive quarters over a 12-month period, with 20 per cent of the sample being replaced at each quarter. In this empirical exercise, *"Immigrants' Entrepreneurial Success in the UK"*, data is combined from several years (2006 – 2010). To avoid repeated observation of individual respondents, in successive quarterly waves, I use data only from the October-December quarter in each year. For the same reason, I drop wave 5 responses from this quarter since these individuals were previously interviewed as wave 1 respondents in the previous year.

Data limitations: In order to empirically analyse the determinants of selfemployability for the sample, we consider as potential self-employed, people between 15 and 75 year of age; so, the sample has been restricted to individuals in this age range. The foreign-born included in the research have lived more than a year in the UK so as to qualify for the immigrant status according to the definition of the UN¹⁹.

Exploring the data it has been found that most of the racial groups in the UK, with the exception of black and mixed, immigrants have slightly higher self-employment rates than natives. Focusing on the group of employed individuals, the self-employment rates of natives and immigrants for the period 2006-2010 are 10.58% and 11.41% respectively. The self-employment rates for particular ethic groups within the body of immigrants are: White 12.94%, Asian 11.48%, Chinese 13.60%, Mixed 9.43%, Black 5.81% and other ethnic group 9.91% (see tables 5.1 & 5.2 in the appendix).' The most populous immigrant ethnic group in the UK are the Whites followed by Asians and then Blacks, while the least populous immigrant ethnic groups are the Chinese and Mixed (see table 5.3 in the appendix).

¹⁹ The UN defines migrants as persons who have lived outside their country of birth for 12 months or over.

As graph 5.1 shows entrepreneurial activity in the UK has dropped during the period we examine, a slight rise appears only in 2010. The percentages of self-employed immigrants are higher than that of natives for all years.



Graph 5.1 (percentage of self-employed of the whole immigrant and native population)

LFS data, quarterly (Oct-Dec) cross sectional 2006-2010

Unambiguously the recession 2007-2010 had an impact on the entrepreneurial activity. Audretsch, (1995) argues that the rate of entrepreneurship may be a consequence of the rate of economic growth. For high income countries like UK, other core EU countries, North American countries and Japan, the more established the entrepreneur, the more pessimistic they are likely to be. However by contrast, in these countries where much has changed because of the recession, a significant minority of entrepreneurs see opportunity where others see danger. These individuals tended to be younger and better educated, and to have higher aspiration levels in terms of job expectation and innovation GEM (Global Entrepreneurship Monitor) 2010 report.

Different migrant ethnic groups experience different rates of entrepreneurial activity in the UK²⁰; graph 5.2 presents these over time from 2006 until 2010. Chinese and Whites show the highest rates of entrepreneurship while Blacks have the lowest rates. Asians show a downwards trend over time.

²⁰ According to QLFS there are six ethnic groups in the UK. These are: white, Asian, mixed, black, Chinese & other.





<u>Gender differentiation and ethnic background</u>: There is a clear 'gender gap' among the immigrant entrepreneurs. In all immigrant ethnic groups the majority of entrepreneurs are males. Asian males show a strong entrepreneurship incentive in comparison to Asian females who have a very low rate of entrepreneurship. Black immigrants also show a wide gap between male and female entrepreneurship. However in other ethnic groups such as White, Chinese and Mixed the gap between

However in other ethnic groups such as White, Chinese and Mixed the gap between male and female entrepreneurship is smaller (see table 5.2 in the appendix). The entrepreneurial gap between genders is also very wide for natives, see graph 5.3. Minniti and Arenius (2003) argue that there is no country where women are more active- entrepreneurial than men. Aidis, Welter, Smallbone, and Isakova (2007) examine the female entrepreneurship in some transition economies (Lithuania and Ukraine); the study finds that access to funds is a more important barrier for female business owners than for their male counterparts. Also women generally have had less access to informal networks.

On a closer examination of the data we find that the overall self-employment propensity of immigrants has declined during the last two decades. Graph 5.3 shows the percentage of employed individuals (natives and immigrants, men and women) who are self-employed during the years 1992-2010. The first decade there is a clear advantage for immigrants. However the initial gap in self-employment between natives and immigrants has nearly closed by the end of the second decade. The

difference in the entrepreneurial activity between genders, for both natives and immigrants, remains.



Graph 5.3 (percentage of self-employed of the employed workforce)

LFS data, quarterly (Oct-Dec) cross sectional 1992-2010

Further features of the data sample are the following:

As the number of individual countries recorded in the LFS, 274, is impractically large, we test the national concentration hypothesis with regard to fifteen main national groups, constructed on the basis of regional contiguity, so as to make the analysis feasible²¹ (see table 5.6 in the appendix). These groups are: North West Europe, South Europe, Central & East Europe and the rest of Europe, Eurasia, Middle East and Central Asia, North Africa, South Africa, Rest of Africa, Asia (Commonwealth), Asia (other Asia-developing), Asia (developed), North America, South America, Other North America and Central America, Oceania & other New Commonwealth and Rest of the World.

Around 37% of all immigrants living in the UK come from North West Europe and from Asia (Commonwealth) see table 5.7 in the appendix. The average age of immigrants is 40 years, and 58% of them are married. Immigrants from North America, Most European regions and Oceania show higher self-employment rates in comparison to other immigrant population in the UK, while immigrants from Africa,

²¹To the best of my knowledge there is no standard way of grouping countries for this purpose. The grouping employed in this study is shown in table 5.6 in the appendix.

Central America and Asia (developing) have the lowest self-employment rates, see graph 5.4.



Graph 5.4

Some other descriptive statistics are useful to sketch the overall socioeconomic framework under analysis. Our sample, after having used the data restrictions (respondents are between 15-75 years and have lived more than a year in the UK), shows that 69.46% of the immigrants are employees, 11.41% are self-employed, 18.87% are unemployed, inactive and 0.27% other, see table 5.4 in the appendix. By looking at job positions of the employed immigrants in our sample we observe that approximately 15% self-identify as "white collars 1" (*white collar 1= managers, senior officials and skilled trade*), 21% self-identify as "white collars 2" (*white collar 2= professional occupations, associate professional and technical*), 16% self-identify as "blue collars" (*blue collar= process, plant and machine operatives, elementary occupations*), 16% self-identify as "pink collars" (*pink collar= administrative and secretarial, personal service occupations, sales and customer service*)²², see table 5.7 in the appendix, and finally 32% of the respondents are inactive, do not apply, no answer, other. Regarding education, we note that 68% possess secondary or lower than secondary educational qualifications ("lower education"), see table 5.7 in the

²² The reason we split white collar workers into two categories is that we believe for Wcollar2 the individuals have received higher education. However the educational level for Wcollar1 workers is probably lower. Since we examine the rate of entrepreneurship of the different immigrant ethnic groups in the UK we expect to see different rates of self-employment for Wcollar1 and Wcollar2 workers according to their ethnic background.

appendix, while the rest of the immigrants possess post-secondary ("higher education") qualifications²³. Unfortunately the respondents' command of English language is not measured in the QLFS (quarterly labour force surveys). According to Modood et al. (1997), Bangladeshis have the lowest levels of fluency, followed by Pakistanis, finding also that English language proficiency is positively correlated with the length of residence in Britain and negatively related to age on arrival. We additionally expect that English language capability is associated with the level of education, so that QLFS information regarding education level may give some indication of language proficiency.

Finally, examining the regions of immigrants residency in the UK we can see high concentration in London and the South East where around 48% of all immigrants work, in contrast the lowest percentages appear in North East and Northern Ireland (see table 5.5 in the appendix). Aldrich et al. (1985) note that minority entrepreneurs will usually know more about the special tastes and preferences of ethnic markets which gives them an initial advantage but expanding the business into the wider community might prove difficult. Borjas (1986) and Evans (1989), argue that immigrants tend to be more entrepreneurial in areas where other individuals of the same ethnic group are concentrated.

Descriptive statistics (sample means and standard deviations) of all the variables are reported in table 5.7 in the appendix.

5.4 Methodology

In order to empirically analyse the drivers of entrepreneurial behaviour amongst migrants in the UK, we construct a binary choice model, specifically a logit model, to estimate the likelihood of being self-employed.

²³ Before 2011, the official procedure was to classify all foreign qualifications as 'other'. However, this did not always apply in practice as sometimes the interviewer was not aware the qualification had been obtained abroad. The evidence from LFS users is that this often applies in regards to higher level qualifications such as degrees, where similar terminology is used across countries. Therefore, degrees were often classified as degrees (ESDS Government Helpdesk, University of Manchester, 25 October 2012)

The logit framework can be briefly summarised as follows.

Let $y_i \in \{0, 1\}$ be a binary dependent variable, with $y_i = 1$ denoted "success" – i.e., in this study, being self-employed. Let $y = \{y_i, i = 1, 2 \cdots T\}$ be a sample of T observations. If $x_i = (x_{1i}, x_{2i}, \cdots x_{ki})$ is the vector of values that some specified causal factors take for the ith observation, then the logit model explains success probability as:

$$P(y_i = 1) = \frac{\exp[f(x_i)]}{1 + \exp[f(x_i)]}$$
(5.1)

This non-linear structure ensures that the probability of a success (being selfemployed) falls between 0 and 1 for all possible x-values.

Some algebra and a logarithmic transformation yields an expression in which the log-odds ratio ("logit") is explained as a linear regression on the causal factors, viz:

$$\log \left[\frac{P(y_i = 1)}{1 - P(y_i = 1)} \right] = \alpha + \sum_j \beta_j x_{ij} + e_i$$
 (5.2)

Focusing on a sample of 15-75 years old immigrants, the cross-sectional logistic regression model that has been employed for this research utilises personal, household and environmental socio-economic characteristics as regressors to explain the probability of self-employment. For notational simplicity we shall denote the logarithm of the odds ratio as Y_i and present the details of the model as

$$Y_{i} = \alpha + \beta_{1} x_{1i} + \beta_{2} x_{2i}, \cdots \beta_{k} x_{ki} + e_{i}$$
(5.3)

Here, α and $\beta_1 \beta_2, \cdots \beta_k$ are coefficients to be estimated. Estimation is by numerical Maximum Likelihood with the disturbances, $\{e_i\}$, assumed independent and normally distributed.

5.5 Empirical results

The following paragraphs discuss the econometric analysis and the results obtained from it. The logit model we use addresses the entrepreneurial behaviour of immigrants to the UK. As explanatory factors we explore, inter alia, human capital and socioeconomic characteristic differences, including: self-identification of potential occupation (white collar, blue collar and pink collar workers), gender and ethnic/national differences and aspects of regional location within the UK. Estimates from this regression shed light on the roles such characteristics play in determining the self-employment propensity of immigrants.

We expected the probability of self-employment to be influenced by key drivers:

- the strength of demand for services (indexed by national and/or local business cycle measures such as per capita income)
- the state of the labour market (indexed by local and national unemployment rates)
- factors influencing an individual's ability to deliver valued services (indexed by measure of skill level, assimilation, local networks (enclave effects)
- constraints upon the individual (e.g. gender)

We were agnostic regarding the extent to which the influence of these factors would be moderated by (e.g.) regional effects, ethic and racial effects, and so permitted a wide range of interactions between these contextualising factors and the anticipated key drivers.

For the selection of the preferred model specifications, as in Chapter 4, we use the econometric methodology of 'general-to-specific' modelling, in which we simplify the initially general model that includes the full range of key drivers and their interactions with contextualising effects. We decrease the dimensionality of the model by eliminating the variables that have insignificant coefficients. As we discussed in part 4.2 page-127, each step in the reduction of this general specification to a preferred model consisted of removing a small number of the least significant terms. This is followed by re-estimating the model before proceeding to the next step in model

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development. We find a large number – 81, of key variables and interaction terms that are associated with immigrants' self-employment rates (see table 5.8 in the appendix). This makes the resulting model potentially difficult to interpret in terms of research findings and policy implications so the variables are grouped into categories to aid interpretation. A small number of variables and interactions that do not achieve statistical significance are retained because of a strong theoretical rationality (Finding that an estimated coefficient is not significantly different from zero does not guarantee that the influence of that factor is exactly zero). No retained variable/interaction has a t-statistic with prob.>0.235. We find many drivers of self-employability that are statistically significant and whose signs are in line with *a priori* expectations. The coefficient of determination (Pseudo R-square) is 0.1623, which is respectable for a sample of 34984 survey observations (see table 5.8 in the appendix).

McFadden's R^2 is the Pseudo R^2 that STATA reports by default and it is perhaps the most commonly quoted Pseudo R^2 statistic. It is constructed from a likelihood ratio that compares a model including all predictors to a model without any. Specifically, pseudo- $R^2 = (1 - L1/L0)$, where L0 represents the log likelihood for the "constant-only" model and L1 is the log likelihood for the full model with constant and predictors.

Pseudo R²'s, usually, have small values even in models where there are strong correlations between the dependent and the independent variables- Hu, Shao and Palta (2006).

Often empirical researchers argue that there are areas where the research context mediates statistical criteria, Veal and Zimmermann (1996), for example, observe: "For example, a researcher estimating macro-econometric OLS regressions using data from different countries might expect R^2 's in the 0.8 or 0.9 range. If one of the country regressions has an R^2 of 0.4, this is a sign that special attention is required; there may even be an error. However in a different situation, practitioners using micro-data on labour supply may expect R^2 's of around 0.1. A regression with an R2 of .02 might require further scrutiny while an R^2 of 0.4 would be suspiciously large"

In the light of the finally preferred model (see table 5.8 in the appendix), this study argues that the main factors associated with self-employment rates of immigrants in the UK may be categorised as:

- Characteristics over which the individual has no control e.g. Ethnicity, Nationality, Gender, Age;
- Characteristics for which the individual has some control e.g. Assimilation and Education;
- And characteristics where we might expect the individual to often have considerable control – principally choice of location within the UK, where we find that local ethnic density and local labour market conditions are particularly important for some immigrant groups.

These several important characteristics are discussed in more detail below.

We allow for differences of experience according to immigrant ethnicity, defining "White", "Mixed", "Black", "Asian", "Chinese" and "Other" as separate ethnic groups.

Existing literature, (e.g. Evans; 1989, Guerra, Patuelli and Maggi; 2012), suggests that aspects of the immigrant experience may be influenced by the local density of fellow nationals.

In our selected model (see table 5.8 in the appendix) we find that White and Chinese ethnic background immigrants show a higher likelihood of being self-employed. For Asian and Mixed ethnic background immigrants the likelihood of being self-employed was smaller-below the average. For Black and Other ethnic background immigrants the effect is insignificant. Literature in the US labour market finds similar patterns; for example, Borjas (1986) finds high self-employment rates for white immigrants followed by Asians and Cubans and very low for blacks and Hispanics. Rosen (1999) finds very high self-employment rates for Korean immigrants approximately 20% followed by whites and very low rates for blacks 4%. The low rate of self-employment of blacks in the US as well as in the UK appears in part to be driven by liquidity constraints, see Blanchflower (2004). Another argument is that Blacks have lower self-employment rates than whites in part because they have different family structures, (Rosen 1999). *Ceteris paribus* (given the factors we have observed and commented upon above) the country of origin also exerts, as expected, some influence on self-employment. These dummies (for ethnic and national background)

may also capture other non-observed idiosyncratic features linked to migrants' community of origin, such as religious beliefs, cultural issues, or regulatory issues²⁴, **type** and quality of education received in the country of origin, etc. Not all such ethnicity/nationality dummies are significant. Negative links to likelihood of self-employability are shown for Central and East Europe, Other Asia (developing) and North Africa. On the other hand, high rates of self-employment are shown for immigrants from South Europe, North West Europe, North America and Eurasia Middle East and Central Asia. Surprisingly the effects from Asia (commonwealth) are insignificant. Asian commonwealth, which includes quite large and historically present communities in the UK, is associated to relatively very low self-employment for immigrants from North Africa, South America, Other North and Central America, Central and East Europe, South Africa, Rest of Africa, Oceania & other Commonwealth and Rest of the World (see table 5.8 in the appendix).

Intuition and existing literature, suggest a number of possible reasons for why location within the UK may have an influence on entrepreneurial behaviour (see, e.g., Razin and Langlois, 1996; Wang and Li, 2007). These studies find that entrepreneurship is associated with: local ethnicity profile, local sector profile of economic activity, population etc.

Razin and Langlois (1996), argue that self-employed Immigrant and ethnic minorities' members in peripheral metropolitan areas in Canada concentrate in relatively narrow entrepreneurial niches. Wang and Li (2007) examine the Hispanic entrepreneurs in three US southern metropolitan areas and they find that the entrepreneurship of ethnic minorities is associated with institutional capacity and social, cultural and political resources of local communities. Also the economic structure, history of migration and ethnic diversity in each area provide different entrepreneurial opportunities.

²⁴ For example, all immigrants from European Union have the same rights as the British citizens to set up a business in the UK. The right for immigrants from outside EU depends on the nature of their residence permit.

An a priori expectation that unemployment might be important did not obtain empirical support. The possibility that alternative nationality groupings should be employed is examined in section 5.6 where we find that unemployment can be important for some particular national groups. The relationship between unemployment and entrepreneurship is ambiguous, (see, e.g., Evans and Leighton, 1990; Garofoli, 1994; Thurik et al (2008), Audretsch and Fritsch, 1994; and Carree, 2002). Some studies find that unemployment is associated with greater entrepreneurial activities, but other studies conclude the opposite, that entrepreneurship and unemployment are inversely related. Evans and Leighton, 1990; and Thurik et al (2008) suggest that increased unemployment may lead to an increase in start-up activity on the grounds that the opportunity cost of not starting a firm has decreased. Baptista, Escaria and Madruga (2008) find a positive relationship between unemployment and entrepreneurship in the long term; they argue that entrepreneurship stimulates employment growth - 8 years after the startup of a new firm. On the other hand (Garofoli; 1994, and Audretsch and Fritsch; 1994) suggest that unemployment is negatively related to new-firm start-ups, and Carree (2002) finds that no statistically significant relationship exists.

To allow for the possibility that the influence of national economic conditions, such as the unemployment level, or household gross disposable income, vary across regions, these variables were interacted with regional dummies; some of these interactions were found to be significant.

In particular, variables were constructed to show the local density of each individual's ethnicity and nationality group since such variables have been previously found to influence the immigrant's experience, see e.g. Guerra, Patuelli and Maggi (2012) and Wang (2010). For each individual at any point in time, the local ethnic or national density was calculated as the proportion of their ethnic or national group within the survey responses for that region at that time-*this is discussed in detail in the next paragraph below.* Borjas (1986) explains this (local density of ethnic or national immigrant groups) with what he calls *enclave effects*: immigrants create enclaves by concentrating in geographical areas; such enclaves then provide self-employment opportunities for other members of the respective ethnic group. Density variables in

the thesis were interacted with ethnicity and nationality variables to allow the possibility that the density effect varies between ethnic/nationality groups.

The enclave phenomenon appears to have different effects in the self-employment propensity in each of the immigrant groups we examine. We define an ethnic/ or national enclave as an area in the UK with high ethnic/ or national concentration of some ethnic or national group; thus these areas are culturally distinct from the larger receiving society. Abrahamson (1996) argues that ethnic enclaves success and growth depends on self-sufficiency, and is coupled with economic prosperity. Therefore, the general definition of an ethnic enclave is a geographically defined area with characteristic cultural identity and economic activity. Using an ethnic/ or national density framework we explore the impact of the enclaves in the immigrants' self-employment. The variables provided by the factors 'denethnic', 'deneth' and 'den' indicate the three types of density we use, see table 5.7 in the appendix. For each individual at any point in time, the local ethnic density -'denethnic', or local immigrant ethnic density-'deneth' or local national density-'den' was calculated as the proportion of (denethnic) residents from their ethnic group or (deneth) of immigrant residents from their ethnic group, or (den) of residents from their national group within the survey responses for that region at that time. These density variables were interacted with ethnicity and nationality variables to allow the possibility that the density effects vary between ethnic/nationality groups.

Local immigrant ethnic density (deneth) and local national density (den) have been found to have empirical support for some immigrant groups, for local ethnic density (denethnic) we did not find any empirical evidence in this study - see table 5.8 in the appendix. In contrast to our findings when employing "deneth" and "den" as density variables, Clark and Drinkwater (2010) by using micro data samples from the 1991 to 2001 censuses argue that *'there is no evidence of self-employment being an enclave phenomenon'* in the UK. In this study, density of fellow nationals is found to be important for some national groups; there are positive 'nationality group density' effects for immigrants of Central and Eastern Europe, Asian Developing and South American groups. Negative effects emerge for immigrants from Asia Commonwealth, Eurasia Middle East and Central Asia nationality groups. The effects from the rest of the national groups are not significant. Regarding local immigrant ethnic density we

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find positive effects for whites and mixed immigrants. The local immigrant ethnic density effect is negative for Chinese immigrants and insignificant for the rest of the ethnic enclaves- see table 5.8 in the appendix. These results show that there is little support for the density/enclave hypothesis. Yuengert (1992) and Dustman and Fabbri (2005) argue that enclaves do, however, lead to a concentration of immigrants' self-employment within particular sectors of the economy. The possibility that sectorial analysis should be employed has been left as a matter for further research.

Our results reflect conclusions reached in a number of recent and previous papers. Guerra, Patuelli and Maggi (2012) argue that, concentration in ethnic enclaves; has been associated with higher business ownership rates in Switzerland. Xie and Gough (2009), reach mixed conclusions as to whether enclave effects are positive or negative. They find that for some immigrant groups, ethnic enclave participation has a negative effect on economic outcomes. However, overall, their study yields minimal support for the enclave hypothesis. Furthermore Edin, Fredriksson, and Olof Åslund (2000) studying the Swedish labour market argues that immigrants living in enclaves have improved labour market outcomes.

Some regional dummies, such as London, South East and South West, are significant and positive, indicating that there is a greater tendency for immigrants to become self-employed in these areas. On the other hand in East Midlands and East England the regional effect is negative. The other regions of the UK do not gain empirical support for regional effects.

Intuitively, we also expected to find that local economic conditions would play a role in determining rates of self-employment. Clark and Drinkwater (2010), for example, argue that the local economic conditions are important for some immigrant groups, such as Pakistanis and Bangladeshis. Empirically, we have discovered that a rise in the local gross disposable household income rate is associated with an increased rate of immigrants' self-employment; it seems that in areas where the household income rise people spend more and new opportunities for self-employment emerge. The unemployment rate was not found to have significant effects in the main model (table 5.8 in the appendix) but it gains significance for some immigrant groups when

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we attempt an alternative nationality grouping-see section 5.6 (table 5.14 in the appendix).

Age and years of residency in the UK increase the likelihood of being self-employed; arguably these factors represent experience accumulation. We have also found plausible diminishing marginal effect over time. These findings are in line with previous research, for example see Borjas (1986), also Clark and Drinkwater (2010) argue that Self-employment rates are expected to increase along with the length of time that immigrants have been resident in the host country because the cost of entry into self-employment is likely to deter more recent cohorts of immigrants.

The family size- being married and or having children is positively correlated with being self-employed. Marital status is usually interpreted as an index of stability-one of the attributes of productivity and married workers are generally believed to have greater attachment to the labour market because of their family obligations (Banerjee 1983).

Being male shows a strong effect; on a closer examination we see that the gender gap for self-employment is not constant across the ethnic groups, with Asian and Black men more likely to be engaged in entrepreneurship activities than the Asian or Black women, and to a greater extent than in other ethnic groups. As it has already been discussed, see page 148 (Gender differentiation and ethnic background), in all immigrant ethnic groups the majority of entrepreneurs are males. Minniti and Arenius (2003) argue that there is no country where women are more active- entrepreneurial than men.

