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in England and Wales:
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ABSTRACT

Self-Employment amongst Migrant Groups in England and Wales: New Evidence from Census Microdata*

Self-employment constitutes a vital part of the economy since entrepreneurs can provide not only employment for themselves but also for others. The link between self-employment and immigration is, however, complex since self-employment can be viewed as both a haven from the paid labour market or as a source of economic growth. Moreover, the nature of self-employment has changed considerably in recent decades, especially with regards to providing a flexible form of employment for many demographic groups. We investigate the evolving relationship between self-employment and immigration in the UK using recently released microdata from the 2011 Census for England and Wales. Our findings indicate large variations, with high self-employment rates observed for some groups with a long established history of migration to the UK (especially men born in Pakistan) and also for some groups who have arrived more recently (such as from the EU's new member states). We further explore the differences, analyse variations by gender and identify key determining factors. In addition to certain socio-economic characteristics, it is found that migration-related influences, such as English language proficiency and period of arrival in the UK, play an important role for some groups.

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Introduction

There now exists a fairly well-established international literature on immigration and self-employment/entrepreneurship. Some important findings have emerged including large variations between migrants from different countries of origin, which can be linked to factors such as discrimination in the paid labour market or differences in accessing capital. Entrepreneurs can also provide employment opportunities for others, including for people from their own countries of origin, other countries or for native-born workers. However, in contrast to countries such as the United States (US), where there is already considerable evidence specifically on immigrant self-employment (Borjas, 1986; Sanders and Nee, 1996; Lofstrom, 2002), much of the previous research for the United Kingdom (UK) has focused on ethnic minorities, many of whom will be native-born, rather than immigrants. There are some exceptions, including Levie (2007), Clark and Drinkwater (2009) and Jones *et al.* (2015), but the approach taken in most studies has tended to be from the perspective of self-employment differences across ethnic groups. Given the high levels of immigration to the UK in recent years and that migration flows now emanate from a very diverse set of countries (Vertovec, 2007), it is therefore now timely to fill this gap. Our analysis is further enabled by the release of microdata from the 2011 Census since this dataset contains information not only on recent groups of migrants to the UK but also includes some new migration-specific questions.

In addition to the increased volume of migration to the UK over the past couple of decades, there has also been a shift in countries of origin. In particular, much of the immigration to the UK in the post-war period up until the end of the 1990s originated from New Commonwealth countries, especially from the

Caribbean, India, Pakistan and Bangladesh. However, migrants to the UK since the turn of this century have increasingly arrived from European countries, especially following the enlargement of the European Union (EU) that took place in May 2004. Continued globalisation more generally has also meant that migrants have started to arrive in the UK from a greater range of countries. The migration flows that have resulted are also likely to have been influenced by new forms of migration