In contrast to previous research that largely suggests education or skill level is positively correlated with the probability of self-employment in the overall population (Schuetze 2005, Fairlie and Robb 2008), in this study no such correlation is evident amongst the immigrant population in the UK. We find that immigrants with low levels of education (secondary or lower than secondary education) have higher rates of self-employment than immigrants with higher education qualifications. Basu and Goswami, (1999) examining the South Asian entrepreneurship in Great Britain suggest that, among other factors, entrepreneurial activity depends positively on educational attainment. On the other hand Blanchflower (2004) finds that in the UK

the probabilities to become self-employed are lower the more educated an individual is, while the opposite is true in the US. At a first glance this result might appear to be in contrast with our findings. In this study we do not measure the years of schooling, however we have distinguished between high skilled and low skilled immigrants. High skilled are those holding tertiary education qualifications while low skilled are those with secondary or lower than secondary education qualifications. So a general conclusion might be that immigrants' educational attainment, up to a certain level, is positively associated with the start-up of new businesses, however in this study we find that university graduate immigrants in the UK do not prefer self-employment jobs.

Furthermore the self-employment rate appears to be higher for Wcollar1²⁵ and Wcollar2 workers; in the categories Bcollar and Pcollar the rates of self-employment are smaller.

²⁵white collar 1= managers, senior officials and skilled trade white collar 2= professional occupations, associate professional and technical blue collar= process, plant and machine operatives, elementary occupations pink collar= administrative and secretarial, personal service occupations, sales and customer service

5.6 Investigating self-employment rates within two prominent immigrant communities.

Depending on different migration experiences and different local and regional circumstances we expect that UK exhibit marked differences in its migrant entrepreneurship experiences

One of the most prominent features of migration from a socio-economic perspective has been the increasing rate of self-employed immigrants in the labour market. Migrant entrepreneurship has played an important role in increasing the employment opportunities for ethnic segments in the urban population and in resolving social tensions and problems (Borjas 1986, 1990; and Kloosterman, van der Leun, and Rath 1998). We believe it is important to investigate separately, the self-employment rates for immigrants coming from the top two sending regions (group of countries), during the last decade-see chapter 3.1 page 78. This distinction occurs since the likely impact on self-employment of individuals from each group, may be different due to their cultural socioeconomic and demographic differences. We examine the self-employability, firstly, of immigrants from those Central and Eastern European countries that joined the EU in 2004 and after - (Czech, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Romania, Bulgaria); and, secondly, of immigrants from the South Asian Commonwealth countries-particularly from the Indian subcontinent (India, Pakistan, Sri Lanka, Bangladesh), see table 5.6 in the appendix. Factors, such as former colonial links or ease of entry from neighbouring countries e.g. EU might shape the trends of self-employment of immigrants from these groups. The long-established social, cultural and economic ties between the UK and its former colonies have played an important role so as citizens of commonwealth countries to have established strong networks that facilitate further inflows by lowering costs and risks of migration (Massey et al. 1998) This can explain why a large percentage of immigrants in the UK come from poorer Commonwealth countries such as Pakistan, India, Jamaica and other Caribbean states (Hatton and Wheatley Price 1999). On the other hand networks alone cannot explain the strong increase in net inflows from Eastern Europe after the 2004 'A8' enlargement (Dustmann et al. 2003). The large increase in immigration from Eastern

Europe was partly the result of political decisions. While many EU countries put in place temporary controls to curb Central European migration, The UK (along with Ireland and Sweden) did not impose restrictions. After 2007 when Bulgaria and Romania joined the EU a comparable increase in migration was not seen, maybe because this time the UK did not lift the free-mobility restrictions for migrant workers from these countries (The Migration Observatory 2014).

The aim in this part of the study is to explore the extent to which some of the factors influencing self-employment are particular to sub-groups within the immigrant cohort.

5.6.1 Data and methodology

The econometric framework that was employed to study self-employment rates within the overall immigrant population, namely "logit modelling", can be applied here separately to each of the sub-cohorts on which we focus. As before (see chapter 5.4), a 0/1 binary index is set to unity for respondents who are self-employed.

The range of explanatory variables considered is, as before, restricted to those that are available within the LFS data. Consequently, candidate variables in part 5.5 are again candidates for inclusion when modelling sub-groups of immigrants. Some changes to the variable list are, however, prompted by a focus on individual sub-groups. Firstly, the relatively greater homogeneity of a sub-group, relative to the full immigrant population, reduces the need to use "interaction variables" (see table 5.10 below) to allow driving influences to have quantitatively different impact in different sub-groups. Conversely, where previously we were forced to group countries of origin into major regional blocks, because of data shortages for some countries, now that we are studying the prominent immigrant communities, there are sufficient observations for us to investigate whether immigrant behaviour within either of our two prominent groups does vary according to country of origin.

Among covariates (described also in Table 5.9 below), we focus mainly on those factors that capture ways used to modify self-employment decisions and widely discussed in the relative literature, such as the education and the enclave/density effects.

Description	of independent variables		
GDr	growth rate % of UK Gross Disposable	.	
	Household Income per head UK	czech	country of birth Czech Republic
inter	UK internet setes %	estonia	country of birth Estonia
thter	time trend (2007, 2000, 2000, 2010)	hungary	country of birth Hungary
localus	time trend (2007, 2008, 2009, 2010)	latva	country of birth Latvia
localun	local unemployment	lithuania	country of birth Lithuania
age	age of the responent	poland	country of birth Poland
agez	age^2	slovakia	country of birth Slovakia
resident	years of residency in the UK	slovenia	country of birth Slovenia
resident2	resident^2	romania	country of birth Romania
fdpch19	number of dependent children in family	bulgaria	country of birth Bulgaria
married	aged under 19 maried/cohabiting/civil partner=1, non		
	married=0	den	local density of national groups
male	male=1, female=0	bangladeshden	local density of Bangladeshi immigrants
loweduc	low education=1, high education=0	srilancaden	local density of Sri Lankan immigrants
NE	North East (region of usual residency)	indiaden	local density of Indian immigrants
NW	North West (region of usual residency)	pakistanden	local density of Pakistani immigrants
YH	Yorkshire & the Humber (region of usual	czechden	local density of Czech immigrants
EM	East Midlands (region of usual residency)	estoniaden	local density of Estonian immigrants
WM	West Midlands (region of usual residency)	hungaryden	local density of Hungarian immigrants
EE	East (region of usual residency)	latviaden	local density of Latvian immigrants
LON	London (region of usual residency)	lithuaniaden	local density of Lithuanian immigrants
SE	South East (region of usual residency)	polandden	local density of Polish immigrants
sw	South West (region of usual residency)	slovakiaden	local density of Slovakian immigrants
WAL	Wales (region of usual residency)	sloveniaden	local density of Slovenian immigrants
SCOT	Scotland (region of usual residency)	romaniaden	local density of Romanian immigrants
NI	Northern Ireland (region of usual	bulgariaden	local density of Bulgarian immigrants
bangladesh	coutry of birth Bangladesh		
srilanca	coutry of birth Srilanka		
india	coutry of birth India		
pakistan	coutry of birth Pakistan		

Table 5.9

The period for which we examine the entrepreneurial activity of immigrants in the UK in our main model-see table 5.8 in the appendix, covers the years 2006-2010. From the January-March quarter 2007 the LFS coding structure of the variable 'cryox7' indicating country of birth changed – changes were made to definitions for some countries; for example, country of birth- Czechoslovakia was split to Czech and Slovakia or country of birth- former Soviet Union was split to Estonia, Latvia, Lithuania, etc. In this part of the thesis, because we to look into effects from individual countries, the data we use are LFS quarterly (October-December) cross-sections for the years 2007- 2010. Also as it has already been discussed, see page 146, we drop wave 5 responses from this particular quarter of the year (October-December) to avoid replication with wave 1 year respondents from the previous year.

The sample sizes used in the model for the South Asian immigrants consists of 5,945 respondents (2,977 men and 2,968 women) and the sample size used for the

model for the Central & Eastern European immigrants consists of 3,297 respondents (1,543 men and 1,754 women)-see table 5.15 in the appendix. We consider as potential self-employed, individuals between 15 and 75 year of age; only those foreign-born who have lived more than a year in the UK, so as to qualify for immigrant status according to the definition of the UN, have been included in this study.

The way in which the preferred models are selected, as also discussed in pages 127 and 153, is by step-wise reduction beginning from a general specification including the full range of variables (here - as discussed in page 163 - we do not use interactions). We decrease the dimensionality of the models (see tables 5.12 & 5.14 for the original models in the appendix) by eliminating the variables that have insignificant coefficients. We decide to keep a small number of variables that do not achieve statistical significance because of a strong theoretical rationality. The coefficients of determination (Pseudo R-square) are 0.1686 and 0.2309 which are respectable for survey samples of this size (see tables 5.13 & 5.15 for the selected models in the appendix).

5.6.2 Empirical results

In both models (tables 5.13 & 5.15 in the appendix) among individual features, we find many significant drivers of self-employability; some of these drivers are different for each group. Comparing the models, table 5.10 below shows the factors affecting the self-employment rates of both immigrant groups;

Table 5.10- signific	ant variables				
South Asian Co	ommonwealth	Central and Eastern			
Immigrants		European Imn	European Immigrants		
	Coef.		Coef.		
GDr	-28.541	unem	18.232		
fdpch19	0.076	localun	-20.473		
married	0.218	fdpch19	0.177		
male	1.881	married	0.183		
age	0.146	male	1.001		
age2	-0.001	loweduc	0.432		
resident	0.069	age	0.229		
resident2	-0.001	age2	-0.003		
NE	-0.516	resident	0.040		
EM	-0.293	YH	-0.632		
WM	-0.391	EM	-1.103		
SE	0.228	WM	-0.549		
india	-0.307	EE	-0.737		
pakistan	0.760	LON	1.728		
den	-34.517	SW	-0.863		
indiaden	33.080	WAL	-0.960		
		NI	-2.917		
		czech	-0.858		
		hungary	-0.728		
		poland	-0.482		
		slovakia	-1.023		
		romania	0.728		
		bulgaria	0.879		

Being male increases the likelihood of self-employment- this effect is much stronger for Asian immigrants showing probably the cultural distance, particularly with regards to the social construction of gendered roles, between the two immigrant groups we examine. Age and years of residency exert positive influences, with interesting concave dynamics: the benefit of getting older and the length of period living in the UK show plausible diminishing marginal effects over time for the South Asian Immigrants. For the Central & Eastern Europeans the analysis shows diminishing marginal effects as they are getting older but there is no evidence of diminishing effects as their years of residency increase. This result can be explained by noting that; the majority of Central & Eastern Europeans in the UK arrived only recently-after the last two EU expansions in 2004 and in 2007, so they are still in their early years of assimilation. At the moment the more they stay the more the positive effects of assimilation on their self-employability; however we should expect Central & Eastern European immigrants to reach the maturity level and eventually to experience diminishing marginal effects as their years of residency increase. Table 5.11-below shows the mean values of the years of residency for both groups we examine. We can see that the average period of residency for Central and Eastern Europeans in the UK is only five years.

Table 5.11-QLFS (Oct-Dec) sample data for the period 2007-2010					
Years of residency in the UK, mean values					
South Asian Commonwealth Immigrants	19.456	years			
Central and Eastern European Immigrants	5.003	years			

In both groups the likelihood to become self-employed increases for married individuals and for those with children. As it has already been discussed (see page 160) married individuals are generally believed to have greater attachment to the labour market because of their family obligations (Banerjee 1983). Finally Unemployment (local and national) is found to be an important influence on self-employment outcomes for Central and Eastern European but not for South Asian Commonwealth immigrants. Research findings, about the relationship between unemployment and self-employment, as discussed in page 157, have resulted with considerable ambiguity. Our empirical results show two contrasting relationships between unemployment and entrepreneurship for Central and Eastern European immigrants; in particular we find that a rise in the national unemployment rate increases the likelihood of European immigrants to become self-employed; but they do not tend to become self-employed in areas where the local unemployment is high, that is why the factor '*localun*' indicating local unemployment rate is significantly

negative-see table 5.15 in the appendix. Following a range of studies (Blau 1987; Evans and Jovanovic 1989; Johanson 2000) we can conclude that the income choice might be the basis on the decision of individuals to become self-employed, "unemployed individuals have small or no income". Also we expect that high local unemployment rates are associated with lower levels of personal wealth which, maybe, in turn reduces the likelihood of becoming self-employed in these particular areas. This might also indicate greater geographical mobility within the UK for EE immigrants.

For the European immigrants group the study shows that the likelihood to become self-employed is higher for those from Romania and Bulgaria- there are negative effects for respondents from Czech Republic, Poland, Hungary and Slovakia, and insignificant effects for individuals from the rest of the countries. We also find that their self-employment propensity appears to be above average in London but below average in all other areas of the UK. For South Asian commonwealth immigrants the self-employability is significantly above average for Pakistanis and significantly below average for Indians. Their likelihood to become self-employed is found to be higher in South East and lower in North East, East Midlands and West Midlands,-see table 5.13 in the appendix.

The gross disposable household income increase does not affect the selfemployment propensity of Central and Eastern Europeans but it is found to cause negative effects in the likelihood of South Asian immigrants. This can be explained as that; South Asian immigrants maybe earn more as employees rather than as selfemployed. So self-employment might be a step before paid employment.

The variable provided by the factor '*loweduc*' indicating lower education is statistically significant only for the Central and Eastern European immigrants group. In particular, lower education (secondary or lower than secondary education) increases the likelihood of being self-employed. It seems that immigrants, from this group, with university education purse a career in the employed sector. On the other hand education does not play a role for immigrants from the South Asian Commonwealth countries.

Education, arguably, stands amongst the most important variables, when one examines the labour market performance, of immigrants in the host economies. A large volume of literature e.g. Battu and Sloane (2004), Kreuger (1992), Angrist and Lavy (1999), Kreuger (1999), Jones and Elias (2005), Bratsberg and Terrell (2002) investigates the influence of source country school quality on the returns to education of ethnic minorities and immigrants in the destination labour market.

Battu and Sloane (2004) find that workers in the UK from different ethnic groups have varying levels of mismatch between education and occupation-for those holding foreign qualifications the likelihood of mismatch increases for the members of some ethnic groups but reduce for others. Card and Kreuger 1992 argue that there is strong relationship between school resources in a number of states in the US and the wages of the workers educated in those states. This finding is also supported by later literature (Angrist and Lavy 1999; Kreuger 1999). Jones and Elias (2005) also show that UK minority ethnic groups are far less likely than Whites to obtain a first or upper second class graduate degree, with Black Caribbean and African, as well as Pakistani/Bangladeshi students performing particularly low compared to White students. Bratsberg & Terrell (2002) provide evidence that the return to education in the US labour market is high, sometimes similar to that of natives, for immigrants who come from nations with high-quality education such as Japan, Australia, Canada and northern European countries, with the lowest returns to education of immigrants from nations with generally low quality education systems such as the Caribbean countries.

Another conclusion in this study might be that; the higher education qualifications of Central and Easter European immigrants are recognized more than the higher education qualifications of South Asian Commonwealth immigrants in the UK labour market, and that is why the self-employment propensity of those immigrants from Central and Eastern Europe with university education is small.

The enclave phenomenon appears to have different effects in the self-employment propensity in each of the immigrant groups we examine. The variable provided by the factor 'den' indicate the local national density of the correspondents in both models and it is used as the enclaves 'effect variable. We also interact the local

national density variable '*den*' with the immigrants 'countries of birth variables so as to investigate the enclave effect of each nationality differently- see table 5.9.

For Central and Eastern European immigrants, no evidence has been documented that concentration in enclaves affects their self-employment propensity. On the other hand concentration in ethnic enclaves has a significant negative effect in self-employment rates for most of the South Asian Commonwealth immigrants-see table 5.13 in the appendix. Only for Indian immigrants the effect is positive.

A key proposition in the theory of ethnic enclave economies is that the enclave opens opportunities for its members that are not easily accessible in the larger society. The enclave labour market shelter ethnic group members from competition by other social groups, from discrimination and abuse on account of their ethnic origins, and from surveillance and regulation by government. In many respects these boundaries around the enclave provide tangible benefits to group members and seem to offer a positive alternative to assimilation. Bartel (1989) has shown that immigrants in the US choose to reside in regions where there are other immigrants. Moreover, their location decisions are less sensitive to wage variations in comparison to the native population.

A fairly large, and predominantly American, literature has examined the individual consequences of living in enclaves. Cutler and Glaeser (1997), for example, find that blacks living in segregated areas have significantly worse outcomes than blacks in integrated areas. The earnings effects are sizable: a one standard deviation increase of segregation reduces the earnings of blacks relative to whites by 7–9 percent.

There are a number of studies that investigate the impact of enclaves on opportunities for self- employment. Clark and Drinkwater (2002) find that concentration in enclaves does not offer economic benefits to immigrants in the UK. Similar evidence for no influence of enclaves on immigrant self-employment in Canada is found by Razin and Langlois (1996). On the other hand Borjas (1986) finds that self-employment among immigrants in the US is enhanced by existing enclaves. Le (2000) also reports similar evidence for immigrant groups in Australia.

The majority of the literature also finds that enclaves have different characteristics compared to less concentrated areas, which shifts patters of supply and demand for labour as well for goods and services. Our findings suggest that the communities in which South Asians reside influence their self-employment decisions; on the other

hand the communities in which Europeans reside appear to not be important for their self-employment decisions. The different/opposite enclave effects for the South Asian Immigrants might also be caused due to some unobserved heterogeneity for immigrants from these countries, for example, effects from different religions, different castes, etc.

Conclusions

Using Labour Force Survey data sets for the UK covering a fairly large time span (2006–2010), the present study has looked at the rate of entrepreneurship amongst immigrants to the UK and how this varies according to various personal and group characteristics. Expanding our research in part 5.6 we separately investigated two immigrant groups (Central and Eastern Europeans and South Asians) whose numbers within the LFS data are sufficiently large to support separate statistical analysis.

The prevailing literature suggests that personal characteristics, including human capital attributes, ethnic networking, institutional regulations, societal structures and discrimination, all contribute to the differential ethnic entrepreneurship rates. In this study we find a fairly large number -81 key variables and interaction terms that are associated with the immigrants' self-employment. Most of our findings are consistent with the previous literature. Our results, however, show three new findings; these are:

- For some immigrant groups, concentration within national enclaves exerts higher self-employment rates but it causes negative effects for others.
- Higher education is negatively associated with the immigrants' entrepreneurial rates.
- Economic factors such as unemployment and households' gross disposable income are found to be associated with the self-employment likelihood of some groups although not for all UK regions.

We find that self-employment rates vary significantly among ethnic and racial groups in the UK, the reasons for these differences include age, education, immigrant status and time in the country.

We assert that the main factors associated with self-employment rates of immigrants in the UK are: characteristics over which the individual has no control – e.g. Ethnicity, Nationality, Gender, Age; characteristics for which the individual has some control – e.g. Assimilation and Education; and characteristics where we might expect the individual to often have considerable control – principally choice of location within the UK, where we find that local national density and local labour market conditions are particularly important.

The results show that the ethnic diversity and the economic structure in each local area have provided different opportunities and challenges for immigrants in the UK to start up their own businesses. We find that immigrants of Chinese ethnic background are relatively more likely to be self-employed while for other race immigrants the ethnicity effect is insignificant.

Various national groups show different self-employment rates (see table 5.8 in the appendix), immigrants from South Europe, North West Europe, North America and Eurasia Middle East and Central Asia appear to be more entrepreneurial than immigrants from other national groups, those from Asia-commonwealth and Asia-other developing countries are the least entrepreneurial. Higher education, in contrast to previous literature, is negatively associated with the immigrants' entrepreneurial rates.

Regarding the self-employment rates of the European and Asian immigrant groups in part 5.6 we conclude that cultural differences may be important unobserved factors differentiating the self-employment rates of both groups. Comparing the models, table 5.10 in page 166 shows the factors affecting the self-employment rates of both immigrant groups; we can see that certain sets of variables such as assimilation variables (age, years of residency), gender, household size, and area of residence in the UK are important for both groups. We find that the economic environment and the educational level are important for only the European immigrants. On the other 172 | P a q e

hand the enclave phenomenon can have positive or negative effects for the Asian commonwealth immigrants, depending on the national status of the enclaves.

Overall, the empirical study in this chapter shows that different immigrant groups really do experience the labour market and the entrepreneurial opportunities in the UK differently.

Chapter 6

Summary, Conclusions, Recommendations for Future Research, and Implications for policy and practice

6.1 Summary of the findings and theoretical implications

This final part of the thesis contains a summary of findings, conclusions, and recommendations resulting from the whole study, and finally some implications for policy and practice.

The number of immigrants has been steadily rising in the UK. Immigrants now amounting to approximately 12% of the population, and they constitute a large portion of population growth. Consequently, immigrants are at the centre of public discussion, academic debates and political disputes related to what sort of contribution they make in the UK economy.

This study has addressed aspects of the overall research question we set in the introduction: what impact do immigrants make upon their host economy, particularly in the UK case? A survey of relevant literature and descriptive statistics drawn from various years of the Labour Force Survey provided a broad brush response to this question, concluding that immigration is often beneficial to the host economy and that in the case of the UK the skill level, employability, willingness to work and entrepreneurial ambition amongst immigrants compare well to natives. A more refined econometric investigation was undertaken with respect to two questions of detail: (i) what value has been placed on the contribution of low-skilled immigrants, relative to their native counterparts? and (ii) what are the drivers of immigrants' entrepreneurial activity?

The thesis contributes to knowledge by illuminating some of the aspects of immigration in the UK economy- There are six particular findings:

- Over the period 2001-2010, the earning power of low skilled immigrants in the UK has reduced noticeably - particularly for males, both in absolute terms and also relative to low-skilled natives.
- This reduction in earnings power can be explained by compositional changes within the immigrant cohort. In particular, the recent acceleration of immigration has lowered the average age and average residency period of immigrants, thus reducing the extent of their labour market experience and their assimilation experience.
- The variation in years of schooling amongst the low skilled immigrants in the UK does not play an important role in explaining variation in earnings power within this group.
- Concentration of immigrant communities within national enclaves enhances entrepreneurship amongst some immigrant national groups but exerts negative effects for others.
- Higher education is negatively associated with immigrants' self-employment likelihood.
- Aspects of the economic environment, such as unemployment rates and households' gross disposable income, are found to affect the self-employment likelihood of some particular immigrant groups.

Most of our other findings are consistent with the previous UK-focussed literature.

The literature survey chapter examines the economic impact of migration in the host countries. For the purpose of this thesis we define 'economic impact' as the macroeconomic effects and the labour market effects of migration in the host country. We do not discuss the wider effects of migration, for example the effects in the public sector due to demand for various services or the implications for cultural diversity and social cohesion. The literature survey investigates the relationship between migration and international trade, labour market and macroeconomic context of the host country. Also it looks into skill levels, economic assimilation and earning of immigrants in the destination economy.

In the existing research literature, a large number of studies find that migration improves the reciprocal exchange between home and host nations prompting bilateral trade creation/expansion. As a rule it is discovered that the immigrants' home nations profit more than their host nations on the grounds that their exports build more than their imports because of migration. The majority of the studies suggest that the immigration link influences bilateral trade flows through a number of channels. For example, immigrants bring with them a preference for home-country products-this argument seems intuitively obvious and certainly can have an impact on imports of the host country. Further channels through which immigration promotes bilateral trade are potentially more important, since they could affect both imports and exports: immigrants can reduce transaction costs of bilateral trade with their home countries; they have personal contacts or business connections with their home countries and better knowledge of overseas language, cultural expectations and institutions.

International trade theory, supported by some of the contemporary research literature - discussed in chapter 2, suggests that an increase in bilateral trade increases the overall welfare of both nations. The studies of international trade, we have examined for the purpose of this thesis, have consistently revealed a strong association between immigration and trade. The estimated magnitude of the immigration effect, however, differs greatly across these studies. There are two basic reasons for this. First, the strength of the immigration effect varies in sensible ways for different trading partners, products, and types of immigrants. Second, from an econometric perspective, biased estimations (to some extend) might arise due to unobserved characteristics of trading relationships. We have also discovered that the majority of the empirical studies on immigration and trade examine only the socioeconomic characteristics of the immigrants and the characteristics of the home countries. But they do not take into account the receiving environment, for example, the immigration laws in the host country, the economic environment, the industrial development etc. Hence, there is a gap in the literature and further research could be undertaken.

Empirical literature that debates the labour market effects of immigration for the U.S. and other traditional countries of immigration is fairly large; for Britain, in comparison to the U.S., the literature is smaller. These studies address some of the key **176** | P a g e

economic issues. Do immigrants reduce wages and employment rates for nonimmigrant workers? And what are the adjustment mechanisms through which immigrant labour is absorbed into the economy? How do immigrants perform in the receiving labour market and how and why do they suffer disadvantage in the competition for jobs? For both wages and employment, short run effects of immigration differ from long run effects. As immigrants assimilate any declines in the wages and employment with UK-born/host workers in the short run can be offset by rising wages and employment in the long run. The effects of immigration on wage and employment outcomes for UK regions is generally assessed by examining implications of economic theory and empirical research for employment and wages, with two main approaches: first, labour market effects may occur only if the skill composition of immigrant labour differs from that of the native work force. Second, if the economy adjusts to increased migration by changing output mix, no effects should be expected in the long run. The conclusions on employment and wages effects are in line with the majority of the previous literature. Although immigration has strong effects on relative supplies of different skill groups, local labour market outcomes for low skilled natives are not much affected by these relative supply shocks. The evidence suggests that this is due to adjustment within industries, rather than across industries, to skill-group specific relative supply shocks. Generally it is found that the wages of the low-skilled natives are affected negatively, but only marginally, by low-skilled immigrant labourers. However the salaries of the highskilled natives appear to be unaffected. The greater part of the literature finds extremely little impact of migration on natives' employment. Finally, the majority analysis on immigrant assimilation supports the view that first generation immigrants do not on average catch up with natives in terms of economic performance, but shows a strong educational progress of second generation immigrants, where most catch up with children of natives.

From a macroeconomic perspective, immigrants increase both aggregate demand and aggregate supply within the host country. The majority of the literature argues that, on balance, immigration eases inflation and expedites real GDP increases.

Economic theory argues that an influx of workers (migrants) in the labour market lowers the capital/labour ratio, lowers the real wage, raises the return on capital and

generates a net welfare gain for natives. Empirical research, especially in the U.S., finds that the profits of companies are greater than the losses faced by the workers' wages due to migration. In the long run, the higher return to capital stimulates investment and in the new equilibrium the capital/labour ratio, the real wage and the marginal product of capital will revert to their original levels under constant returns. Overall, the natives neither gain nor lose and the economy is simply that bit bigger. Net inflows of immigrants, arguably, have accounted for the population growth for the immigrant receiving countries the last decades. Empirical research suggests that immigrants increase the supply of workers to host countries' companies and indirectly influence them to invest in more machinery and equipment, thereby boosting the supply capacity of the economy. Immigrants are also consumers and contribute to the growth of demand in the host economy. The matter for monetary policy, tasked with maintaining control of inflation, is how migration affects the balance between demand and supply in the host economy, and that probably will be determined by the migrant inflow.

It has been argued that Immigration in the UK, for example, appears to have a slightly larger impact on supply than demand, and may therefore have depressed inflationary pressures in the economy. These effects have also been pronounced for other countries e.g. U.S., Spain and are discussed in chapter 2. One segment of the overall economy which experiences inflation as a consequence of immigration may be the real estate sector. The additional household numbers that result from migration usually, at least in the short term, exceeds any increase in the availability of housing. Nevertheless the existing empirical research shows that the overall immigration effect in the equilibrium of the receiving economy is higher for aggregate supply than for aggregate demand and this results in real GDP increase.

Finally, empirical studies (discussed in Chapter 2) suggest that the Phillips curve can be flattened (unemployment falls), with roughly constant inflation due to migration. The argument is that the Phillips curve is shifted by immigration if natives' and immigrants' labour supply or "wages bargaining power" differ. Estimation of the curve indicates that the fall in unemployment in host economies would lead to an increase in inflation if it had not been largely offset by immigration.

Education has been found to be one of the most important factors determining immigrants' economic success in the UK and other host countries. Even so, the $178 \mid P a g e$

majority of studies find that immigrant years of schooling and work experience accumulated before arrival are valued much less than comparable experience gained within the host country by natives whose characteristics are otherwise comparable to the immigrants. Also education and work experience gained before migration is esteemed less than that which is acquired after arrival in the host country. However, for immigrants the increase in earnings associated with completing host-country educational programs is generally higher than that of comparable natives.

The returns to education for immigrants from developed countries are much higher than the returns to education for immigrants from less developed countries. Empirical UK research finds that individuals of immigrant or ethnic minorities groups, who hold UK qualifications, are very likely to pay an ethnic penalty and to receive lower returns. For example, it has been found that in comparison to Whites, Black African, Other Non-White and Indian men are more likely to be over-educated, whilst for women it is the Indian and Pakistani/Bangladeshi's who are over-educated relative to their earnings. Earnings estimation models show appreciably high over-education penalties with regard to South Asian immigrant and native men, as well as White immigrant men, Black women and White UK born women. On the other hand, there are large returns to occupational skills for some minority ethnic and immigrant groups, over and above the returns to qualifications.

Influences of state policy and public opinion on policy development, especially in the 1950s and 1960s are, to some extent, responsible for the patterns and developments of migration in the UK the following decades. At the end of the Second World War there were work shortages in Western Europe and labour shortages in the UK. The British government began looking for immigrants. In 1948 legislation had allowed people from the Empire and Commonwealth unhindered rights to enter Britain because they carried a British passport. This opened the gates for 'mass immigration' into the UK. As the mass inflows continued in the 1950s, so did the rise of racial violence and prejudice. In the 1960s while government was tightening the entry rules, racial tension meant it had to try to tackle prejudice and two race relations acts followed. The government had greatly restricted immigration by the 1970s, but had not stopped it altogether. By the 1980s immigrants had formed large
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social groups. In the years following the fall of the Iron Curtain, a new movement of people began, some fleeing political persecution, others seeking a better life in Western Europe. In the 2000s net migration increased more in the UK- that coincided with the EU enlargement and the opening of UK borders to workers from the EU A8 countries. In 2002, for controlling arrivals from countries other than the members of the European Union (EU), the UK government introduced a points-based framework. The recent years, especially after the onset of the recession in 2008, the British government has further restricted the number of work-related visas issued. This has caused concerns of potential damages in the technology and business hubs that have traditionally relied on imported skills, such as the Silicon Roundabout²⁶ and the City. Also the higher education sector can be damaged due to restrictions applied to foreign students. Overall the British policy concerning immigration over the last, maybe seven, decades has been determined by a mixture of economic and political imperatives.

Recent immigrants in the UK are arriving from many more countries than in the past. Poland, India and Pakistan are now the countries that contribute the biggest proportion of new arrivals, followed by Ireland, Germany, South Africa, Bangladesh and the United States. Compared with the UK-born, immigrants overall are younger and better educated. The most recent immigrants are even more educated. The majority of immigrants are concentrated in London. In 1992 the average age of immigrants in the LFS data employed in this study was around 41 years old substantially higher than the natives' average age that was around 37 years old. In 2010 the average age for both natives and immigrants was 39 years old. However the proportion of immigrants who are of working age exceeds that of natives.

Immigrants are, on average, more educated than their UK-born counterparts but immigrants' educational experience tends to be more polarised around this average than is the case for natives. LFS data shows immigrant respondents to be concentrated in the upper and lower end of the skills, and income spectra. The educational attainment gap (defined by reference to average attainment within

²⁶ The Silicon Roundabout -the cluster of technology start-ups near the Old Street junction in east London

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immigrant and native cohorts) has been rising over time since more recent immigrants are better educated, on average, than previous immigrants. Immigrants who are in employment work more hours and have higher average incomes than their UK-born colleagues. As the skill composition of immigrants to the UK is more biased towards low of highly skilled workers, it might be expected therefore, as new immigrants assimilate, that there would be more pressure on wages among skilled workers in the UK, unless it is quite hard for immigrants to transfer certain acquired skills from their home countries to the UK. Lately the average period/number of years of immigrant living in the UK has been reduced dramatically due to large recent inflows, especially, in 2004 and after. This is used as part of the explanation of the worsened low skilled immigrants' assimilation we found in Chapter 4.

The employment rate of UK-born workers is slightly higher than that for immigrants for the ten year period (2001-2010) we investigate in this thesis. Traditionally the employment gap widens in recessions and narrows in economic recoveries. This has not been the case during the latest recession. Unemployment rates for immigrants and UK-born workers have risen together by similar percentages. On the other hand the self-employment rates of immigrants and natives are converging but remain higher for immigrants for all the years we examine.

The greater employability of immigrants, their greater tendency to occupy the upper extreme of the skills and income spectra, their greater propensity for self-employment – as revealed by inspection of the LFS data, all give grounds for arguing that immigrants' make a positive contribution to the UK economy which, on a pro rata basis, may at least equal that of natives.

Various methodologies are used by researchers to study the economic phenomenon of migration in the contemporary literature. These methodologies' aim is to explain the causal factors that underlie immigrants' decisions, and also address the socioeconomic consequences of migration. The frameworks used in these studies can either entail qualitative or quantitative analysis. Typically the majority of these approaches, particularly within the Economics literature, are quantitative empirical studies. The data usually employed in these studies are Labour Force Surveys (LFS) and/or Annual Population Survey (APS), secondary, cross-sectional repeated survey data. Other types of data that are used, but not so often, in these studies are primary data, longitudinal data. Other sources of data are The Family Resources Survey (FRS) and The British Household Panel Survey (BHPS).

Migration studies that, as here, apply econometric methods to secondary data sources can proceed either by separating out the sample into different groups for analysis or by using dummy variables and interaction terms to model differences between groups. In practice, researchers consider a large number of potentially relevant explanatory factors. For some of these it may be well known that their effects differ significantly across categories of respondent but, for others, exploring whether or not this is the case might be an aspect of the investigation and so better addressed by joint modelling of several categories of respondent.

We have investigated the changes in the average real earning power of low skilled workers in the UK over the period 2001-2010. We estimated a log wage equation for each of the "nativity x gender" groups using 2001 data and then used the coefficients from those regressions with average demographic characteristics as observed in the LFS data for each year to predict the average log wage within each group in both 2001 and 2010. The difference between 2001 and 2010 in the predicted mean log wage provides an estimate of how the evolution of within-group profiles for relevant factors (e.g. age, experience, race, occupation, etc.) would have changed wages if the value placed on such factors by the UK labour market had remained stable over the period studied.

Educational attainment is used as a proxy for skill and we define low skilled workers as individuals with at most secondary or lower than secondary education. Estimating the real wages model for low skilled natives "Highest qualification" is used as a proxy for skills. For low skilled immigrants we use as alternative proxies for skills "highest qualification" & "years of schooling"²². So, we estimate the real wages model

²⁷ In this study we use educational attainment as a proxy for skill and define the low skilled labour force as workers who do not have a Higher Education qualification. The LFS records educational qualifications but interviewers may record an immigrant's qualifications as "other" where the terminology of the overseas educational system is unfamiliar or the UK equivalent is not obvious. This risk of miss-representation is considerably lower for Higher Education, where the terminology

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for immigrants twice – once with each of the two skills proxies, noting any difference in the findings. Our principle finding is that the earnings gap between immigrant and native low skilled workers in the UK has extended throughout the decade. We find a modest increase in the wages of the low skilled native workers and a reduction in the wages of the low-skilled migrants, particularly for men. The results show that the average wages of low skill UK-born men and women increased slightly - by 0.47% and 2.56% respectively during the period 2001 - 2010. In contrast, the average real wages of low skill immigrant men and women have not increased at all. The results suggest that when "highest qualification" is used as a proxy for skill in the immigrants' wages models, real wages for men have seen a significant decrease (11.07%) and those for women have recorded a marginal decrease of 0.01% over the period. We again observe the same contrast between immigrant and native low skilled workers real wages when "years of schooling" completed is used as an alternative skills proxy for immigrants. The estimated average wage for immigrant men decreased by 11.20% and for immigrant women decreased by 3.75%.

There are a number of factors associated with the gross weekly wages of the low skilled workers, these are: Age exerts positive but declining effects on wages for all groups; Years of residency enhance the wages of low skilled immigrant men but has no return for low skilled immigrant women. For immigrant men from advanced economies there is a positive effect, however this is not present for women from advanced economies. Complete lack of educational qualifications reduces the earnings for immigrant men but – as opposed to natives, there is no significant return to extended education. Finally for immigrant women education earns no return.

These results appear to reflect the expansion of immigrant workers around the primary occupations throughout this period. It is found that age and years of residency in the UK (assimilation variables) play a key role in determining low skilled immigrants' real wages. Due to large increases in net migration during the decade we examine, the mean values of these assimilation variables have been reduced - directly affecting the low skill immigrant workers' wages.

^{(&}quot;degree") is relatively consistent across countries. Nevertheless, for robustness, this present study also makes use of the LFS variable recording the age at which full-time education was completed. In this case we consider as low skilled those with 'other qualifications' who completed their full time education at the age of 18 or younger.

The rates of entrepreneurship of the different immigrant ethnic and national groups in the UK have been investigated by using a logit model for the likelihood of an individual being self-employed. We use Labour Force Survey data sets for the UK covering a fairly large time span (2006–2010). The prevailing literature suggests that personal characteristics, including human capital attributes, ethnic networking, institutional regulations, societal structures and discrimination, all contribute to the differential ethnic entrepreneurship rates. In this study we find a fairly large number -81 key variables and interaction terms that are associated with the immigrants' selfemployment. These mostly fit within the categories that existing literature has identified as important but our findings depart from previous studies in some matters of detail.

The main factors associated with self-employment rates of immigrants in the UK might be categorised as:

- Characteristics over which the individual has no control e.g. Ethnicity, Nationality, Gender, Age;
- Characteristics for which the individual has some control e.g. Assimilation and Education;
- And characteristics where we might expect the individual to often have considerable control – principally choice of location within the UK, where we find that local ethnic density and local labour market conditions are particularly important.

White and Chinese immigrants are more likely to set up a business than any other ethnic background immigrants in the UK. National groups that show high rates of self-employment are: South Europe, North West Europe, North America and Eurasia Middle East and Central Asia. Negative links to likelihood of self-employability are shown for Central and East Europe, Other Asia (developing) and North Africa.

The expectation that immigrants tend to be more entrepreneurial in areas where other individuals of the same ethnic or national group are concentrated gained empirical support for some immigrant groups. There are some 'enclave' effects for immigrants of Central and Eastern Europe, Asian Developing and South American groups. Local ethnic density is also found to have some positive effects for whites and mixed immigrants.

Experience accumulation variables such as 'age' and 'years of residency' in the UK stand amongst the most influential factors of immigrants' decision-making to become self-employed or not; as expected, we have also found plausible diminishing marginal effects over time. Gender is another important factor related to immigrants' self-employment decision with males found to be far more entrepreneurially active than females. We have also found that this gender gap is most pronounced amongst Asian and Black immigrants. Men are more likely to be engaged in entrepreneurial activities than the Asian or Black women, and this gender effect is more pronounced than in other ethnic groups. Marital status and family size, as discussed in chapter 5 page 160, are indicators of stability and positively correlated with the likelihood to become self-employed.

Tertiary education is negatively associated with the immigrants' self-employment rates. We find that immigrants with low levels of education (secondary or lower than secondary education) have higher rates of self-employment than immigrants with higher education qualifications. It has been discovered that a rise in the geographically local gross disposable household income is associated with an increased rate of immigrants' self-employment. The unemployment rate was not found to have significant effects in the main model but it gains significance for some immigrant groups when we attempt an alternative nationality grouping as discussed in chapter 5 page 167. Areas in which immigrants are more likely to set up a business are London, South East and South West.

Separating immigrants groups, we have investigated the self-employment propensity for immigrants arriving in the UK from the two top sending regions (group of countries). We examined the self-employability, first, of immigrants from those Central and Eastern European countries that joined the EU in 2004 and after-(Czech, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Romania, Bulgaria); and, second, of immigrants from the South Asian Commonwealth countries-particularly from the Indian subcontinent (India, Pakistan, Sri Lanka, Bangladesh). We have found two sets of results. First, some empirical conclusions are in line with the findings of the main model that investigates the self-employment propensity and is explained in chapter 5. Second, some new results emerge that are particular for the two groups we examine.

The first set of findings shows that; for both groups, being male increases the likelihood of self-employment- this effect is much stronger for Asian immigrants. As expected age and years of residency exert positive influences. In both groups the likelihood to become self-employed increases for married individuals and for those with children. Those from Central and Eastern Europe with lower education are more likely to start up a business than those with higher education. For South Asian Commonwealth immigrants, education is found to be insignificant.

The second set of findings shows that; the unemployment level (local and national) is an important influence on self-employment outcomes for Central and Eastern European but not for South Asian Commonwealth immigrants. Our empirical results identify two contrasting relationships between unemployment and entrepreneurship for Central and Eastern European immigrants. We find that a rise in the national unemployment rate increases the likelihood of European immigrants becoming selfemployed whereas, in contrast, a high local unemployment rate reduces the local incidence of self-employment amongst these immigrants. One rationalisation of these contrasting results could be that the national unemployment rate indicates the degree to which immigrants, because of reduced employment opportunities, are motivated to earn a living by self-employment whilst at the same time the opportunities for such entrepreneurial behaviour are greater in localities where unemployment is relatively low so that spending power is relatively high. Unfortunately the LFS data does not track respondents' movements within the UK so this rationalisation remains hypothetical.

For the Central and Eastern European immigrants group there is a higher possibility to become self-employed in London than any other area of the UK; also those from Romania and Bulgaria are more likely to become self-employed than the rest of the Central and Eastern European immigrants. For South Asian commonwealth immigrants the self-employability is significantly positive only for Pakistanis. Their likelihood to become self-employed is found to be higher in South East and lower in North East, East Midlands and West Midlands. The gross disposable household income increase reduces the likelihood of South Asian immigrants to become self-employed. This can be explained as that; South Asian immigrants earn more working **186** [P a g e

as employees than as self-employed. Gross disposable household income rate does not affect the self-employment propensity of Central and Eastern Europeans. Concentration in national enclaves shows positive effects only for Indian immigrants. For the other Asian groups the effects are negative and non-significant for the Europeans.

6.2 Future research

Since migration is a non-static phenomenon, empirical studies might lose their relevance after some years. Recent immigrants may differ from previous cohorts in terms of educational levels, countries of origin, job expectations etc. also the host labour market environment may be subject to changes with the passage of time. For example, in the previous decade, the UK labour market was impacted by both economic boom and also recession. Hence, the socioeconomic consequences of migration are likely to change over time, inviting continuing research. The findings and implications of this thesis suggest that there are areas in the literature relating to the fields we investigated where there is already opportunity for future research. These suggestions are presented below.

In the case of Immigration and trade, as has already been discussed in Chapter 2, the majority of the literature focuses mainly on the home country and on the immigrants' socioeconomic characteristics. This suggests some opportunity for deeper investigation of the host country environment. For example factors such as immigration legislation, economic growth, industrial background etc. of the host country may influence bilateral trade significantly. There is, also, little research into the consequences of the additional bilateral trade prompted by immigration – for example the impact of additional imports on domestic businesses, particularly those operating in "enclave" localities with high density of recent immigrants.

As regards the earning power of low skill immigrants, which has declined over the period studied. The empirical modelling in Chapter 4 finds that this decline can be explained as a consequence of an increased proportion of "recent arrivals" who are

relatively young in years. One target for future research will be to track whether or not the earnings power of those amongst these individuals who remain in the UK will improve as the passage of time grants them additional labour market experience and opportunity for assimilation.

The majority of assimilation studies find that the length of period immigrants spend in the host country is an important factor of economic assimilation. Our results in Chapter 4 show that this is not the case for low skill (by either definition) immigrant women. An aim for further research might be to investigate in more detail how factors that affect women's earning power negatively (e.g. motherhood, time of childbearing, gender discrimination) outweigh the benefit of work experience/assimilation for immigrant women in the UK.

Examining the self-employability of immigrants in chapter 5 we find that more attention is needed in the sectoral environment. There are gaps in the literature when we look into the relationship between the sectoral, regulatory and wider business environments and the immigrants' self-employment/businesses. The links between ethnicity/nationality and business activities are acknowledged - for example Eastern Europeans are more likely to be involved in the construction and manufacturing sectors (McCollum and Findlay 2011), whilst Bangladeshi men are more likely to be involved in the retail and hotel/restaurant sector etc. (Dustman et al. 2003), but the extent and significance of such associations deserves a broader analysis. The study of self-employment amongst Eastern European and South Asian cohorts noted a difference in the way that local unemployment influences the likelihood of self-employment. Local unemployment was found to significantly reduce self-employment amongst East Europeans but this effect was not present for South Asians. Possibly the reason for this discrepancy lies in the differing extent to which these two groups have established localised family and social support networks within the UK, with the East Europeans more likely to relocate when local conditions are adverse. The LFS data does not give us information regarding either relocation decisions or social networks so this hypothesis remains an issue for further research.

Traditionally assimilation studies, as has been discussed in chapter 2, treat immigrants as solo individuals who try to assimilate in their new country. Later **188** | Page

Chapter 6: Summary, Conclusions, Recommendations and Implications for Future Research

studies have started looking into assimilation of immigrants as ethnic or national groups. This study has found some evidence of enclave effects supporting selfemployment opportunities but this does not appear to be uniform for all immigrant groups and the wider literature has yet to reach consensus. Moreover, we have not examined whether the enclave effect becomes less significant for immigrants with a longer period of UK residence. Although the LFS surveys, combined as in this study, are not panel data, they may still offer opportunities for exploring whether immigrants with longer residence are less likely to still remain within an enclave. More investigation of the dynamics of assimilation of immigrants as groups and as individuals could be undertaken to fill the gaps in the literature relating to the UK labour market.

Not much research is available that deals with the undocumented immigrants in the UK economy. Illegal immigrants tend to concentrate in certain areas, industries and occupations. The effect of illegal immigration is likely to be different from that of legal immigration, since illegal workers are constrained in their employment opportunities. In chapters 4 and 5 we investigated the earnings power and self-employability of some immigrant groups in the UK labour market. To justify our findings we measured the effects of various factors such as age, education, country of origin etc. but we did not take into account the effects of undocumented immigrants. It is known that immigrant workers without a work permit accept low payments, even below the minimum national wage. Arguably this affects the bargaining power of their fellow 'legal' workers. Empirical study of the effect of illegal immigration on the labour market is, of course, restricted/hampered by the difficulty in obtaining data on their presence in the labour market, conditions of employment and so on. However we believe that there might be room for some qualitative research.

6.3 Implications for policy and practice

For policy implications we concentrate on the accumulated empirical evidence of chapters 4 and 5. The empirical regularity of a positive association between immigrants' economic assimilation/income and their length of residency in the host country might lead to the facile conclusion that assimilation of recent low skilled immigrants in the UK is just a matter of time. We should, however, keep in mind a number of new facts that are related to the characteristics of the current low skilled immigrants in the UK and which we discussed in this thesis. Such facts are: The percentage of immigrants coming from non-advanced economies has increased in recent years. We found that there are slightly higher effects in the gross weekly income for those low skilled immigrants who come from advanced economies in comparison with those from non-advanced economies. Education has a weak effect in the earnings of low skilled immigrants. These findings lead to the conclusion that the human capital of low skilled immigrants, especially recent low skilled immigrants, may have relatively low value in the UK labour market. A potential policy aim might be to encourage low skilled immigrants to acquire UK-focussed human capital, for example to improve their language skills or to acquire UK credentials that are recognized in the labour market etc.

Self-employment covers a wide range of jobs in very different industry sectors, from grocer and taxi-driver to high technology specialist and law consultant with an international clientele. 'Ideally' immigration, through entrepreneurship, could be seen as a source of job creation rather than taking a limited number of jobs from natives. As discussed in earlier sections, immigrants from particular regions and socioeconomic backgrounds, or immigrants in general, may be more prone to entrepreneurship than are natives. It is important to have in mind that the type of migration the UK government promotes can influence the scope of entrepreneurship. New Zealand's "highly skilled immigrants programme" offers an example of policy focus. A central issue within the migration policy must be the contribution of migrants to innovation and high-growth firms - innovation is amongst the most important components to sustainable growth and job creation. Start-up entrepreneurship incentives will probably be useful to improve immigrants' selfemployment likelihood. These incentives, however, should aim at not only increasing immigrants self-employment but also promoting those forms of self-employment that further contribute to economic growth, innovation and job-creation processes. In the end, at least, three suggestions for policy aim might emerge: 1) Promotion of funding and subsidization of innovative projects. 2) Promotion of those self-employed individuals with higher human capital endowments. 3) Promotion of training and advice programs in order to raise the productivity of self-employment projects.

The results of this thesis provide valuable information to researchers and policymakers, since they illustrate the current state of earnings power and entrepreneurship within the immigrant subgroups we investigated. Most of the existing studies have examined the immigration effects in the UK in particular 'popular' areas such as: the labour market (effects on wages & employment), immigration and bilateral trade, economic assimilation of immigrants etc. In this thesis we tried to shed light in areas that warranted additional investigation and to contribute to an improved understanding of the observed variation in the features and amongst the groups that we have examined.

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Table 3.5		Native m	en AGE	(0-99)															
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																			
1%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5%	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
10%	6	6	6	6	6	6	6	4	6	6	7	7	°, 7	7	7	7	6	7	6
25%	17	16	16	16	16	16	16	16	16	16	16	16	16	17	16	17	17	17	16
50%	34	34	34	35	35	35	35	36	37	37	37	38	38	38	39	39	40	41	39
75%	53	53	53	53	53	53	54	54	55	55	55	56	57	57	57	58	59	59	57
90%	68	69	69	68	69	69	69	69	69	69	70	70	70	70	71	71	71	72	68
95%	74	74	75	74	75	75	75	76	76	76	76	76	76	77	77	- 77	- 78	78	73
99%	83	83	84	84	84	84	84	84	84	84	85	85	85	85	85	86	86	86	82
mean	35.69	35.85	35.93	35.87	36.03	36.21	36.33	36.60	36.91	37.00	37.26	37.59	37.94	38.03	38.31	38.69	39.02	39.32	37.88

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Table 3.6		Immigrar	nt men <i>1</i>	GE (0-9)9)														
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																			
1%	3	3	4	3	3	3	3	3	3	4	3	3	3	3	3	2	3	3	3
5%	9	9	10	9	9	9	9	10	10	10	9	9	10	9	9	9	9	9	9
10%	15	15	16	15	15	15	15	16	16	16	15	15	15	15	15	15	15	14	15
25%	28	28	29	28	28	27	28	28	28.5	28	28	27	27	27	27	27	26	26	27
50%	40	40	40	40	39	40	40	40	41	40	40	39	39	39	38	37	37	37	38
75%	56	56	56	56	56	56	56	56	57	55	54	55	53	- 53	53	52	52	52	52
90%	68	68	68	68	68	69	69	70	70	70	69	70	68	68	68	67	68	68	65
95%	72	73	73	73	74	75	75	75	75	75	76	77	75	75	75	75	74	76	72
99%	81	82	82	82	82	83	83	83	82	85	83	85	83	83	84	84	84	85	81
mean	41.11	41.05	41.56	41.23	41.09	41.27	41.36	41.73	42.11	41.79	41.18	41.00	40.50	40.44	40.03	39.59	39.48	39.48	39.42

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Table 3.7	·	Native w	omen A(GE (0-99	9)														
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																			
1%	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5%	3	3	3	3	3	3	3	3	4	4	4	4	4	4	3	4	3	3	3
10%	7	7	6	7	7	7	7	7	7	7	7	8	8	8	7	8	8	8	7
25%	19	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19	19	20	18
50%	36	36	36	36	37	37	37	38	38	38	38	39	40	40	40	41	41	42	40
75%	57	57	56	56	56	56	56	57	57	57	57	58	58	58	59	59	60	60	57
90%	72	72	72	72	72	72	72	73	72	72	72	73	73	73	73	73	73	73	68
95%	78	78	78	78	78	78	78	79	79	79	79	79	- 79	79	79	79	80	80	73
99%	86	86	86	87	87	87	87	87	87	87	87	87	87	87	87	88	88	88	84
mean	38.06	38.08	38.08	37.96	38.21	38.42	38.40	38.77	39.04	38.89	39.04	39.58	39.69	39.84	40.03	40.41	40.71	41.03	38.61

Table 3.8	ļ	Immigrai	nt womer	AGE	(0-99)														
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																			
1%	4	3	4	3	4	3	3	3	3	4	4	4	4	4	3	3	3	3	4
5%	11	10	11	11	11	12	11	11	11	10	11	12	10	10	10	10	10	10	11
10%	18	18	18	18	18	19	18	19	18	18	18	18	16	17	17	18	17	17	16
25%	28	28	28	28	28	29	28	29	29	29	28	28	28	28	27	27	27	28	28
50%	39	39.5	40	40	41	41	40	41	40	41	40	40	39	40	38	39	38	38	37
75%	55	55	55	55	56	56	55	57	56	56	56	55	54	55	54	54	54	53	52
90%	68	67	68	69	70	70	69	71	70	71	70	70	69	70	70	70	69	69	65
95%	73	73	74	74	75	75	75	-76	76	77	76	77	- 77	78	76	- 77	76	76	71
99%	82	83	84	84	84	83	83	85	85	85	85	85	85	84	85	85	85	86	82
mean	41.29	41.23	41.68	41.81	42.08	42.28	41.85	42.72	42.11	42.47	42.14	42.14	41.35	41.69	40.98	41.21	40.57	40.71	39.47

Table 3.9		Native ı	men: Age	e when	complet	ed full t	ime edu	Ication											
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																2007	2000	LVVV	2010
1%	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
5%	14	14	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
10%	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
25%	15	15	15	15	15	15	15	15	15	16	16	16	16	16	16	16	16	16	16
50%	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
75%	17	17	17	17	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18
90%	21	21	21	21	21	21	21	21	21	21	21	22	22	22	22	22	22	22	22
95%	22	22	22	22	22	22	22	22	22	22	23	23	23	23	23	23	23	23	22
99%	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
mean	16.58	16.6	16.66	16.71	16.75	16.83	16.91	16.96	17	17.07	17.15	17.18	17.22	17.27	17.37	17.39	17.34	17.42	17.49

Table 3.10		mmigrai	nt men: /	Age who	en comp	leted ful	ll time e	ducatio	n										
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																			
1%	12	12	11	11	12	12	11	12	12	12	12	12	12	12	12	12	12	12	12
5%	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15
10%	14	14	14	14	25	15	15	15	15	15	15	15	15	15	16	16	15	15	16
25%	16	16	16	16	26	16	16	16	16	16	16	16	16	16	16	16	16	16	17
50%	17	17	17	17	18	18	18	18	18	18	18	18	18	18	19	19	19	19	19
75%	21	21	21	21	21	21	22	22	22	22	22	22	22	22	22	22	22	22	22
90%	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	25	25	25	25
95%	25	25	25	25	25	25	25	26	26	26	26	26	26	26	26	26	26	26	26
99%	29	29	29	29	28	28	28	28	29	29	29	29	29	29	29	30	29	29	30
mean	18.21	18.37	18.31	18.44	18.50	18.46	18.72	18.76	18.89	19.00	19.04	19.05	19.32	19.32	19.52	19.60	19.51	19.60	19.61

Table 3.11		Native v	women:	Age who	en comp	pleted fu	III time e	ducatio	n										
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000	2010
percentiles													2001	2000	2000	2001	2000	2003	2010
1%	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	14	1/	1/
5%	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
10%	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
25%	15	15	15	15	15	15	15	16	16	16	16	16	16	16	16	16	16	16	16
50%	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
75%	17	17	17	17	18	18	18	18	18	. 18	18	18	18	18	18	18	18	18	18
90%	20	20	20	20	21	21	21	21	21	21	21	21	21	21	21	21	21	21	22
95%	21	21	21	22	22	22	22	22	22	22	22	22	22	22	22	22	22	21	22
99%	23	23	23	23	23	24	24	24	24	24	24	24	24	24	25	25	24	24	25
mean	16.57	16.62	16.67	16.72	16.78	16.85	16.91	16.96	17	17.08	17.13	17.21	17.27	17.32	17.42	17.47	17.32	17.38	17.45

Table 3.12		Imnigra	nt wome	n: Age	when co	omplete	d full tin	ne educ	ation										
year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000	2010
percentiles													2001	2000	2000	2007	2000	2003	2010
1%	11	11	11	12	11	11	11	10	11	11	11	11	12	12	12	12	11	10	44
5%	14	14	14	14	14	14	14	14	14	14	14	14	14	15	14	12	1/	12	11
10%	14	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14
25%	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
50%	17	17	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
75%	19	20	20	20	20	20	21	21	21	21	21	21	21	21	22	22	22	22	22
90%	22	22	22	23	22	23	23	23	23	23	23	23	23	24	24	24	24	24	24
95%	24	24	24	24	24	24	24	25	24	25	25	25	25	25	25	25	25	27	24 95
99%	26	27	27	27	26	27	26	28	28	28	27	28	28	28	28	29	29	23	29
mean	17.68	17.80	17.89	18.02	18.02	18.09	18.27	18.43	18.48	18.59	18.65	18.67	18.87	18.99	19.12	19.21	19.09	19.19	19.23

Table 3.13	1	Native n	en: Gro	oss pay, f	Eweeki	y from n	nain job											
year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																		
1%	17	18	20	16	20	20	21	25	30	30	30	30	35	37	34	34	28	32
5%	55	54	52	51	64	66	69	80	90	84	95	92	97	100	98	108	100	100
10%	115	120	115	120	130	132	144	156	170	163	173	173	183	185	190	204	190	180
25%	190	195	194	200	209	218	231	240	254	254	269	277	288	298	300	317	308	313
50%	277	284	288	300	308	322	337	346	375	382	392	404	416	440	452	480	469.5	481
75%	400	406	413	427	450	474	481	500	538	548	565	577	600	625	654	692	692	697
90%	536	577	571	586	613	650	675	712	762	769	808	808	865	865	885	950	962	1000
95%	673	692	692	731	769	808	855	865	962	962	971	1000	1038	1125	1154	1173	1308	1327
99%	975	1050	1038	1096	1179	1346	1315	1500	1538	1635	1596	1692	1692	1923	1923	1923	1923	1923
mean	312.67	324.13	326.02	340.02	354.6	373.02	387.52	408.3	436.21	439.87	453.1	468	483.86	507.2	519.02	549.87	558.19	562.53

Table 3.14	.	Immigra	nt men:	Gross p	ay, £ we	ekly fro	m main	job										
year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																		
1%	15	29	28	38	30	21	39	45	30	45	35	30	40	40	40	38	55	58
5%	56	82	65	75	62	60	70	75	66	90	104	97	100	92	101	100	100	100
10%	132	112	120	127	98	100	123	140	120	140	150	150	164	120	165	160	150	150
25%	220	198	219	214	200	200	212	250	246	250	240	254	262.5	240	269	277	269	277
50%	308	290	346	336.5	309.5	310.5	340	385	392	394	392	385	413	384	400	418	402	423
75%	425	462	500	507	476	500	538	600	658	625	623	615	673	635	635	673	635	692
90%	646	712	715	846	769	705.5	850	865	962	877	883	942	1058	1029	1039	1038	952	1062
95%	846	865	1100	962	929	923	981	1154	1295	1227	1250	1246	1346	1346	1442	1500	1154	1538
99%	1431	1385	2769	1846	1385	1538	1731	1923	2308	1923	1923	1923	2000	1923	1923	1926	1923	1923
mean	363.51	355.51	451.55	423.22	387.61	387.15	428.35	479.16	503.57	485.68	485.13	499.19	529.01	499.89	523.91	558.51	497.9	547.17

	Native w	omen:	Gross pa	iy, £ we	ekty fron	n main j	job										
1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
12	13	10	10	12	14	15	15	17	19	19	20	21	21	22	25	24	24
25	25	24	24	26	29	31	32	38	40	40	45	50	47	51	55	58	58
36	39	40	39	40	24	50	50	58	60	65	69	75	74	80	87	90	90
70	71	75	, 77	78	86	95	99	111	115	120	126	138	138	150	159	154	154
139	144	150	151.5	160	171	180	190	208	212	219	231	250	254	269	280	288	288
231	231	239	246	260	275	288	308	323	336	346	365	385	404	423	450	462	462
346	346	346	369	398	413	438	462	481	500	519	552	577	596	634	660	654	681
404	415	423	448	472	500	519	538	578	613	633	669	692	731	769	808	769	816
577	612	577	663	673	735	777	825	865	925	981	1019	1058	1154	1154	1212	1269	1269
	1993 12 25 36 70 139 231 346 404 577	Native w199319941213252536397071139144231231346346404415577612	Native women: 1993 1994 1995 12 13 10 25 25 24 36 39 40 70 71 75 139 144 150 231 231 239 346 346 346 404 415 423 577 612 577	Native women: Gross parting 1993 1994 1995 1996 12 13 10 10 25 25 24 24 36 39 40 39 70 71 75 77 139 144 150 151.5 231 231 239 246 346 346 346 369 404 415 423 448 577 612 577 663	Native women: Gross pay, £ we 1993 1994 1995 1996 1997 12 13 10 10 12 25 25 24 24 26 36 39 40 39 40 70 71 75 77 78 139 144 150 151.5 160 231 231 239 246 260 346 346 369 398 404 415 423 448 472 577 612 577 663 673 673	Native women: Gross pay, £ weekly from 1993 1994 1995 1996 1997 1998 12 13 10 10 12 14 25 25 24 24 26 29 36 39 40 39 40 24 70 71 75 77 78 86 139 144 150 151.5 160 171 231 231 239 246 260 275 346 346 346 369 398 413 404 415 423 448 472 500 577 612 577 663 673 735	Native women: Gross pay, £ weekly from main 1993 1994 1995 1996 1997 1998 1999 12 13 10 10 12 14 15 25 25 24 24 26 29 31 36 39 40 39 40 24 50 70 71 75 77 78 86 95 139 144 150 151.5 160 171 180 231 231 239 246 260 275 288 346 346 346 369 398 413 438 404 415 423 448 472 500 519 577 612 577 663 673 735 777	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 12 13 10 10 12 14 15 15 25 25 24 24 26 29 31 32 36 39 40 39 40 24 50 50 70 71 75 77 78 86 95 99 139 144 150 151.5 160 171 180 190 231 231 239 246 260 275 288 308 346 346 346 369 398 413 438 462 404 415 423 448 472 500 519 538 577 612 577 663 673 735 777 825	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 12 13 10 10 12 14 15 15 17 25 25 24 24 26 29 31 32 38 36 39 40 39 40 24 50 50 58 70 71 75 77 78 86 95 99 111 139 144 150 151.5 160 171 180 190 208 231 231 239 246 260 275 288 308 323 346 346 369 398 413 438 462 481 404 415 423 448 472 500 519 538 578 577 612 577 663 673	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 12 13 10 10 12 14 15 15 17 19 25 25 24 24 26 29 31 32 38 40 36 39 40 39 40 24 50 50 58 60 70 71 75 77 78 86 95 99 111 115 139 144 150 151.5 160 171 180 190 208 212 231 231 239 246 260 275 288 308 323 336 346 346 369 398 413 438 462 481 500 404 415 423 448 472 500 519	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 12 13 10 10 12 14 15 15 17 19 19 25 25 24 24 26 29 31 32 38 40 40 36 39 40 39 40 24 50 50 58 60 65 70 71 75 77 78 86 95 99 111 115 120 139 144 150 151.5 160 171 180 190 208 212 219 231 231 239 246 260 275 288 308 323 336 346 346 346 369 398 413 438 462 481 500 519 <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 12 13 10 10 12 14 15 15 17 19 19 20 25 25 24 24 26 29 31 32 38 40 40 45 36 39 40 39 40 24 50 50 58 60 65 69 70 71 75 77 78 86 95 99 111 115 120 126 139 144 150 151.5 160 171 180 190 208 212 219 231 231 231 239 246 260 275 288 308 323 336 346 365 346 346 369 <</td> <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 12 13 10 10 12 14 15 15 17 19 19 20 21 25 25 24 24 26 29 31 32 38 40 40 45 50 36 39 40 39 40 24 50 50 58 60 65 69 75 70 71 75 77 78 86 95 99 111 115 120 126 138 139 144 150 151.5 160 171 180 190 208 212 219 231 250 231 231 239 246 260 275 288 308 323 336 <</td> <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 201 2002 2003 2004 2005 2006 12 13 10 10 12 14 15 15 17 19 19 20 21 21 25 25 24 24 26 29 31 32 38 40 40 45 50 47 36 39 40 39 40 24 50 50 58 60 65 69 75 74 70 71 75 77 78 86 95 99 111 115 120 126 138 138 139 144 150 151.5 160 171 180 190 208 212 219 231 250 254 231 231 239 246</td> <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 139 144 150 151.5 160 171 180 190 208 212 219 231 250 254 269</td> <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 55 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 87 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 159 139 144 150 151.5 160 171 180 190 208 212</td> <td>Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 24 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 55 58 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 87 90 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 159 154 139 144 150 151.5 160</td>	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 12 13 10 10 12 14 15 15 17 19 19 20 25 25 24 24 26 29 31 32 38 40 40 45 36 39 40 39 40 24 50 50 58 60 65 69 70 71 75 77 78 86 95 99 111 115 120 126 139 144 150 151.5 160 171 180 190 208 212 219 231 231 231 239 246 260 275 288 308 323 336 346 365 346 346 369 <	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 12 13 10 10 12 14 15 15 17 19 19 20 21 25 25 24 24 26 29 31 32 38 40 40 45 50 36 39 40 39 40 24 50 50 58 60 65 69 75 70 71 75 77 78 86 95 99 111 115 120 126 138 139 144 150 151.5 160 171 180 190 208 212 219 231 250 231 231 239 246 260 275 288 308 323 336 <	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 201 2002 2003 2004 2005 2006 12 13 10 10 12 14 15 15 17 19 19 20 21 21 25 25 24 24 26 29 31 32 38 40 40 45 50 47 36 39 40 39 40 24 50 50 58 60 65 69 75 74 70 71 75 77 78 86 95 99 111 115 120 126 138 138 139 144 150 151.5 160 171 180 190 208 212 219 231 250 254 231 231 239 246	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 139 144 150 151.5 160 171 180 190 208 212 219 231 250 254 269	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 55 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 87 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 159 139 144 150 151.5 160 171 180 190 208 212	Native women: Gross pay, £ weekly from main job 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 12 13 10 10 12 14 15 15 17 19 19 20 21 21 22 25 24 25 25 24 24 26 29 31 32 38 40 40 45 50 47 51 55 58 36 39 40 39 40 24 50 50 58 60 65 69 75 74 80 87 90 70 71 75 77 78 86 95 99 111 115 120 126 138 138 150 159 154 139 144 150 151.5 160

mean

168.05 179.28 176.05 183.93 194.21 204.17 216.52 227.82 243.8 253.5 263.69 278.12 295.05 306.46 319.45 357.01 339.89 344.62

Table 3.16		mmigra	nt wome	n: Gros	s pay, £	weekly	from ma	ain job										
year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
percentiles																		
1%	15	15	19	9	26	20	14	21	23	25	15	25	23	34	28	23	28	28
5%	40	30	35	29	36	40	45	48	45	47	50	55	60	55	69	69	65	71
10%	52	51	51	45	50	60	60	70	72	78	78	81	84	75	96	95	93	105
25%	98	102	98	110	117	122	135	133	154	150	148	154	173	160	185	192	173	185
50%	185	190	173	196	205	214	231	240	269	261.5	254	288	288	283	311	321	300	300
75%	277	277	270	300	327	346	357	380	410	413	420	462	462	462	481	481	481	514.5
90%	381	423	413	406	452	477	500	542	577	615	587	623	644	615	725	694	739	769
95%	462	485	535	538	529	554	625	712	692	779	740	779	832	777	865	865	898	875
99%	762	650	698	960	897	774	962	1173	1200	1154	1192	1423	1480	1538	1346	1731	1538	1523
mean	208.6	209.90	208.58	222.09	240.95	248.98	273.22	291.58	308.68	314.25	309.77	336.79	350.2	341.93	376.72	385.16	373.4	384.34

Table 4.1

Gender	Nativity	Skill (low skill)
Men	UK-bom	High School (CCE A lovela, CCSE A C, Other qualifications)
Women	Immigrants	No qualifications

Table 4.2: IMF (2011) advanced economies

Australia	Germany	Malta	South Korea
Austria	Greece	Netherlands	Spain
Belgium	Hong Kong	New Zealand	Sweden
Canada	Iceland	Norway	Switzerland
Cyprus	Ireland	Portugal	Taiwan
Czech Republic	Israel	San Marino	United Kingdom
Denmark	Italy	Singapore	United States
Estonia	Japan	Slovakia	
France	Luxembourg	Slovenia	

Table 4.3: major occupation, Di=1

D1= managers and senior officials
D2= professional occupations
D3= associate professionals and technical
D4= administrative and secretarial
D5= skilled trade occupations

D6= personal service occupations D7= sales and customers service occupations D8= process, plant and machine operatives D9= elementary occupations

Table 4.4

low skill labour force: work-place	LIK 2001-20	10						
	Native men		Nativ	e women	Immig	rant men	Immigra	nt women
Year	2001	2010	2001	2010	2001	2010	2001	2010
work-place								
Tyne and Wear	2.00%	3.20%	2.60%	2.90%	3.10%	1.80%	1.80%	1.60%
Rest of North East	3.40%	3.30%	2.70%	2.80%	0.70%	0.00%	1.80%	1.60%
Greater Manchester	3.60%	4.40%	4.50%	4.00%	3.90%	4.40%	4.80%	3.30%
Merseyside	1.30%	2.60%	1.90%	3.10%	0.70%	1.20%	0.00%	0.00%
Rest of North West	4.10%	6.50%	4.90%	7.10%	2.30%	4.40%	3.00%	7.34%
South Yorkshire	2.80%	3.20%	2.90%	3.40%	1.50%	0.60%	1.20%	1.10%
West Yorkshire	4.70%	6.10%	5.10%	4.50%	3.90%	6.20%	3.00%	1.60%
Rest of Yorkshire and Humberside	3.90%	4.40%	3.30%	4.80%	2.30%	2.50%	1.20%	4.50%
East Midlands	9.10%	9.00%	8.70%	7.40%	7.80%	17.60%	8.40%	11.20%
West Midlands and Met. County	4.60%	4.20%	4.20%	2.60%	13.30%	3.70%	7.20%	2.80%
Rest of West Midlands	4.80%	6.30%	4.90%	5.40%	1.50%	3.70%	2.40%	1.60%
East of England	8.80%	7.20%	8.90%	8.30%	7.00%	6.90%	11.50%	11.20%
Central London	0.50%	0.60%	0.40%	0.20%	3.90%	2.50%	6.60%	5.60%
Inner London	0.90%	0.60%	0.80%	0.40%	7.80%	5.00%	3.60%	3.30%
Outer London	2.20%	1.90%	2.80%	2.30%	19.60%	8.10%	14.50%	7.90%
South East	11.80%	8.61%	13.40%	11.80%	8.60%	9.40%	13.90%	16.30%
South West	11.80%	9.40%	11.10%	10.40%	5.50%	7.50%	8.40%	6.70%
Wales	5.10%	4.90%	5.00%	4.90%	1.50%	2.50%	3.00%	2.80%
Strathclyde	4.10%	2.90%	3.30%	3.20%	0.00%	1.80%	1.80%	1.10%
Rest of Scotland	6.80%	7.80%	5.50%	6.20%	3.10%	5.00%	1.20%	4.50%
Northern Ireland	2.70%	0.00%	2.30%	0.00%	0.70%	0.00%	0.00%	0.00%

Table 4.5

immigrant men immigrant women immigrant men immigrant women variables (hiqual) (edage) native men native women (hiqual) (edage) 2010 2001 2010 2010 2010 2001 2001 2010 2001 2010 2001 2001 37.99 45.79 39.76 39.39 42.28 41.15 43.17 39.62 37.26 43.22 37.51 43.60 age age 16.83 age when completed full time education edage 15.91 16.05 16.01 16.17 22.68 18.82 16.11 16.54 19.71 20.34 16.00 years since you first arrived in the UK resident n/a n/a n/a n/a 21.84 11.84 26.05 16.23 27.71 16.26 30.26 19.18 managers and senior officials % D1 0.04 0.04 0.02 0.05 0.04 0.02 0.05 0.02 0.00 0.03 0.00 0.04 professional occupations % 0.01 0.02 0.00 0.01 0.01 0.00 0.02 0.02 0.00 0.00 0.00 0.00 D2 associate professional and technical % D3 0.04 0.04 0.03 0.06 0.03 0.00 0.05 0.00 0.03 0.02 0.09 0.04 administrative and secretarial % 0.19 0.07 0.02 0.07 0.04 0.09 D4 0.04 0.04 0.16 0.11 0.10 0.12 skilled trade occupations % D5 0.29 0.24 0.04 0.03 0.04 0.13 0.05 0.16 0.07 0.04 0.07 0.05 0.19 0.23 0.03 0.11 0.04 0.09 0.21 0.23 personal service occupations % D6 0.03 0.06 0.17 0.14 sales and customers service occupations % D7 0.04 0.06 0.21 0.19 0.09 0.06 0.05 0.07 0.13 0.15 0.10 0.16 0.39 0.27 0.40 0.26 0.11 0.11 0.12 0.11 0.27 0.24 0.06 0.03 process, plant and machine operatives % D8 elementary occupations % 0.24 0.26 0.25 0.24 0.29 0.39 0.25 0.35 0.37 0.34 0.36 0.29 D9 0.29 0.24 0.33 0.33 0.30 0.28 0.17 0.20 0.33 0.21 no qualification % 0.14 D15 0.19 0.13 0.29 0.19 0.47 0.22 0.50 n/a n/a 0.26 0.28 immigrants from developed countries % D70 n/a n/a

Average demographic charasteristics

Table 4.6, estimated coefficients

Native m	en 2001	001 Native women 2001 Immigrant men 'hiqual' 2001		Immigrant men 'edage' 2001							
obs: 1849		R^2 = 0.3346	obs: 2631	L	R^2 = 0.3155	obs: 127		$R^2 = 0.4534$	obs: 98		R^2 = 0.5191
Ihrrate	Coef.	P>t	Ihrrate	Coef.	P>t	Ihrrate	Coef.	P>t	Ihrrate	Coef.	<u>P>t</u>
age	0.0403	0.000	age	0.0143	0.000	age	0.0414	0.000	age	0.0456	0.005
age2	-0.0005	0.000	age2	-0.0002	0.000	age 2	-0.0005	0.001	age 2	-0.0002	0.215
edage	0.0265	0.002	edage	0.0282	0.000	resident	0.0051	0.054	D1	-0.6412	0.016
D1	0.3120	0.053	D1	0.6265	0.013	D1	0.1920	0.103	D3	-0.7919	0.003
D1age	0.0085	0.004	Dlage	0.0052	0.015	D2	-9.1446	0.011	D4age	-0.0220	0.001
D2age	0.0204	0.000	D2	0.5031	0.089	D2age	0.2866	0.006	D5	-0.8562	0.002
D3	0.3344	0.021	D2age	0.0143	0.000	D3	-2.5088	0.084	D6ag e	-0.0117	0.096
D3age	0.0082	0.000	D3age	0.0436	0.000	D3age	0.0582	0.087	D7age	-0.0270	0.000
D4	0.2439	0.077	D3age 2	-0.0005	0.001	D9	-0.1669	0.008	D8	-0.4671	0.015
D4age	0.0056	0.009	D4	0.3881	0.123	D15	-0.1453	0.028	D8age 2	-0.0003	0.001
D5	0.4293	0.000	D4age	0.0194	0.000	D70	0.1037	0.081	D9age	-0.0267	0.000
D5age	0.0027	0.030	D4age 2	-0.0002	0.000	_cons	0.9080	0.000	D15	-0.1482	0.067
D6age	0.0062	0.015	D5	0.6181	0.010	-			D70	0.1149	0.082
D7	0.2427	0.041	D6	0.5225	0.029	Immigran	t women 'h	iqual' 2001	_cons	1.3245	0.000
D8	0.3351	0.005	D6age	0.0025	0.009	obs: 165		R^2 = 0.4884			
D8age	0.0013	0.320	D7	0.5623	0.018	Ihrrate	Coef.	P>t	Immigran	t women '	edage' 2001
D9	0.2751	0.018	D8	0.6896	0.004	age	0.0119	0.116	obs: 138		R^2 = 0.5502
D15	-0.0799	0.000	D9	0.4682	0.050	age 2	-0.0001	0.127	Ihrrate	Coef.	P>t
cons	0.2217	0.239	D9age	0.0018	0.034	D1	0.3938	0.002	age	0.0408	0.001
-		0.200	D15	-0.0403	0.000	D2age	0.0283	0.000	age 2	-0.0003	0.006
			0005	0.2669	0.279	D3	-0.7326	0.184	D1	-0.5999	0.001
						D3age	0.0315	0.033	D3age	-0.0067	0.048
						D4	0.5470	0.000	D4age	-0.0145	0.000
						D4age2	-0.0001	0.027	D5age	-0.0216	0.000
						D6age	0.0015	0.168	D6 _	-0.8819	0.000
						cons	1.3329	0.000	D7age	-0.0217	0.000
									D8	-0.9037	0.000
									D9	-0.4698	0.004
									D9age	-0.0102	0.014
									Dis	-0.0102	0 137
									013	-0.0793	0.132

cons

1.4272

0.000

Table 4.7

Avrage Real Wages Change, low skill UK labour 2001-2010



Table 4.8

	Estimated average real log wage per hour					
Year	2001	2010				
Native men	1.9111	1.9159				
Native women	1.6626	1.6879				
Immigrant men (hiqual)	1.8990	1.7817				
Immigrant women (hiqual)	1.6590	1.6589				
Immigrant men (edage)	2.0224	1.9077				
Immigrant women (edage)	1.7230	1.6848				

Table 4.9

Estimated average log real wages 2001-2010

			immigrant	immigrant	immigrant	immigrant
	native	native	men	women	men	women
Year	men	women	(hiqual)	(hiqual)	(edage)	(edage)
2001	1.9111	1.6626	1.8990	1.6590	2.0224	1.7230
2002	1.9108	1.6629	1.9076	1.7210	2.0209	1.7424
2003	1.9155	1.6638	1.8260	1.7147	1.8598	1.7314
2004	1.9215	1.6719	1.8116	1.7191	1.8860	1.7415
2005	1.9091	1.6677	1.8856	1.7024	1.8994	1.7478
2006	1.9464	1.6802	1.7814	1.6789	1.9043	1.7406
2007	1.9382	1.6926	1.8056	1.6918	2.0017	1.7169
2008	1.9268	1.6946	1.7780	1.7079	1.8850	1.7628
2009	1.9232	1.6880	1.7851	1.6797	1.8995	1.7450
2010	1.9159	1.6879	1.7817	1.6589	1.9077	1.6848

Table 4.10

Estimated average log real wages % change 2001-2010

			immigrant	immigrant	immigrant	immigrant
		native	men	women	men	women
Year	native men	women	(hiqual)	(hiqual)	(edage)	(edage)
2001	-	-	-	•	-	-
2002	-0.02%	0.02%	0.45%	3.74%	-0.08%	1.13%
2003	0.24%	0.06%	-4.28%	-0.36%	-7.97%	-0.63%
2004	0.31%	0.49%	-0.79%	0.25%	1.41%	0.58%
2005	-0.65%	-0.25%	4.09%	-0.97%	0.71%	0.36%
2006	1.95%	0.75%	-5.53%	-1.38%	0.26%	-0.41%
2007	-0.42%	0.74%	1.36%	0.77%	5.11%	-1.36%
2008	-0.59%	0.12%	-1.53%	0.95%	-5.83%	2.68%
2009	-0.19%	-0.39%	0.40%	-1.65%	0.77%	-1.02%
2010	-0.38%	-0.01%	-0.19%	-1.24%	0.43%	-3.45%

Table 4.11aDecomposition of overall real log wages: changes 2001-2010

Variables	Native	men	Native women			
	$\Delta \overline{h}$	$\hat{\beta} \Delta \overline{h}$	$\Delta \overline{h}$	$\hat{\beta} \Delta \bar{h}$		
age	2.897	0.117	2.020	0.029		
age2	236.601	-0.110	170.306	-0.028		
edage	0.146	0.004	0.156	0.004		
D1	0.005	0.002	0.023	0.014		
D1age	0.319	0.003	1.035	0.005		
D1age2	17.694	0.000	46.602	0.000		
D2	0.007	0.000	0.005	0.003		
D2age	0.326	0.007	0.232	0.003		
D2age2	14.800	0.000	10.336	0.000		
D3	-0.008	-0.003	0.031	0.000		
D3age	-0.199	-0.002	1.405	0.061		
D3age2	-3.428	0.000	63.380	-0.031		
D4	-0.004	-0.001	-0.031	-0.012		
D4age	-0.042	0.000	-0.958	-0.019		
D4age2	3.259	0.000	-25.742	0.006		
D5	-0.051	-0.022	-0.010	-0.006		
D5age	-1.325	-0.004	-0.326	0.000		
D5age2	-23.280	0.000	-10.393	0.000		
D6	0.033	0.000	0.042	0.022		
D6age	1.471	0.009	2.189	0.005		
D6age2	65.154	0.000	109.932	0.000		
D7	0.022	0.005	-0.020	-0.011		
D7age	1.040	0.000	-0.439	0.000		
D7age2	48.325	0.000	-1.500	0.000		
D8	-0.028	-0.009	-0.031	-0.021		
D8age	-0.399	-0.001	-1.219	0.000		
D8age2	14.057	0.000	-47.712	0.000		
D9	0.021	0.006	-0.010	-0.005		
D9age	1.586	0.000	0.071	0.000		
D9age2	94.567	0.000	23.774	0.000		
D15	-0.053	0.004	-0.106	0.004		

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Table 4.11b

Decomposition of overall real log wages: changes 2001-2010

Variables	Immigrant men (hiqual)		Immigrant women (hiqual				
	$\Delta \overline{h}$	$\hat{\beta} \Delta \bar{h}$	$\Delta \overline{h}$	$\hat{\beta} \Delta \bar{h}$			
age	-2.363	-0.098	-5.610	-0.067			
age2	-181.675	0.084	-457.720	0.062			
edage	-3.859	0.000	0.630	0.000			
resident	-9.998	-0.051	-11.454	0.000			
resident2	476.980	0.000	768.060	0.000			
D1	-0.022	-0.004	0.030	0.012			
D1age	-0.937	0.000	1.140	0.000			
D1age2	-38.983	0.000	43.297	0.000			
D2	-0.014	0.128	0.000	0.000			
D2age	-0.555	-0.159	0.000	0.000			
D2age2	-21.980	0.000	0.000	0.000			
D3	-0.028	0.070	-0.008	0.006			
D3age	-1.109	-0.065	-0.461	-0.015			
D3age2	-43.959	0.000	-24.362	0.000			
D4	-0.051	0.000	-0.014	-0.008			
D4age	-2.070	0.000	-1.171	0.000			
D4age2	-83.884	0.000	-72.385	0.008			
D5	0.083	0.000	-0.031	0.000			
D5age	2.991	0.000	-1.576	0.000			
D5age2	107.418	0.000	-77.239	0.000			
D6	0.077	0.000	0.036	0.000			
D6age	2.803	0.000	0.392	0.001			
D6age2	101.813	0.000	-27.687	0.000			
D7	-0.023	0.000	0.022	0.000			
D7aage	-1.056	0.000	0.118	0.000			
D7age2	-47.416	0.000	-26.837	0.000			
D8	-0.118	0.000	-0.004	0.000			
D8age	-5.321	0.000	-0.792	0.000			
D8age2	-234.855	0.000	-57.953	0.000			
D9	0.100	-0.017	-0.031	0.000			
D9age	3.043	0.000	-3.259	0.000			
D9age2	86.327	0.000	-214.555	0.000			
D15	-0.047	0.007	-0.100	0.000			
D70	-0.134	-0.014	-0.251	0.000			

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Table 4.11c

Decomposition of overall real log wages: changes 2001-2010

Variables	Immigrant m	en (edage)	Immigrant women (edage)				
	$\Delta \overline{h}$	$\hat{\beta} \Delta \bar{h}$	$\Delta \overline{h}$	$\hat{\beta} \Delta \bar{h}$			
age	-5.710	-0.260	-6.031	-0.246			
age2	-460.945	0.105	-515.982	0.172			
edage	0.434	0.000	0.825	0.000			
resident	-9.826	0.000	-11.083	0.000			
resident2	-415.463	0.000	-547.866	0.000			
D1	-0.037	0.024	0.038	-0.022			
D1age	-1.696	0.000	1.491	0.000			
D1age2	-5.040	0.000	2.223	0.000			
D2	-0.001	0.000	0.000	0.000			
D2age	-0.145	0.000	0.000	0.000			
D2age2	-0.205	0.000	0.000	0.000			
D3	-0.054	0.043	-0.049	0.000			
D3age	-2.334	0.000	-2.447	0.016			
D3age2	-5.446	0.000	-13.286	0.000			
D4	-0.037	0.000	-0.033	0.000			
D4age	-1.799	0.039	-2.016	0.029			
D4age2	-7.959	0.000	-18.092	0.000			
D5	0.103	-0.088	-0.018	0.000			
D5age	3.555	0.000	-1.126	0.024			
D5age2	29.231	0.000	-5.744	0.000			
D6	0.051	0.000	0.088	-0.078			
D6age	1.707	-0.020	2.673	0.000			
D6age2	8.228	0.000	40.680	0.000			
D7	0.016	0.000	0.060	0.000			
D7aage	0.292	-0.008	1.745	-0.038			
D7age2	1.447	0.000	19.502	0.000			
D8	-0.137	0.064	-0.007	0.007			
D8age	-7.423	0.000	-1.022	0.000			
D8age2	-201.537	0.052	-10.187	0.000			
D9	0.096	0.000	-0.075	0.035			
D9age	2.150	-0.057	-5.145	0.052			
D9age2	51.836	0.000	-144.118	0.000			
D15	0.006	-0.001	-0.115	0.009			
D70	-0.098	-0.011	-0.225	0.000			

Table 4.12

International Passenger Survey (IPS) estimates of long-term International migration Rolling annual data to Q1 2011

Citizenship

Year	All citizenships		British Non-Bri		-Britis	ritist										
							European Union EU15		Europ Union	ean A8	Commo <u>nw ealth</u> Old		Commo Other <u>nw ealth</u> foreign New			ier eign
	estimate		est	imate	esti	mate	estimat	Ð	estim	ate	es	timate	05	timate	est	imate
Balance																
YE Mar 00	+	71	-	21	+	92	+	3			+	19	+	32	+	38
YE Jun 00	+	84	-	15	+	99	+	6			+	15	+	37	+	41
YE Sep 00		74	-	30	+	104	+	7			+	19	+	41	+	36
YE Dec 00	+	77	-	47	+	124	+	13			+	26	+	46	+	40
YE Mar 01	+	97	-	34	+	131	+	10		:	+	27	+	50	+	44
YE Jun 01	+ 1	20	-	28	+	148	+	15		:	+	29	+	53	+	51
YE Sep 01	+ 1	26	-	30	+	155	+	14		:	+	34	+	52	+	56
YE Dec 01	+ 1	22	-	21	+	143	+	13		:	+	29	+	47	+	53
YE Mar 02	+ 1	15	-	35	+	151	+	16		:	+	29	+	48	+	57
YE Jun 02	+ 1	03		45	+	148	+	20		:	+	31	+	46	+	51
YE Sep 02	+	91	-	54	+	145	+	14		:	+	19	+	52	+	61
YE Dec 02	+	87	~	65	+	153	•	19		:	+	17	+	55	+	61
YE Mar 03	+	92	-	54	+	146	+	10			+	19	+	55	+	62
YE Jun 03	+	87	-	62	+	149	+	8			+	16	+	58	+	68
YE Sep 03	+ 1	16	-	63	+	180	+	22		:	+	21	+	65	+	73
YE Dec 03	+ 1	12	-	66	+	178	+	16		:	+	14	+	73	+	75
YE Mar 04	+ 1	21	-	84	+	205	+	25	+	3	+	17	+	92	+	68
YE Jun 04	+ 1	43	-	86	+	229	+	30	+	9	+	27	+	97	+	64
YE Sep 04	+ 1	73	-	100	+	273	+	26	+	26	+	31	+	113	+	74
YE Dec 04	+ 2	14	-	99	+	314	+	34	+	47	+	38	+	116	+	79
YE Mar 05	+ 2	22	-	95	+	317	+	28	+	56	+	39	+	111	+	82
YE Jun 05	+ 2	23	1 H I	92	+	314	+	20	+	68	+	34	•	104	+	87
YE Sep 05	+ 1	96	-	74	+	270	+	25	+	62	+	28	+	83	+	68
YE Dec 05	+ 1	72		80	+	253	+	22	+	54	•	23	*	90	•	61
YE Mar 06	+ 1	65	-	83	+	248	+	24	+	54	+	20		88	+	60
YE Jun 06	+ 1	55	-	98	+	253	+	23	+	46	+	19	+	97	+	65
YE Sep 06	+ 1	75	-	117	+	292	+	28	+	60	+	21	+	120	+	61
YE Dec 06	+ 1	59	-	127	+	286	+	24	+	53	+	22	+	112	•	72
YE Mar 07	+ 1	65	-	132	+	297	+	30	+	63	+	14	+	113	+	71
YE Jun 07	+ 1	70	~ -1	122	+	292	+	34	•	65	+	11	*	107		74
YE Sep 07	+ 1	87	-	102	+	289	+	36	+	70	+	9	*	97		71
YE Dec 07	+ 2	19		87	+	307	+	37	•	85	•	11	•	00		
YE Mar 08	+ 1	89	-	84	+	274	+	31	+	69	+	17	+	94	+	68
YE Jun 08	+ 1	68	-	89	+	256	+	28	+	67	*	15		05		70
YE Sep 08	+ 1	80	-	93	+	253	+	22	+	43	+	10		90	Ξ.	72
YE Dec 08	+ 1	29	•	90	+	220	+	27		13	•	12		85		
YE Mar 09	+ 1	47		80	+	226	+	29	+	15	•	6	+	86	•	71
YE Jun 09	+ 1	48	-	61	+	208	+	23	+	10	*	0		01		70
YE Sep 09 YE Dec 09	+ 1	47	-	44 36	+	191 226	+	30	+	5	•	1	÷	112	•	73
VEN									1285	10				124		70
TE Mar 10	+ 2	18	-	30	+	248	+	19		12	.	1	1	131	-	7.
VE Ser 10	+ 2	32	-	29	+	261		10	-	44				140	3.	70
YE Dec 10	+ 2	54 13	2	41	+	296	:	15	÷	40	÷	11	+	133	+	75
		2372 1522		101) (2012)					5410				120			
TE Mar 11 ^p	+ 23	36	-	45	+	281	+	21	+	37	•	11	+	127	+	76

YE = Year Ending <u>p</u> Year includes provisional estimates for 2011

Table 4.13 log real wages - original model, native men

. regress lhrrate age age2 edage D1 D1age D1age2 D2 D2age D2age2 D3 D3age D3age2 D4 D4 > age D4age2 D5 D5age D5age2 D6 D6age D6age2 D7 D7age D7age2 D8 D8age D8age2 D9 D9age > D9age2 D15 if sex=1 & higuald>2 & higuald<7 & cry01>-8 & cry01<6 & higuald>2 & wrki > ng=1 & edage>0 & edage<19 & hrrate>0 & gorwkr>-8 & gorwkr<22 note: D2 omitted because of collinearity note: D2age omitted because of collinearity

note: D2age2 (omitted becaus	e of d	:ollin	earity			
Source	SS	df		MS		Number of obs	- 1852
Model Residual	64.4989251 196.477418	28 1823	2.30 .107	353304 776971		Prob > F R-squared	= 0.0000 = 0.2471
Total	260.976343	1851	. 140	992081		Root MSE	.32829
Ihrrate	Coef.	std.	Err.	t	P> t	[95% Conf.	Interval]
age	.0756659	.0333	161	2.27	0.023	.0103241	.1410077
age2	000654	.0004	306	-1.52	0.129	0014986	.0001906
edage	.0313184	.0104	867	2.99	0.003	.0107511	.0518857
D1	5173581	.7465	976	0.69	0.488	- 9469185	1.981635
Diage	- 0235478	0396	949	-0.59	0 553	- 1014001	0543044
D1age2	0001494	0005	016	0.30	0 766	- 0008344	0011331
Diagez	(omitted)	.0005	OIU	0.50	0.700	0000344	
D2300	Comitted						
DZage	Comitted						
Dzagez	4287002	6781	251	0 62	0 527	0012826	1 758684
D3200	.420/003	.0/01	251	0.03	0.527	9012830	1.730004
Dsage	0103113	.0302	400	-0.31	0.013	0894011	.032//81
D3age2	.0000853	.0004	004	0.19	0.833	00081//	.0003883
D4	./361141	. 6610	1/8	1.11	0.266	56031//	2.032540
D4age	0423521	.0360	207	-1.18	0.240	1129982	.028294
D4age2	.00034	.0004	605	0.74	0.460	0005632	.0012433
D5	.7217334	.6245	898	1.16	0.248	5032534	1.94672
D5age	0322071	.0341	023	-0.94	0.345	0990908	.0346765
D5age2	.0001706	.0004	399	0.39	0.698	0006921	.0010334
D6	.9507953	.7485	086	1.27	0.204	5172294	2.41882
D6age	0614715	.038	674	-1.59	0.112	1373215	.0143785
D6age2	.0005377	.0004	796	1.12	0.262	000403	.0014783
D7	.400527	.6663	578	0.60	0.548	9063779	1.707432
DZade	- 0263421	.0370	929	-0.71	0.478	0990911	.0464069
D72002	0000478	0004	798	0.10	0.921	0008933	.0009889
Drugez	504547	6272	379	0.95	0.343	6356334	1.824727
D82.00		0241	562	-0.98	0 328	- 1004239	033555
Doage	0334344	.0004	300	0.42	0.674	0006775	0010479
Deagez	.0001852	6206	244	0.98	0.326	- 6070152	1 827404
09	.0101943	. 0220	247	-1.11	0.266	- 1043627	0287864
Dyage	03//882	.0339	430	- 1 A	0.620	- 0006474	0010705
D9age2	.0002115	.000	430	2 18	0.002	- 1101155	- 0260473
D15	0680813	.0214	351	-3.10	0.002	1 382602	1 122055
CONS	- 1298236	. 6387	599	-0.20	0.039	-1.302002	T. TEE333

Table 4.14 log real wages - selected model, native men

regress lhrrate age age2 edage D1 Dlage D2age D3 D3age D4 D4age D5 D5age D6 age D7 D8 D8age D9 D15 if sex=1 & hiquald>2 & hiquald<7 & cry01>-8 & cry01 <6 & wrking=1 & edage>0 & edage<19 & hrrate>0 & hrrate<100 & gorwkr>-8 & gor wkr<22 1 1 1

						Number of obs	- 1849
Source	SS	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		- 51.12			
Model Residual	66.4641056 132.195077	18 1830	3.69	9245031 2237747		Prob > F R-squared Adi R-squared	- 0.0000 - 0.3346 - 0.3280
Total	198.659182	1848	.107	7499557		ROOT MSE	26877
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 edage D1 D1age D2age D3age D4 D4age D5age D6age D7	.0402772 -0004664 .0264927 .3120397 .0085023 .0204169 .3343875 .0081598 .2438741 .005635 .4293394 .0027192 .0061697 .24268	.002 .008 .161 .002 .144 .002 .137 .002 .137 .002 .117 .001 .001 .002 .118	8895 0348 5087 4948 29539 2216 3229 7618 1671 4293 2511 5293 5772	13.94 -13.39 3.11 1.93 2.84 6.91 2.32 3.51 1.77 2.60 3.66 2.17 2.44 2.04	0.000 0.002 0.053 0.004 0.000 0.021 0.000 0.021 0.009 0.009 0.009 0.009 0.030 0.015	.0346101 0005347 .0098049 0046939 .0026402 .0146234 .0515312 .003604 0263128 .0013847 .19902654 .001209 .0099229 1027678	.0459443 000398 .0431805 .6287732 .0143645 .0262103 .6172438 .0127156 .5140611 .0098853 .659649 .005173 .0111304 .4754371
D8age D9 D15 _cons	.0012762 .2751305 0799271 .2216674	.0012	2842 0538 5387 2129	0.99 2.37 -4.56 1.18	0.320 0.018 0.000 0.239	0012424 .0475186 1143251 1474673	.0037948 .5027424 0455291 .590802

Table 4.15 log real wages - original model, native women

regress lhrrate age age2 edage D1 Dlage Dlage2 D2 D2age D2age2 D3 D3age D3age2 D4 D4
 age D4age2 D5 D5age D5age2 D6 D6age D6age2 D7 D7age D7age2 D8 D8age D8age2 D9 D9age
 D9age2 D15 if sex==2 & higuald>2 & higuald<7 & cry01>-8 & cry01<6 & higuald>2 & wrki
 ng==1 & edage>0 & edage<19 & hrrate>0 & gorwkr>-8 & gorwkr<22
 note: D1 omitted because of collinearity
 note: D2age2 omitted because of collinearity

Source	SS	df		MS		Number of obs	-	2632
Mode1	51, 5189379	28	1.83	996207		F(28, 2003)	=	0.0000
Residual	123.184834	2603	.047	324178		R-squared = 0.2 Adj R-squared = 0.2 Root MSE = .21	0.2949	
Total	174.703772	2631	.066	402042			Adj R-squared = 0.2 Root MSE = .21	0.2873
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	In	terval]
age	.0742584	.0212	498	3.49	0.000	.0325902		1159266
age2	0006732	.0002	323	-2.90	0.004	0011288	(0002177
edage	.0296439	.0052	2005	5.70	0.000	.0194463		0398414
D1	(omitted)							
Dlage	0523398	.0245	559	-2.13	0.033	1004909	(0041886
D1age2	.0004817	.0002	722	1.77	0.077	0000521	. (0010155
D2	-1.003966	. 5315	617	-1.89	0.059	-2.046293		383601
D2age	(omitted)							
D2age2	(omitted)							
03	- 5761874	. 361	175	-1.60	0.111	-1.284407	02	132032
DBage	0164097	. 0247	995	-0.66	0.508	0650384	. ċ	322191
D3age2	0000247	0002	801	0.09	0.930	- 0005246		000574
DJuger D4	- 2472421	2782	763	-0.89	0 374	- 7929075		984232
D4ade	- 0370973	0218	422	-1.70	0.000	- 0799271	Ċ	057325
D4ade2	0002438	0002	401	1 02	0.310	- 000227	Ċ	007147
Dragez	1549155	3480	365	0.44	0 657	- 5293051		1361968
D5200	- 0649339	0240	855	-2.70	0.007	- 1121626	- 6	177053
D5age2	0045509	.0002	678	-2.09	0.036	0000358		001086
Diagez	- 1129872	2772	520	-0.41	0 684	- 6566458	ž	306713
DEago		. 6218	519	-2.48	0.013	- 097143	- 6	114450
Deage	0342944	.0210	316	1 06	0.010	-8 810-07		000420
Doagez	- 0763075	.0002	632	1.38	0.770	6087093		562042
DZago	0/020/5	. 6216	555	-2.63	0.000	- 000/033	- ' 6	144868
DZage	0303301	.0210	333	-2.03	0.005	0334134		000434
Dragez	1244787	.0002	3/0	6.34	0.045	5080887	• •	570462
DRado	- 1244/0/	. 3223	410	0.29	0.700	5080887		125607
Deage	0594824	:063	219	-2.34	0.011	1034041		001007
Doagez	.0004930	.0002	120	1.09	0.059	0000198	ê	122007
09	010801/	. 2098	130	-0.00	0.950			206646
Doage	0023132	.0613	360	-2.92	0.014	1031/3/		010202
Deagez	.0003000	.0002	339	2.40	0.010	.0001039	. 0	017697
DIS	033/331	:011	240	-3.33	0.000	001/912		01/00/
CONS	8191987	2737	851	2.99	0.003	. /8/340/		120027

Table 4.16 log real wages - selected model, native women

regress lhrrate age age2 edage D1 D1age D2 D2age D3age2 D4 D4age D4age 2 D5 D6 D6age D7 D8 D9 D9age D15 if sex==2 & hiquald>2 & hiquald<7 & cry01> -8 & cry01<6 & hiquald>2 & wrking==1 & edage>0 & edage<19 & hrrate>0 & hrrate <100 & gorwkr>-8 & gorwkr<22

 Source	SS	df		MS		Number of obs	- 2631
Model Residual	49.1933242 106.735636	20 2610	2.45	966621 089488		Prob > F R-squared	-0.0000 -0.3155
Total	155.928961	2630	.059	288578		Root MSE	20222
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 edage D1 D1age D2age D3age D3age2 D4age2 D4age2 D4age2 D6age D6age D7 D8 D9age D15 _cons	.0142765 0001629 .0281722 .6264915 .0051605 .5031096 .0143082 .0436324 0004871 .3880578 .0194076 0002248 .6180758 .5224843 .0024827 .562316 .6896402 .4681614 .0018045 0402642 .2668977	.002 .000 .004 .253 .002 .295 .000 .251 .000 .251 .000 .238 .0009 .238 .0009 .238 .2387 .000 .238 .2387 .000 .238 .2387 .000 .238 .2387 .000	0783 0246 8281 0743 1133 29914 2072 1476 5901 59916 59916 59916 5992 5925 76992 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7892 7125 7125 7125 7125 7125 7125 7125 712	6.87 -6.84 5.848 2.440 -3.630 -3.630 -3.659 -3.6599 -3.6599 -3.6599 -3.8962 -3.8962 -1.88 -1.88 -1.88 -1.88 -1.88 -1.88 -1.88 -1.88 -1.88 -1.89 -1.88 -1.88 -1.89 -1.88 -1.89 -1.88 -1.89 -1.88 -1.89 -1.88 -1.89 -1.88 -1.89 -1.88	$\begin{array}{c} 0.000\\ 0.000\\ 0.0013\\ 0.015\\ 0.089\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.000\\ 0.003\\ 0.034\\ 0.050\\ 0.034\\ 0.000\\ 0.279 \end{array}$.0102013 0002111 .0187049 .130245 .0010167 0759254 .0092854 .0199607 0007765 .1054745 .009345 0003456 .1500761 .0547765 .0006166 .0962321 .2223068 .0000765 .0001339 0607477 2162358	.0183517 0001146 .0376396 1.122738 .0093043 1.082145 .022331 .0673041 0001976 .8815901 .0294807 0001041 1.086075 .990192 .0043487 1.0284 1.156974 .9362462 .0034752 0197807 .7500312

Table 4.17 log real wages - original model, immigrant men (hiqual)

. regress lhrrate age age2 resident edage D1 D1age D1age2 D2 D2age D2age2 D3 D3age D3a > ge2 D4 D4age D4age2 D5 D5age D5age2 D6 D6age2 D7 D7age D7age2 D8 D8age D8age2 > D9 D9age D9age2 D15 D70 if sex==1 & hiquald>2 & hiquald<7 & cry01>5 & wrking==1 & > hrrate>0 &hrrate<100 & resident & gorwkr>-8 & gorwkr<22 & thiswv~=2 & thiswv~=3 & note: D1 omitted because of collinearity note: D2 omitted because of collinearity note: D2 omitted because of collinearity note: D6 omitted because of collinearity note: D6 omitted because of collinearity note: D6 omitted because of collinearity

Source	e SS	df		MS		Number of obs	-	127
Mode Residua	10.5465378 7.05049219	28 98	.376 .071	662064 943798		Prob > F R-squared	=	0.0000
Tota	17.59703	126	.139	658968		Root MSE	Ξ	.26822
Ihrrate	coef.	Std.	Err.	t	P> t	[95% Conf.	In	terval]
age	.0645752	.0983	983	0.66	0.513	1306931		2598434
age2	.0098451	.00	323	3.05	0.003	.0034352		.016255
resident	.0033855	.0027	493	1.23	0.221	0020704		0088414
edage D1	0007998 (omitted)	.0018	708	-0.43	0.670	0045123		0029127
Dlage	- 1574018	.0736	099	-2.14	0.035	- 3034783		0113252
Dlage2	- 0085103	0028	648	-2 97	0 004	- 0141954	- 1	0028252
Diuge	(omitted)	.0020	040	-2.57	0.004	.0141554		0020252
2200	4200260	1227	707	2 50	0 001	6735993	-	1063054
Dzage	4299309	. 1227	193	-3.50	0.001	0/33883		1002034
Dzagez	Comitted	20 42		2 40	0.001	20 5745		11 COOF
D3	/1.13148	20.43	/21	3.48	0.001	30.5745	1	11.0885
D3age	-3.465213	.9405	029	-3.68	0.000	-5.33161	-1	. 598815
D3age2	.029654	.0111	198	2.67	0.009	.0075871	125	.051721
D4	-1.482341	1.999	012	-0.74	0.460	-5.449315	2	.484633
D4age	0760705	.1117	279	-0.68	0.498	2977909		1456498
D4age2	0096556	.003	321	-2.91	0.005	016246		0030652
D5	-1.516671	2.483	006	-0.61	0.543	-6.444116	3	.410775
DSage	- 0680926	1236	854	-0.55	0.583	- 3135424	- 3	1773571
D5age2	- 0097171		302	-2 92	0.004	- 0163257		0031084
Diagez	(omitted)	.0055	302		0.004		· •	0031084
DEago	Comitted							
Doage	Comitted	0033	722	3 50	0 001	010347		0053550
Doagez	011/514	.0032	132	-3.59	0.001	018247	-:	0052558
_ D7	-1.759387	2.09	/6/	-0.84	0.404	-5.922145	- 2	.403371
D7age	0711288	.1263	775	-0.56	0.575	321921		1796633
D7age2	0096745	.0034	921	-2.77	0.007	0166045		0027444
D8	-3.083852	1.849	309	-1.67	0.099	-6.753744		5860414
D8age	.0058096	.1005	772	0.06	0.954	1937825		2054018
D8age2	0106416	.003	243	-3.28	0.001	0170772		0042061
Douge no	-2 434091	1 82	444	-1 33	0 185	-6 054632		1 18645
Deade	031175	1007	201	-0.31	0 758	- 2311678		1688178
Dage			241	3.17	0.002	0166615		1000170
Deagez	0102430	.0032	241	-3.10	0.102	0100013	- ·	0468641
DIS	0880527	.0019	004	-1.30	0.135	2229094	•	0408041
D70	.06/2934	.0013	145	1.10	0.2/5	0543831	-	.18897
_cons	3.415175	1.7850	041	1.91	0.059	12/1806	6	.957531

Table 4.18 log real wages - selected model, immigrant men (hiqual)

regress lhrrate age age2 resident D1 D2 D2age D3 D3age D9 D15 D70 if sex==1
 & hiquald>2 & hiquald<7 & cry01>5 & wrking==1 & hrrate>0 & hrrate<100 & resi
 > dent> 0 & resident<100 & gorwkr>-8 & gorwkr<22

Source	e SS df MS			Number of obs	= 127		
Model Residual	7.97929843 9.61773154	11 115	.725	.725390766 Prob > F .083632448 R-squared Adi R-squared		Prob > F R-squared	= 0.0000 = 0.4534
Total	17.59703	126	.139	658968		Root MSE	= 0.4012 = .28919
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 resident D1 D2 D2age D3 D3age D9 D15 D70 _cons	.0413587 000464 .0050588 .1920036 -9.14461 .2865598 -2.508841 .058165 1668724 1452818 .1036912 .9079642	.0108 .0020 .1168 3.517 .1033 1.439 .0337 .0617 .0652 .0589 .2133	3597 0133 5026 3526 7471 3654 9004 7206 7653 2414 9015 3653	3.81 -3.49 1.94 -2.60 2.77 -1.74 1.72 -2.70 -2.23 1.76 4.26	0.000 0.001 0.054 0.103 0.011 0.006 0.084 0.087 0.008 0.028 0.028 0.081 0.000	.0198478 0007274 000963 0394589 -16.11204 .0818128 -5.35923 0086291 2892175 2745124 0129813 .4853286	.0628696 0002006 .010214 .423466 -2.177176 .4913069 .3415488 .124959 0445273 0160512 .2203637 1.3306

Table 4.19 log real wages - original model, immigrant women (hiqual)

. regress lhrrate age age2 resident edage D1 Dlage Dlage D2 D2age D2age2 D3 D3age D3a > ge2 D4 D4age D4age2 D5 D5age D5age2 D6 D6age D6age2 D7 D7age D7age2 D8 D8age D8age2 > D9 D9age D9age2 D15 D70 if sex==2 & hiquald>2 & hiquald<7 & cry01>5 & wrking==1 & > hrrate>0 &hrrate<100 & resident & gorwkr>-8 & gorwkr<22 & thiswv~=2 & thiswv~=3 & > thiswv~=4 note: Dlage2 omitted because of collinearity note: D2 omitted because of collinearity note: D2age omitted because of collinearity

	Source	SS	df		MS		Number of obs	= _165
	Model Residual	7.8195022 6.0319082	30 134	.260	650073 501424		Prob > F R-squared	= 0.0000 = 0.5645
-	Total	13.8514104	164	.08	445982		Root MSE	21217
	Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
	age age2 resident edage D1 D1age D1age2 D2age2 D2age2 D3 D3age	9850843 1553869 .0007062 0005522 -207.767 11.92271 (omitted) (omitted) (omitted) .1703588 -24.37962 1.429015	.7706 .0562 .0016 .0012 70.3 4.024 .0572 13.68	365 991 861 064 171 088 156 989 415	-1.28 -2.76 0.42 -0.46 -2.95 2.96 2.96	0.203 0.007 0.676 0.648 0.004 0.004	-2.509269 2667366 0026287 0029382 -346.8419 3.963762 .0571963 -51.45583 1323106	.5391003 0440372 .004041 .0018338 -68.69198 19.88165 .2835214 2.696585 2.99034
	D3age2 D3age2 D4age2 D5age2 D5age2 D6age2 D6age2 D6age2 D6age2 D7	1.494105 -15.21196 .9303758 .1559075 -17.08555 .9991355 .1551857 -17.15801 .9994439 .1552444 -17.04747 .9997366	.0563 13.41 .7716 .0566 13.55 .7760 .0563 13.40 .0563 13.40 .0563 13.40 .7708	413 363 222 302 541 595 375 375 375 375 375 375 375 375 375 37	1.65 -1.13 1.21 2.26 -1.29 2.76 -1.29 2.76 -1.28 2.76 -1.30 2.77 1.30	0.009 0.259 0.230 0.210 0.200 0.200 0.203 0.197 0.007 0.197	-41.75168 -41.75168 5957585 -044552 -43.89579 5365121 .0437981 -43.67263 525534 .0438912 -43.55197 5249281	2.550834 11.32776 2.45651 .267263 9.724689 2.534783 .2665732 9.356615 2.524422 .2665976 9.2655776 2.524401
	D7agē2 D8age D8age2 D9age D9age2 D9age2 D15 D70 	.1551573 -17.01278 .9879471 .1554015 -17.29062 1.004698 .1551681 0434997 .0105185 18.44685	.0562 13.40 .770 .0562 13.39 .770 .056 .0480 .03820 13.39	968 563 965 948 724 074 297 602 645 583	2.76 -1.27 1.28 2.76 -1.29 1.30 2.76 -0.91 0.27 1.38	0.007 0.207 0.202 0.007 0.199 0.195 0.007 0.367 0.367 0.784 0.784	.0438122 -43.52679 5368873 .0440602 -43.78802 5196916 .0438224 1385545 065162 -8.047775	.2665025 9.501225 2.512781 .2667429 9.206785 2.529087 .2665138 .051555 .0861997 44.94147

Table 4.20 log real wages - selected model, immigrant women (hiqual)

regress lhrrate age age2 D1 D2age D3 D3age D4 D4age2 D6age if sex==2 & hiqu ald>2 & hiquald<7 & cry01>5 & wrking==1 & hrrate>0 & hrrate<100 & resident> C & resident<100 & gorwkr>-8 & gorwkr<22 > >

Source	SS	df		MS		Number of obs	= 165
Model Residual	6.76554242 7.08586798	9 155	.751 .045	726935 715277		$\begin{array}{rcl} Prob > F &= 0.0\\ R-squared &= 0.4\\ Adj R-squared &= 0.4 \end{array}$	
Total	13.8514104	164	.08	445982		Root MSE	= 0.4387 = .21381
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 D1 D2age D3 age D4 D4age2 D6age _cons	.0118678 0001361 .3938079 .0283027 7326118 .0314571 .5469775 0001118 .0014943 1.332926	.007 .0000 .1259 .0030 .5490 .0140 .1002 .0010 .0010	5164 0886 9979 5064 0194 5481 2637 0005 0778 L544	1.58 -1.54 3.13 7.85 -1.33 2.15 5.46 -2.24 1.39 8.88	0.116 0.127 0.002 0.000 0.184 0.033 0.000 0.027 0.168 0.000	00298 0003111 .1449133 .0211787 -1.817138 .0025215 .3489179 0002105 0006347 1.036313	.0267157 .000039 .6427026 .0354267 .3519141 .0603927 .7450372 0000131 .0036234 1.629539

Table 4.21 log real wages - original model, immigrant men (edage)

. regress lhrrate age age2 resident resident2 edage D1 Dlage Dlage2 D2 D2age D2age2 D3 > D3age D3age2 D4 D4age D4age2 D5 D5age D5age2 D6 D6age D6age2 D7 D7age D7age2 D8 C > 8age D8age2 D9 D9age D9age2 D15 D70 if sex==1 & edage>0 & edage<19 & cry01>5 & wrk > ing==1 & hrrate>0 & hrrate<100 & resident>0 & resident<100 & gorwkr>-8 & gorwkr<22 > & thiswv~=2 & thiswv~=4 note: D2 omitted because of collinearity.

note:	D2age omitted because of collinearity
note:	D2age2 omitted because of collinearity
note:	D6 omitted because of collinearity
note:	D6age omitted because of collinearity
note:	D7 omitted because of collinganity

note: D7 omitted because of collinearity note: D7age omitted because of collinearity

Source	SS	df		MS		Number of obs	
Model Residual	8.61745462 6.25189825	27 70	.31	9164986 9312832		Prob > F = R-squared =	
Total	14.8693529	97	.15	3292298		Root MSE	29885
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 resident2 edage Dlage Dlage2 D2age D2age2 D3age2 D3age2 D3age2	094846 .0027004 .0007575 -6.37e-06 .0236253 2714423 .0463809 0018952 (omitted) (omitted) (omitted) -6.727744 .3009247 0043736 -1.0408967	.1577 .0024 .0091 .0252 3.008 .1780 .0026 7.849 .3506 .0040 2.974	834 4437 7714 752 6688 2271 449 342 749 793 267	-0.60 1.11 0.08 -0.04 -0.94 -0.99 0.26 -0.72 -0.86 0.86 -1.07 -0.35	0.550 0.273 0.934 0.971 0.353 0.928 0.795 0.476 0.394 0.394 0.287 0.727	4095351 0021734 0175343 0003558 0267677 -6.271124 308683 0071704 -22.38276 3984744 3984744 0125094 -6.972885	2198431 .0075741 .0190492 .0003431 .0740184 .0740184 .0033799 8.927276 1.000324 .0037622 4.891093 .4398080
D4age D4age2 D5 D5age2 D5age2 D6 D6age D6age2	.0734967 0022719 8588561 .0783516 0023686 (omitted) (omitted) 0009102 (omitted)	.1801 .0026 3.502 .1909 .0027	572 907 532 557 084 334	0.41 -0.84 -0.25 0.41 -0.87	0.685 0.401 0.807 0.683 0.385	2858156 0076384 -7.844435 3024975 0077703	.4328089 .0030946 6.126723 .4592007 .0030331
D7age D7age2 D8age D8age2 D9age D9age2 D9age2 D15 D70 Cons	(omitted) 0011567 -2.433618 .1564221 0033631 -1.586054 .1101876 0028812 1025132 .1195196 2.552621	.00 2.654 .1617 .0024 2.64 .1611 .0861 .0790 2.552	029 664 586 437 427 247 478 066 817	-3.99 -0.92 0.97 -1.36 -0.60 -1.17 -1.19 1.51 1.00	0.000 0.362 0.337 0.178 0.551 0.496 0.247 0.238 0.135 0.321	001735 -7.728177 1661953 0082964 -6.860083 2112014 0078074 2743295 0380542 -2.538812	0005783 2.860942 .4790395 .0015703 3.687975 .4315767 .0020449 .0693031 .2770934 7.644053

Table 4.22 log real wages - selected model, immigrant men (edage)

. regress lhrrate age age2 D1 D3 D4age D5 D6age D7age D8 D8age2 D9age D15 D70 i
> f sex==1 & edage>0 & edage<19 & cry01>5 & wrking==1 & hrrate>0 & hrrate<100 & reside
> nt>0 & resident<100 & gorwkr>-8 & gorwkr<22 & thiswv~=2 & thiswv~=3 & thiswv~=4</pre>

Source	ss	df		MS		Number of obs	= 98
Model Residual	7.7186474 7.15070548	13 84	.593 .085	742108 127446		Prob > F R-squared	= 0.0000 = 0.5191
Total	14.8693529	97	.153	292298		Root MSE	= .29177
Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	Interval]
age age2 D1 D3 D4age D5 D6age D7age D8age2 D9age D15 D70 _Cons	.045574 0002276 6411511 7919038 0219504 8561794 0117071 4671386 0002591 0266933 1481638 .1148554 1.324455	.0159 .0001 .2600 .0062 .2629 .0069 .0069 .0054 .0798 .0651 .3465	6555 823 227 098 205 204 451 213 213 213 568 117 414 764	2.85 -1.25 -2.47 -3.04 -3.53 -3.53 -1.69 -4.16 -2.48 -3.45 -4.89 -1.86 1.76 3.82	$\begin{array}{c} 0.005\\ 0.215\\ 0.016\\ 0.003\\ 0.001\\ 0.002\\ 0.096\\ 0.000\\ 0.015\\ 0.000\\ 0.067\\ 0.082\\ 0.000\\ \end{array}$.0138249 0005902 -1.158235 -1.309137 0343206 -1.379025 0255182 0399312 8412384 0004086 0375446 306878 0146853 .6352497	.0773231 .000135 1240674 2746704 0095802 333334 .0021041 0140831 0930388 0001096 0158419 .0105505 .2443962 2.01366

Table 4.23 log real wages - original model, immigrant women (edage)

. regress lhrrate age age2 resident resident2 edage D1 Dlage Dlage2 D2 D2age D2age2 D3 > D3age D3age2 D4 D4age D4age2 D5 D5age D5age2 D5 D6age D6age2 D7 D7age D7age2 D8 C > 8age D8age2 D9 D9age D9age2 D15 D70 if sex==2 & edage>0 & edage<19 & cry01>5 & wrk > ing==1 & hrrate>0 & hrrate<100 & resident>0 & resident<100 & gorwkr>-8 & gorwkr<22 > & thiswv=2 & thiswv=3 & thiswv=4 note: D1age2 omitted because of collinearity note: D2 omitted because of collinearity note: D2 omitted because of collinearity note: D2 omitted because of collinearity note: D5 omitted because of collinearity

	Source	SS	df		MS		Number of obs	=	138
	Model Residual	8.93104596 5.43053512	30 107	.297	701532		Prob > F R-squared	Ξ	0.0000
	Total	14.3615811	137	.104	829059		Root MSE	Ξ	.22528
-	Ihrrate	Coef.	Std.	Err.	t	P> t	[95% Conf.	In	terval]
	age	0413463	.1359	9196	-0.30	0.762	3107911		2280984
	age2	0023408	.00)522	-0.45	0.655	0126888		0080072
	resident	.005262	.0053	627	0.98	0.329	0053689		.015893
	resident2	0001185	.0000	897	-1.32	0.190	0002964	- 33	0000594
	edage	.0083257	.0158	827	0.52	0.601	0231599	- 0	0398113
	D1	-5.580906	8.449	507	-0.66	0.510	-22.33107	- i	1.16926
	Dlage	.2717295	.440	664	0.62	0.539	6018355	ĩ	.145294
	Dlage2	(omitted)			0.02	0.000		-	
	D2	(omitted)							
	D2age	Comitted							
	D2age2	0039177	.0056	863	0.69	0.492	0073547	1	0151901
	03	1.615581	2.572	711	0.63	0.531	-3.484518		6.71568
	Dlage	- 0356151	1472	016	-0.24	0.809	- 3274251	- 3	256195
	D3ade2	0032393	0052	645	0.62	0 540	- 007197		0136756
	D4	- 4890884	2.508	157	-0.19	0.846	-5.461218	Å	483041
	D4200	0568992	1460	385	0.30	0 698	- 232605	-	3464035
	D4age2	0021246	0052	679	0.40	0 688	- 0083185	- 1	0125677
	Dragez	(omitted)	.0052	0/5	0.40	0.000			011 30/7
	DSage	0193706	0476	233	0 41	0 685	- 0750371		1137782
	052002	0025415	0053	564	0.47	0.636	- 0080769	- 10	0131598
	DSuger	-1 755024	2 373	536	-0.74	0 461	-6 460281	÷	950234
	Dfage	0933178	1390	139	0.67	0 503	- 1822611		1688966
	D6age2	0018553	.0052	433	0.35	0 774	- 0085389	1	0122494
	DT	- 8514169	2 272	422	-0.37	0.709	-5.356239	3	653405
	DZage	0608245	1374	100	0.44	0.659	- 2115945		3332435
	DZage2	0020752	0052	232	0.40	0.692	- 0082793		0124296
	Dragez	- 610411	2 458	243	-0.25	0 802	-5 492592	- 12	4 25377
	DBace		1433	230	0.20	0 773	- 2426552		256701
	DBage	.0023011	. 1455	333	0.46	0 640	- 0070800	•••	012763
	Doagez	.0023911	2 255	366	-0.40	0.693	-5 367086		57414
	D9269	0909227	1262	230	0.42	0.678	- 2133274	-	268786
	Dage	.0307730	. 1902	347	0.45	0.677	- 0081710		1125426
	bragez 615	0258016	.0585	015	-0.61	0.541	- 1520424	.,	1802503
	848	0336910	.0303	711	1 44	0.155	- 0241118		531568
	670	1 03599	2 266	226	1.45	0.305	-2 556648	÷	428408
		T. 33300	4.400	220	0.03	0.333	2.330040		

Table 4.24 log real wages - selected model, immigrant women (edage)

regress lhrrate age age2 D1 D3age D4age D5age D6 D7age D8 D9 D9age D15 if sex==2 & edage>0 & edage<19 & cry01>5 & wrking==1 & hrrate>0 & hrrate<100 & resident>0 & resident<100 & gorwkr>-8 & gorwkr<22 & thiswv~=2 & thiswv~= 3 & thiswv~=4 > > >

Number of obs = 13		MS		df	SS	Source
Prob > F = 0.000 R-squared = 0.550 Adj = cquared = 0.550		433818 683002	.658 .051	12 125	7.90120582 6.46037526	Model Residual
Root MSE = .2273		829059	.104	137	14.3615811	Total
[95% conf. Interval	P> t	t	Err.	std.	Coef.	Ihrrate
.0179362 .063566 000573000095 963793235991 013334700006 0211104007810 0289386014244 -1.184259579516 0285192014868 -1.207479599 7888692150691 0182167002129 1828392 .024263 .9617904 1.89258	0.001 0.006 0.001 0.048 0.000 0.000 0.000 0.000 0.000 0.000 0.004 0.014 0.132 0.000	3.54 -2.77 -3.26 -2.00 -4.30 -5.82 -5.77 -6.29 -2.50 -2.50 -1.52 6.07	1528 1206 1527 1336 1527 122 1802 486 4897 272 643 218 218 542	.001 .0003 .1838 .003 .0037 .1527 .0034 .153 .1612 .0040 .0523 .2351	.0407515 0003343 5998923 0066993 0144605 0215917 8818876 0216939 9036897 4697806 0101729 0792878 1.42719	age age2 D1 D3age D4age D5age D6 D7age D8 D9 D9age D15 _cons

Table 5.1 Self-	employed=wh	ere 1/0			
self-emplo	oyed native	S	self-emp	loyed imm	nigrants
	freq.	percent		freq.	percent
0	296,326	89.42%	0	30,930	88.41%
1	35,065	10.58%	1	4,054	11.59%
Total	331,391	100%	Total	34,984	100%

LFS data, quarterly (Oct-Dec) cross sectional 2006-2010

Table 5.2						
	white	asian	mixed	black	chinese	other ethnic group
Selfemployment of immigrants & ethnic groups	53.36%	26.83%	1.30%	5.69%	3.62%	9.06%
Percentages of selfemployment in each ethnic group	12.94%	11.48%	9.43%	5.81%	13.60%	9.91%
Men percentages of selfemployment in each ethnic group	17.14%	19.04%	12.12%	8.90%	17.30%	14.29%
Women percentages of selfemployment in each ethnic group	9.38%	4.12%	7.28%	3.46%	10.84%	5.79%

LFS data, quarterly (Oct-Dec) cross sectional 2006-2010

Table 5.3		
Ethnic Groups Immigrants	freq.	percent
White	16,344	46.72%
Asian	9,451	27.02%
Black	3,943	11.27%
Chinese	1,054	3.01%
Mixed	528	1.51%
Other	3,637	10.40%
no answear	27	0.08%
Total	34,984	100%
LFS data, quarterly (Oct-Dec) cross sectional 2006-2010		· · · · · · · · · · · · · · · · · · ·
Table 5.4		

immigrants' employment status	freq.	percent
employee	24,159	69.06%
self-employed	4,054	11.59%
unemployed/inactive	6,680	19.09%
government scheme	20	0.06%
unpaid family worker	71	0.20%
Total	34,984	100.00%

LFS data, quarterly (Oct-Dec) cross sectional 2006-2010/ 15-75 years old.

Table 5.5

		percentage of immigration
UK regions		workforce and region of work
North East	NE	1.98%
North West	NW	7.12%
Yorkshire & the Humber	YH	6.04%
East Midlands	EM	6.12%
West Midlands	WM	6.70%
East	EE	8.76%
London	LON	31.55%
South East	SE	16.17%
South West	SW	6.22%
Wales	WAL	2.20%
Scotland	SCOT	5.08%
Northern Ireland	NI	2.05%

LFS data, quarterly (Oct-Dec) cross sectional 2006-2010

Table 5.6 national groups' variables

NWEU (North West Europe)	<u>SEU (South Europe)</u>	RAF (Rest of Africa)
AUSTRIA	ANDORRA	ANGOLA
BELGIUM	GIBRALTAR	BOTSWANA
DENMARK	VATICAN CITY	BURUNDI
FAROE ISLANDS	GREECE	CAMEROON
FINLAND	ITALY	CENTRAL AFRICAN REPUBLIC
ÅLAND ISLANDS	MALTA	CHAD
FRANCE	PORTUGAL	CONGO
GERMANY	SAN MARINO	BENIN
GREENLAND	CYPRUS (EUROPEAN UNION)	ETHIOPIA
ICELAND	CYPRUS (NON-EUROPEAN UNION)	ERITREA
IRELAND	CYPRUS (NOT OTHERWISE SPECIFIED)	DJIBOUTI
LIECHTENSTEIN	SPAIN (EXCEPT CANARY ISLANDS)	GABON
LUXEMBOURG	SPAIN NOT OTHERWISE SPECIFIED	GAMBIA, THE
MONACO	ISRAEL	GHANA
NETHERLANDS		GUINEA
NORWAY	CEEU (Central and East Europe)	IVORY COAST
SWEDEN	ALBANIA	KENYA
SWITZERLAND	BOSNIA AND HERZEGOVINA	LIBERIA
GUERNSEY	BULGARIA	MALAWI
JERSEY	BELARUS	MALI
ISLE OF MAN	CZECH REPUBLIC	MOZAMBIQUE
ENGLAND	ESTONIA	NAMIBIA
NORTHERN IRELAND	HUNGARY	NIGER
SCOTLAND	LITHUANIA	NIGERIA
WALES	MOLDOVA	GUINEA-BISSAU
GREAT BRITAIN NOT OTHERWISE SPECIFIED	MONTENEGRO	SAO TOME AND PRINCIPE
UNITED KINGDOM NOT OTHERWISE SPECIFIED	POLAND	SENEGAL
CHANNEL ISLANDS Not otherwise specified	SLOVENIA	SIERRA LEONE
	UKRAINE	ZIMBABWE
	FYROM	WESTERN SAHARA
EMECA (Eurasia, Middle East and		
Cetral Asia)	KUSUVA AND METOHIA	SUDAN
AZERBAIJAN	CZECHOSLOVAKIA NOT OTHERWISE SPECIFIED	SWAZILAND
BAHRAIN	UNION OF SOVIET SOCIALIST REPUBLICS NOT	TOGO
ARMENIA	YUGOSLAVIA NOT OTHERWISE SPECIFIED	

GEORGIA WEST BANK (INCLUDING EAST JERUSALEM) AND IRAN IRAQ KAZAKHSTAN JORDAN KUWAIT **KYRGYZSTAN** OMAN LEBANON SAUDI ARABIA SYRIA TAJIKISTAN TURKEY UNITED ARAB EMIRATES TURKMENISTAN UZBEKISTAN QATAR Middle East NOT OTHERWISE SPECIFIED

CZECHOSLOVAKIA NOT OTHERWISE SPECIFIED UNION OF SOVIET SOCIALIST REPUBLICS NOT YUGOSLAVIA NOT OTHERWISE SPECIFIED SERBIA AND MONTENEGRO NOT OTHERWISE SPEC EUROPE NOT OTHERWISE SPECIFIED CROATIA LATVIA ROMANIA RUSSIA SERBIA SLOVAKIA

NAF (North Africa)

ALGERIA LIBYA MOROCCO TUNISIA EGYPT SUDAN SWAZILAND TOGO UGANDA TANZANIA BURKINA ZAMBIA CONGO (DEMOCRATIC REPUBLIC) EQUATORIAL GUINEA COMOROS MAURITANIA RWANDA SOMALIA AFRICA NOT OTHERWISE SPECIFIED

SAF (South Africa)

LESOTHO SOUTH AFRICA

Table 5.6 continues, national groups' variables

ONCA (Other North and Central America-AS (Asia-Commonwealth) **including Carebbian**) RW (Rest of the World) BANGLADESH ANTARCTICA BAHAMAS, THE SRI LANKA CAYMAN ISLANDS BERMUDA INDIA **COSTA RICA BOUVET ISLAND** MALAYSIA CUBA **BRITISH INDIAN OCEAN TERRITORY** PAKISTAN DOMINICA SOLOMON ISLANDS DOMINICAN REPUBLIC **BRITISH VIRGIN ISLANDS** GRENADA CAPE VERDE **OAS1 (Other Asia Developed)** CHINA (TAIWAN) GUADELOUPE MAYOTTE HONG KONG (SPECIAL ADMINISTRATIVE REGION GUATEMALA COOK ISLANDS JAPAN HAITI FALKI AND ISLANDS JAMAICA KOREA (SOUTH) SINGAPORE MARTINIQUE FIII MEXICO FRENCH POLYNESIA OAS2 (Other Asia Developing) MONTSERRAT FRENCH SOUTHERN TERRITORIES AFGHANISTAN NICARAGUA KIRIBATI BHUTAN **PUERTO RICO** GUAM BRUNEI ST KITTS AND NEVIS MADAGASCAR BURMA ST VINCENT AND THE GRENADINES CAMBODIA SVALBARD AND JAN MAYEN MALDIVES. CHINA TRINIDAD AND TOBAGO MAURITIUS INDONESIA UNITED STATES VIRGIN ISLANDS NAURU KOREA (NORTH) **CENTRAL AMERICA NOT OTHERWISE SPECIFIED** ARUBA LAOS CARIBBEAN NOT OTHERWISE SPECIFIED NEW CALEDONIA MACAO (SPECIAL ADMINISTRATIVE REGION OF BARBADOS VANUATU BELIZE NIUE MONGOLIA HONDURAS NORFOLK ISLAND NEPAL EAST TIMOR PANAMA NORTHERN MARIANA ISLANDS VIETNAM ANGUILLA THAILAND **STLUCIA** MICRONESIA YEMAN **NETHERLANDS ANTILLES** MARSHALL ISLANDS PHILIPPINES PALAU ASIA (EXCEPT MIDDLE EAST) NOT OTHERWISE RÉUNION SA (South America) NA (North America)

ARGENTINA BOLIVIA

BRAZIL CHILE COLOMBIA

EL SALVADOR

FRENCH GUIANA GUYANA PARAGUAY PERU SURINAM URUGUAY ECUADOR

VENEZUELA

SOUTH AMERICA NOT OTHERWISE SPECIFIED

AMERICAN SAMOA CANADA UNITED STATES NORTH AMERICA NOT OTHERWISE SPECIFIED

ONC (Oceania and other New

Commonwealth)

ANTIGUA AND BARBUDA AUSTRALIA CHRISTMAS ISLAND COCOS (KEELING) ISLANDS NEW ZEALAND PAPUA NEW GUINEA

SOUTH GEORGIA AND THE SOUTH SANDWICH ISL HEARD ISLAND AND MCDONALD ISLANDS UNITED STATES MINOR OUTLYING ISLANDS PITCAIRN, HENDERSON, DUCIE AND DENO ISLA ST HELENA **ST PIERRE AND MIQUELON** SEYCHELLES TOKELAU TONGA TURKS AND CAICOS ISLANDS

TUVALU

WALLIS AND FUTUNA SAMOA **CANARY ISLANDS** ANTARCTICA AND OCEANIA NOT OTHERWISE SPE AT SEA IN THE AIR

Table 5.7 all variables' descriptive statistics economic environment

	mean	standard	
GDr	0.030	0.003	growth rate % of UK Gross Disposable Household income per head. UK
unem	0.065	0.011	UK unemployment %
Inter	0.031	0.021	UK interest rates %
t	3.045	1.389	time trend (2006, 2007, 2008, 2009, 2010)
NEUN	0.001	0.012	North East unemployment
NWUN	0.005	0.019	North West unemployment
YHUN	0.004	0.018	Yorkshire & the Humber unemployment
EMUN	0.004	0.015	East Midlands unemployment
WMUN	0.006	0.021	West Midlands unemployment
EEUN	0.001	0.01	East unemployment
LONUN	0.025	0.037	London unemployment
SEUN	0.01	0.021	South East unemployment
SWUN	0.002	0.011	South West unemployment
WALUN	0.001	0.01	Wales unemployment
SCOTUN	0.002	0.013	Scotland unemployment
NIUN	0.001	0.008	Northern Ireland unemployment
localun	0.068	0.016	Local unemployment
NEGDr	0.001	0.004	growth rate of North East Gross Disposable Household income per head
NWGDr	0.002	0.007	growth rate of North West Gross Disposable Household income per head
YHGDr	0.001	0.005	growth rate of Yorkshire & the Humber Gross Disposable Household income per head
EMGDr	0.029	0.006	growth rate of East Midlands Gross Disposable Household income per head
WMGDr	0.002	0.007	growth rate of West Midlands Gross Disposable Household income per head
EEGDr	0.001	0.004	growth rate of East Gross Disposable Household income per head
LONGDr	0.013	0.020	growth rate of London Gross Disposable Household income per head
SEGDr	• 0.005	0.011	growth rate of South East Gross Disposable Household income per head
SWGDr	0.001	0.007	growth rate of South West Gross Disposable Household income per head
WALGDr	0.001	0.004	growth rate of Wales Gross Disposable Household income per head
SCOTGDr	0.001	0.008	growth rate of Scotland Gross Disposable Household income per head
NIGDr	0.001	0.006	growth rate of Northern Ireland Gross Disposable Household income per head
localGDr	0.032	0.012	Local growth rate of Gross Disposable Household Income per hear

ethnicity & nationality

	mean	<u>standard</u> deviation	
white	0.47	0.499	white ethnic group
asian	0.267	0.442	asian ethnic group
chinese	0.029	0.167	chinese ethnic group
black	0.111	0.315	black ethnic group
mixed	0.015	0.124	mixed ethnic group
other	0.105	0.307	other ethnic group
NWEU	0.168	0.374	North West Europe (nationality)
SEU	0.057	0.233	South Europe (nationality)
CEEU	0.127	0.333	Central & East Europe and rest of Europe (nationality)
EMECA	0.04	0.197	Eurasia, Middle East and Central Asia (nationality)
NAF	0.131	0.34	North Africa (nationality)
SAF	0.011	0.104	South Africa (nationality)
RAF	0.032	0.178	Rest of Africa (nationality)
AS	0.208	0.406	Asia (commonwealth-nationality)
OAS1	0.027	0.162	Asia (developed countries -nationality)
OAS2	0.057	0.232	Asia (developing countries -nationality)
NA	0.039	0.194	Noth America
SA	0.018	0.133	South America
ONCA	0.041	0.198	Other North America and Central America (nationality)
ONC	0.027	0.163	Oceania & Other Commonwealth (nationality)
RW	0.017	0.091	Rest of the World (nationality)

Table 5.7 continues, all variables' descriptive statistics

personal characterestics

•		standard	L
	<u>mean</u>	deviatio	1
age	39.805	12.971	age of the respodent
age2	1752.77	1098.69	age^2
resident	18.17	15.878	years of residency in the UK
resident2	582.32	816.54	resident^2
fdpch19	0.924	1.191	number of dependent childrent in family aged under 19
married	0.674	0.468	maried/cohabiting/civil partner=1, non married=0
male	0.466	0.498	male=1, female=0
loweduc	0.681	0.465	low education=1, high education=0
NE	0.013	0.114	North East (region of usual residency)
NW	0.047	0.213	North West (region of usual residency)
YH	0.04	0.197	Yorkshire & the Humber (region of usual residency)
EM	0.042	0.201	East Midlands (region of usual residency)
WM	0.045	0.201	West Midlands (region of usual residency)
EE	0.059	0.235	East (region of usual residency)
LON	0.212	0.409	London (region of usual residency)
SE	0.109	0.311	South East (region of usual residency)
SW	0.041	0.200	South West (region of usual residency)
WAL	0.014	0.12	Wales (region of usual residency)
SCOT	0.034	0.181	Scotland (region of usual residency)
NI	0.013	0.116	Northern Ireland (region of usual residency)
Wcollar1	0.1466	0.353	White collar workers (managers, senior officials and skilled trade)
Wcollar2	0.2072	0.405	White collar workers (professional occupations, associate professional and technical)
Bcollar	0.1595	0.366	Blue collar workers (process, plant and machine operatives, elementary occupations)
Pcollar	0.1565	0.363	Pink collar workers (administrative and secretarial, personal service occupations,
den	0.018	0.017	local density of immigrant national groups
deneth	0.045	0.031	local density of immigrant ethnic groups
denethnic	0.018	0.015	local density of ethnic groups
		standard	
interaction terms	mean	deviation	
NWEUden	0.002	0.007	North West Europe (density)
SEUden	10^-4	0.002	South Europe (density)
CEEUden	0.002	0.006	Central & East Europe and rest of Europe (density)
EMECAden	10^-4	0.002	Eurasia, Middle East and Central Asia (density)
NAFden	10^-5	10^-4	North Africa (density)
SAFden	10^-4	0.001	South Africa (density)
RAFden	0.06	0.004	Rest of Africa (density)
ASden	0.007	0.016	Asia (commonwealth-density)
OAS1den	10^-4	10^-4	Asia (developed countries -density)
OAS2den	10^-4	0.002	Asia (other Asia-developing-density)
NAden	10^-4	0.001	Noth America (density)
SAden	10^-5	10^-4	South America (density)
ONCAden	10^-4	0.002	Other North America and Central America (density)
ONCden	10^-4	0.001	Oceania & Other Commonwealth (density)
RWden	10^-5	10^-4	Rest of the World (density)
whitedeneth	0.028	0.036	white ethnic group (density)
blackdeneth	0.003	0.012	balck ethnic group (density)
asiandeneth	0.011	0.023	asian ethnic group (density)
mixeddeneth	10^-5	10^-4	mixed ethnic group (density)
chines edeneth	10^-4	10^-3	chinese ethnic group (density)
otherdeneth	0.002	0.008	other ethnic group (density)
residentRW	0.21	2.593	Rest of the World years of residency
residentRW2	6.77	102.423	residentRW^2
Wcollar1m	0.108	0.31	white collar1 males=1, white collar1 females=0
Wcollar2m	0.103	0.305	white collar2 males=1, white collar2 females=1
Bcollarm	0.102	0.303	Blue collar males=1, Blue collar females=0
Pcollarm	0.041	0.199	Pink collar males=1, Pink collar females=0
whitem	0.215	0.411	white males=1, white females=0
asianm	0.132	0.338	asian males=1, asian females=0
blackm	0.048	0.214	black males=1, black females=0
mixedm	0.006	0.083	mixed males=1, mixed females=0
chinesem	0.012	0.11	chinese males=1, chinese females=0
otherm	0.507	0.219	other males=1, other females=0

Table 5.7 continues, all variables' descriptive statistics

interaction terms (continue)

	mean	<u>standard</u> deviation	
residentw	19.73	17.608	whites' years of residency in the UK
residentw2	699.47	960.270	residentw^2
residenta	18.99	14.299	asians' years of resindency in the UK
residenta2	565.15	655.623	residenta^2
residentm	18.49	15.647	mixeds years of residency in the UK
residentm2	586.32	807.16	residentm^2
residentb	16.31	14.22	blacks' years of resindency in the UK
residentb2	468.24	697.384	residentb^2
residentc	14.73	12.999	chinesess' years of resindency in the UK
residentc2	385.70	522.047	residentc^2
residento	11.83	11.512	others' years of resindency in the UK
residento2	272.36	487.77	residento^2
residentNWEU	26.68	17.149	North West Europeans years of residency
residentNWEU2	1005.76	1030.05	residentNWEU^2
residentSEU	22.78	17.576	South Europeans years of residency
residentSEEU2	827.84	969.098	residentSEU^2
residentCEEU	5.56	6.89	Central & East Europeans and rest of Europeans years of residency
residentCEU2	78.34	298.843	residentCEEU^2
residentEMECA	14.63	12.657	Eurasia, Middle East and Central Asia years of residency
residentEMECA2	374.16	606.275	residentEMECA^2
residentNAF	21.61	17.691	North Africans' years of residency
residentNAF2	661.89	1005.89	residentNAF^2
residentSAF	14.15	13.396	South Africans' years of residency
residentSAF2	379.67	684.807	residentSAF^2
residentRAF	17.66	14.176	Rest of Africans' years of residency
residentRAF2	512.93	669.464	residentRAF^2
residentAS	19.51	15.192	Asians (commonweith) years of residency
residentAS2	611.58	765.633	residentAS^2
residentOAS1	23.82	16.266	Asia (developed countries)years of residency
residentOAS12	831.77	847.695	residentOAS1^2
residentOAS2	10.67	10.733	Asia (other Asia-developing-nationality)
residentOAS22	229.02	468.446	residentOAS2^2
residentNA	19.92	16.475	Noth Americans years of residency
residentNA2	688.09	859.384	residentNA^2
residentSA	14.73	14.352	South Americans years of residency
residentSA2	422.75	723.358	residentSA^2
residentONCA	28.67	16.658	Other North Americans and Central Americans years of residency
residentONCA2	1099.65	907.07	residentUNCA^2
residentONC	18.2/1	15.07	Oceania & Other Commonwearth years of residency
residentUNC2	560.8	760.113	residentoince2
Wcollar1NWEU	0.026	0.161	White collar1 North West European workers
Wcollar1SEU	0.009	0.098	White collar1 South European workers
WCOllar1CEEU	0.021	0.145	White collar1 Central & East Europeans and rest of European workers
WCOllar1EMECA	0.006	0.79	White collar Lurasia, Middle East and Central Asia workers
Wcollar1NAF	0.001	0.042	White collar1 North African workers
Wcollar1SAF	0.006	0.078	White collar1 South African workers
WeellertAR	0.015	0.126	White collars Rest of African workers
Weeller10451	0.025	0.158	White collar1 Asian (commonweith) workers
Wcollar10AS1	0.005	0.079	white collar1 Asian (developed countries) Workers
Wcollar1UASZ	0.006	0.076	white collar1 Asian (developing countries) Workers
Wcollar154	0.006	0.08	White const1 North American workers
Wcollar10NCA	0.002	0.040	white collar1 Other North Americans and Central American workers
Wcollar10NCA	0.004	0.005	White collar1 Oceania & Other Commonwealth workers
Wcollar18M	0.000	0.035	white collar1 Rest of the World workers
	0.001	0.000	THIS CONDIA NEAL OF THE TYDER WORKERS

Table 5.7 continues, all variables' descriptive statistics

interaction terms (continue)

	mean	standard	
Wcollar2NWFU	0.039	0.195	White collar? North West Furgnean workers
Wcollar2SEU	0.012	0.11	White collar2 South European workers
Wcollar2CEEU	0.012	0.11	White collar2 Central & Fast Europeans and rest of European workers
Wcollar2EMECA	0.006	0.078	White collar2 Eurasia. Middle East and Central Asia workers
Wcollar2NAF	0.001	0.043	White collar2 North African workers
Wcollar2SAF	0.012	0.113	White collar2 South African workers
Wcollar2RAF	0.03	0.171	White collar2 Rest of African workers
Wcollar2AS	0.037	0.19	White collar2 Asian (commonweith) workers
Wcollar2OAS1	0.006	0.078	White collar2 Asian (developed countries) workers
Wcollar2OAS2	0.01	0.104	White collar2 Asian (developing countries) workers
Wcollar2NA	0.012	0.11	White collar2 North American workers
Wcollar2SA	0.003	0.06	White collar2 South American workers
Wcollar2ONCA	0.006	0.79	White collar2 Other North Americans and Central American workers
Wcollar2ONC	0.011	0.105	White collar2 Oceania & Other Commonwealth workers
Wcollar2RW	0.002	0.05	White collar2 Rest of the World workers
BcollarNWEU	0.012	0.112	Blue collar North West European workers
BcollarSEU	0.009	0.096	Blue collar South European workers
BcollarCEEU	0.049	0.217	Blue collar Central & East Europeans and rest of European workers
BcollarEMECA	0.004	0.064	Blue collar Eurasia, Middle East and Central Asia workers
BcollarNAF	0.001	0.039	Blue collar North African workers
BcollarSAF	0.002	0.047	Blue collar South African workers
BcollarRAF	0.019	0.138	Blue collar Rest of African workers
BcollarAS	0.035	0.184	Blue collar Asian (commonweith) workers
BcollarOAS1	0.001	0.043	Blue collar Asian (developed countries) workers
BcollarOAS2	0.009	0.099	Blue collar Asian (developing countries) workers
BcollarNA	0.017	0.042	Blue collar North American workers
BcollarSA	0.003	0.061	Blue collar South American workers
BcollarONCA	0.004	0.069	Blue collar Other North Americans and Central American workers
BcollarONC	0.001	0.04	Blue collar Oceania & Other Commonwealth workers
BcollarRW	0.001	0.03	Blue collar Rest of the World workers
PcollarNWEU	0.023	0.152	Pink collar North West European workers
PcollarSEU	0.008	0.091	Pink collar South European workers
PcollarCEEU	0.017	0.13	Pink collar Central & East Europeans and rest of European workers
PcollarEMECA	0.003	0.062	Pink collar Eurasia, Middle East and Central Asia workers
PcollarNAF	0.001	0.035	Pink collar North African workers
PcollarSAF	0.006	0.081	Pink collar South African workers
PcollarRAF	0.027	0.162	Pink collar Rest of African workers
PcollarAS	0.028	0.167	Pink collar Asian (commonweith) workers
PcollarOAS1	0.003	0.062	Pink collar Asian (developed countries) workers
PcollarOAS2	0.011	0.107	Pink collar Asian (developing countries) workers
PcollarNA	0.005	0.07	Pink collar North American workers
PcollarSA	0.002	0.053	Pink collar South American workers
PcollarONCA	0.007	0.088	Pink collar Other North Americans and Central American workers
PcollarONC	0.004	0.068	Pink collar Oceania & Other Commonwealth workers
PcollarRW	0.002	0.045	Pink collar Rest of the World workers
Appendix

Table 5.8 logistic model . logit selfemployed age age2 resident resident2 fdpch19 married male loweduc localge > r white chinese mixed asian NWEU SEU CEEU EMECA NAF OAS2 NA EM SE SW LON E > r white chinese mixed asian NWEU SEU CEEU EMECA NAF OAS2 NA EM SE SW LON E > E WMGDr NIGDr LONGDr SEGDr SWGDr Wcollar1 wcollar B collar Pcollar CEEUden > E WMGDr ASden OAS2den SAden whitedeneth mixeddeneth chinesedeneth wcollar1m > EMECAden Asden OAS2den SAden whitedeneth mixeddeneth chinesedeneth wcollar1m > wcollar2m Pcollarm asianm blackm otherm residentw residentw2 residenta resident > entm residentb residentb2 residentc residento residentNEU residentsEU2 > residentCEEU2 residentEMECA residentOAS12 residentNA2 residentSEU2 > residentCNC2 wcollar1CEEU wcollar1AS wcollar1OAS2 wcollar1NA wcollarIANA > wcollar2NAF wcollar2ONC wcollar2RW BcollarCEEU > larONCA PcollarNWEU PcollarCEEU PcollarRAF PcollarNA if fdpch19>-8 & mardy6> - 8 & foreign>0 & resident>0 & age>14 & 687

Number of obs LR chi2(81) Prob > chi2 Pseudo R2

498 4071.68

. 1623

Ξ

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Logistic regression

Log likelihood = -10510.757

7.6 mm2 much	Coef	Std. Err.	z	P> Z	[95% Conf.	Interval]
selfemployed		300. 2111			0205535	0074555
2/10	.0750065	.0114538	6.55	0.000		0002672
ade2	0005217	.0001299	-4.02			1520964
resident	.1198999	.0164271	2.36	8.888	- 0017012	0010146
resident2	0013579	-0007735	- A - A 5	0.000	0441092	.1136155
fdpch19	.0788623	.01//313	2.65	ŏ.ŏŏ8	.0319236	.2123974
married	.1221003	0801402	8.88	õ.000	.5548049	.8689487
Temeduc	2616586	0431644	6.06	0.000	- 177058	15 51660
localGDr	9.679489	3.539452	2.73	0.006	2./42271	7256427
white	3857698	.1734077	2.22	0.025	- 1541558	1.527978
chinese	,9410667	.2994498	_1.12	0.235	-1.394169	.3424784
mixed		.4430303	-5:53	ŏ.ōīī	7204315	0911324
asian	403/013	1250511	1.46	0.145	0627039	.4274874
NWEU	273608	1189542	2,30	0.021	.0404021	- 2124068
CEFU	\$650986	.1799481	-3.14	0.002	91// 903	1.220765
EMECA	.8416878	.1934102		0.078	- 8444759	.0445423
NAF	3999668	.220/943	24:35	0.001	-1,075475	2822452
OASZ	6788603	1474881	5.08	ŏ.ŏöö	.4446376	1,003181
NA	- 1676325	.0863229	-1.94	0.052	3368443	.00133171
SE .	2438512	.1833533	1.33	0.184		8838771
SW	3654825	.2644919	1.38	N. 286	- 6193432	5949736
LON	.2878152	-150/103	_2.86	0.004	- 5649999	1055681
E E		;_776835	-3.20	ō.001	-15.40348	-3.706663
WMGDr		4.103323	-2.89	0.004	-19.8869	-3.901173
NIGDE		4.212679	-2.62	0.009	-19.3040/	- 2./312/0
LUNGD	-9 263037	6.097762	-1.52	0.129		6.08296
SWGDr	-10.57394	8,498573	-1.25	8.222	1 715791	2.115089
wcollar1	1.91544	.1018633	18.92	ŏ:ŏŏŏ	1.432017	1,767038
wcollar2	1.599522	.0013588	5.62	ŏ.ŏŏŏ	3343406	.6924604
BCOllar	- 3134003	1089029	8.91	0.000	.7571067	1,183998
CEEUden	60.78707	5.297257	11.48	0.000		-6.445324
EMECAden	-31.22831	12.64462	-2.47	8.843	-10.19743	-2.892963
Asden	-6.545195	1,863414	-3.34	0.004	14.74732	79.33312
OAS2den	47.04022	19.2/26/	2.84	ŏ.ŏŏš	24.27173	132,3522
SAden	78.31199	1,291696	4.10	0.000	2,765951	7.829307
whitedeneth	165 1662	86.49026	1.91	0.056	-4,3>+392	-6.630598
chipeseden~h	-91.87611	43,49341	-2.11	0.033	17119088	2877077
wcollar1m	4998083	.1082166	-4.04	8.000	- 7470792	356592
wcollar2m	5518356	.0525753	-5.15	ŏ.ōōō	-1.068244	4789326
Pcollarm	7733882	1009993	8.24	0.000	.6340592	1.014468
asianm	4883657	1454359	3.36	0.001	-2033103	5655967
otherm	3094879	1306701	2.37	8.848	- 1394691	- 0719667
residentw	1057179	.0172203		8.866	.0010164	.0017864
residentw2	.0014014	-0001353	-2.38	ŏ.017	0626464	~.006059
residenta	0343324	.0174669	-1.60	0.109	0623309	.0022322
residentm	02203/0	0205061	-4.24	0.000		0708780
residentb2	- 0010695	.0003773	2.83	0.002	- 0655828	0016579
residentc	- 0336203	.0163077	-2.90	0.018	0622799	0058206
residento	0340503	-0111011	22.35	ŏ.ŏīš	0163223	0014878
residentNWEU	008905	0000821	-2.13	0.033	0003357	0000141
residentSEU2	0001/43	10001517	-2.92	0.003	0007401	
resident EM-A	0085489	.0063612	-1.34	0.179	- 0003787	0000271
residento~12	0002029	.0000897	-2.22	0.167	0003712	.0000324
residentNA2	0001694	.000103	-1.60	0.110	- 0277003	.0028111
residentSA	0124446	.0077839	-3.72	ŏ.ōōō	0331883	-,0102892
residentONCA	021/30/	.0001127	-2.05	0.041	0004518	-9.870-00
residentoncz	4686778	1422652	3.29	0.001	-1898431	*******
Wcollarias	4782325	.1051908	4.55	0.000	1425353	.9316991
wcollarloAS2	5371172	.201321	-4.06	0.000	-1.29195	- 4543332
WCOllar1NA	8731416	.213001/	2:51	ŏ.ŏīž	. 1369891	1.120395
Wcollarlonca	.6286918	3610376	2.26	0.024	.11023	1,528999
WCOITATZNAF	5308815	1559568	3.40	0.001	·2253138	.0503313
WCOILar20NC	-1.407884	5205946	-2.70	0.997	-2.42323	5502926
BCOILARCEEU	2418553	157369	3.22	0.014	2151268	i.941191
BCOTTATNAF	1.078159	.4403307	8.16	000.0	7367654	1,202589
BCOllarAS	.9696774	- 1100340	ĭ.99	ŏ.ŏ46	0104307	1,181457
BcollarONCA	- 4400021	.180705	-2.43	0.015	7941774	0828268
PCOILARNWEU	- 494176	.2137681	-2.31	0.021	-:9131528	
ProllarRAF	- 8100446	.206649	~3.92	0.000	-1.675376	2401233
PCOTTATNA	- 9077495	.3406319	-26.19	8:000	-7.69528	-6.580787
CODE	-7.138034			2.242		

Appendix

 Table 5.12, South Asian Commonwealth immigrants -original model

 Logistic regression

 Number of obs

Logistic regression Log likelihood = -1806.8772			-	Number of obs LR chi2(31) Prob > chi2 Pseudo R2		5945 743.40 0.0000 0.1706
selfemployed	Coef.	Std. Err.	z	P> z	[95% Conf	. Interval]
GDr	-37.4471	20.21854	-1.85	0.064	-77.0747	2.18051
unem	-4.033945	21.14913	-0.19	0.849	-45.48549	37.4176
inter	4.672897	9.400589	0.50	0.619	-13.75192	23.09771
, t	(omitted)					
localun	8.558569	9.840143	0.87	0.384	-10.72776	27.8449
тарсята	.0/0/5/3	.0351/08	2.18	0.029	.00/8238	.1456907
married	1 005722	1001286	17.30	0.110	1 671944	.4010930
loweduc	1.003/32	102020	1/.20	0.000		2115477
IUWEUUC	-15,79037	1278 18	-0.01	0.924 0.960	-2520 076	7489 306
NW	-15.16727	1278.18	-0.01	0.991	-2520.353	2490.019
YH	-15.20867	1278.18	-0.01	ŏ.991	-2520.395	2489.977
EM	-15.41883	1278.179	-0.01	0.990	-2520.605	2489.767
WM	-15.67759	1278.18	-0.01	0.990	-2520.863	2489.508
EE	-15.15853	1278.18	-0.01	0.991	-2520.344	2490.027
LON	-15.43398	1278.18	-0.01	0.990	-2520.62	2489.752
SE	-14.86498	1278.179	-0.01	0.991	-2520.051	2490.321
SW	-15.18094	1278.18	-0.01	0.991	-2520.367	2490.005
WAL	-15.06421	1278.18	-0.01	0.991	-2520.25	2490.122
SCOT		1278.18	-0.01	0.991	-2520.149	2490.222
NL	-L3./6022	12/0.10	-0.01	0.990	-2320.900	2403.400
age	.143032	.0293037	-4 59	0.000	_ 0070003	- 0008535
resident	0014923	.0003239	5.65	0.000	0021311	.0922743
resident?	- 0008375	0002279	-3.68	0.000	001284	0003909
bangladesh	- 9576023	2684682	-3.57	ŏ.ŏŏŏ	-1.48379	4314144
srilanca	6059424	2953942	-2.05	0.040	-1.184904	0269805
india	-1.121968	.2109632	-5.32	0.000	-1.535448	-,7084876
pakistan	(omitted)					
den	-34.17337	14.73955	-2.32	0.020	-63.06237	-5.284381
bang]adesh~n	20.66612	22.62608	0.91	0.361	-23.68019	65.01243
srilançaden	7.209606	29.78784	0.24	0.809	-51.17349	65.5927
indiaden	37,55667	14.08684	2.67	0.008	9.946977	02.10031
pakistanden	(omitted)	1370 101	0 01	0.004	2406 247	7514 131
_cons	8.942148	12/8.181	0.01	U. 994	-2490.24/	5274.727

Table 5.13, South Asian Commonwealth immigrants – selected model

Logistic regression	Number of obs	-	5945
J	LR chi2(16)	-	734.65
	Prob > chi2	-	0.0000
Log likelihood = -1811.2515	Pseudo R2		0.1686

selfemployed	Coef.	Std. Err.	z	P> z	[95% Conf.	Interval]
Selfemployed GDr fdpch19 married male age2 resident2 resident2 NE EM WM SE india	Coef. -28.54129 .0762743 .2181863 1.881454 .1455887 0014908 .0685437 0008353 5156348 2931702 3911802 .2281276 307067	Std. Err. 14.36356 .0345738 .1359064 .1087194 .0293883 .0003243 .0119438 .0002248 .3136975 .1870519 .134429 .1180185 .1722086	z -1.99 2.21 1.61 17.31 4.95 -4.60 5.74 -3.72 -1.64 -1.57 -2.91 1.93 -1.78	P> z 0.047 0.027 0.108 0.000 0.000 0.000 0.000 0.000 0.100 0.117 0.0117 0.004 0.053 0.075	[95% Conf. -56.69335 .0085109 0481854 1.668368 .0879888 0021264 .0451342 0012759 -1.130471 6597852 6546562 0031844 6445896	Interval] 3892259 .1440377 .484558 2.09454 .2031886 0008553 .0919531 0003946 .0992009 .0734447 1277042 .4594395 .0304557
pakistan den indiaden _cons	-34.5167 33.07997 -6.793947	.120351 9.129518 10.01554 .7322509	-3.78 3.30 -9.28	0.000 0.001 0.001	-52.41022 13.44987 -8.229132	-16.62317 52.71006 -5.358762

Table 5.14, Eastern European immigrants – original model Logistic regression

Log likelihood = -979.61471

Number of obs LR chi2(42) Prob > chi2 Pseudo R2 3297 60 O

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60

selfemployed	Coef.	Std. Err.	Z	P> z	[95% Conf.	Interval]
GDr	-3.154212	28.12972	-0.11	0.911	-58.28746	51.97903
unem	35.64011	30.30647	1.18	0.240	-23.75948	95.0397
inter	11.2579	14.92314	0.75	0.451	-17.99091	40.50671
t	(omitted)					
localun	-12.53247	18.0924	-0.69	0.489	-47.99292	22.92799
fdpch19	.1776622	.0758355	2.34	0.019	,0290273	. 326297
married	.1722848	.1386189	1.24	0.214	-,0994032	.4439729
male	1.004748	.1235671	8.13	0.000	,7625608	1.246935
loweduc	.4242581	.170033	2.50	0.013	.0909996	.7575166
age	.2319396	.0459811	5.04	0.000	,1418182	.3220609
agë2	0028334	.0006129	-4.62	0.000	0040346	0016322
resident	.0330943	.0226086	1.46	0.143	0112177	.0774064
resident2	.0001182	.0004959	0.24	0.812	-,0008537	.00109
NE	-8.467831	524.5322	-0.02	0.987	-1036.532	1019.596
NW	-8.568733	524.5317	-0.02	0.987	-1036.632	1019.495
YH	-9.215371	524.5317	-0.02	0.986	-1037.279	1018.848
EM	-9.592988	524.5313	-0.02	0.985	-1037.655	1018.47
WM	-9.192781	524.5321	-0.02	0.986	-1037.257	1018.871
EE	-9.156884	524.5313	-0.02	0.986	-1037.219	1018.906
LON	-6.793014	524.5319	-0.01	0.990	-1034.857	1021.271
SE	-8.393118	524.5312	-0.02	0.987	-1036.455	1019.669
SW	-9.245134	524.5312	-0.02	0.986	-1037.307	1018.817
WAL	-9.471092	524.532	-0.02	0.986	-1037.535	1018.593
SCOT	-8.594527	524.5314	-0.02	0.987	-1036.657	1019.468
NI	-11.33436	524.5323	-0.02	0.983	-1039,399	1016.73
czech	-1.746036	.8706177	-2.01	0.045	-3.452416	0396568
estonia	-1.098326	1.233513	-0.89	0.373	-3.515968	1.319316
hungary	8362546	.6916895	-1.21	0.227	-2.191941	.5194319
latvia	7316512	.6182585	-1.18	0.237	-1.943416	.4801132
lithuania	-1.318615	.5012301	-2.63	0.009	-2.301008	3362225
poland	-1.687875	.4343711	-3.89	0.000	-2.539227	-,8365237
slovenja	-1.55365	1.216594	-1.28	0.202	-3.938131	.8308315
slovakja	-4.311571	1.424364	-3.03	0.002	-7.103274	-1.519868
romania	1796214	.4571919	-0.39	0.694	-1.075701	.7164583
bulgaria	(omitted)					
den	-108.7996	98.47873	-1.10	0.269	-301.8144	84.21512
czechden	-170.4361	785.8711	-0.22	0.828	-1710.715	1369.843
estoniaden	928.8521	2182.015	0.43	0.670	-3347.819	5205.524
hungaryden	-577.6383	393.8274	-1.47	0.142	-1349.526	194.2493
latviaden	-161.116	329.5506	-0.49	0.625	-807.0233	484.7913
Ilthuanladen	133.9588	117.6302	1.14	0.255	-96.59214	364.5098
polandden	111.9932	93.63909	1.20	0,232	-71.53606	295.5224
sjovenjaden	(omitted)					3505 355
Slovakladen	1330.231	696.4456	1.91	0.056	-34.77756	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
romaniaden	26.33917	121.7843	0.22	0.829	-212.3536	202.032
Duigariaden	(omitted)					1038 310
_cons	.1440819	524.5376	0.00	1.000	-1027.931	1059.518

Table 5.15, Central & Eastern European immigrants - selected model

Logistic regression

Log likelihood = -986.1154

Number of obs = 3297 LR chi2(23) = 592.24 Prob > chi2 = 0.0000 Pseudo R2 = 0.2309

selfemployed	Coef.	Std. Err.	Z	P> z	[95% Conf.	Interval]
unem	18.23242	10.52367	1.73	0.083	-2.393593	38.85844
localun	-20.4732	9.437975	-2.17	0.030	-38.97129	-1.97511
fdpch19	.1768111	.0742581	2.38	0.017	.031268	.3223542
married	.182706	.1362468	1.34	0.180	0843329	.4497448
male	1.001473	.1227076	8.16	0.000	.7609708	1.241976
loweduc	.431544	.1683187	2.56	0.010	.1016454	.7614426
age	.2289669	.0428618	5.34	0.000	.1449593	.3129745
age2	0027962	.0005716	-4.89	0.000	0039166	0016758
resident	.0403367	.010756	3.75	0.000	.0192553	.0614181
YH	6320297	.373464	-1.69	0.091	-1.364006	.0999463
EM	-1.10265	.3647628	-3.02	0.003	-1.817572	3877279
WM	5494696	.417274	-1.32	0.188	-1.367312	.2683725
EE	7366533	.3311861	-2.22	0.026	-1.385766	0875404
LON	1.72807	.2214279	7.80	0.000	1.294079	2.16206
SW	8629225	.3491144	-2.47	0.013	-1.547174	1786708
WAL	9597633	.6110015	-1.57	0.116	-2.157304	.2377778
NI	-2.916752	1.013296	-2.88	0.004	-4.902777	9307281
czech	8582467	.4123579	-2.08	0.037	-1.666453	0500401
hungary	7276327	.3749698	-1.94	0.052	-1.46256	.0072946
_poland	4817371	.1652865	-2.91	0.004	8056928	1577815
slovakia	-1.023103	.4015344	-2.55	0.011	- 1.8 10096	2361105
romania	.7275533	.2221667	3.27	0.001	.2921146	1.162992
bulgaria	.8791226	.2414997	3.64	0.000	.4057919	1.352453
_cons	-7.526735	.8821787	-8.53	0.000	-9.255774	-5.797697

Table 5.16, samples used in models -tables 5.12, 5.13, 5.14 & 5.15

Central an	d Easte	rn European	South Asian i	immigra	nts
immigrant	s sampl	e size	sample size		
	men	women		men	women
Czech	47	69	Bangladesh	397	412
Estonia	9	15	Sri lanka	264	232
Hungary	49	62	India	1304	1328
Latvia	73	75	Pakistan	1012	996
Lithuania	118	184			
Poland	1007	1067			
Slovakia	69	94			
Slovenia	1	4			
Romania	101	95			
Bulgaria	69	89			
	1543	1754		2977	2968
total	329	97	total	594	15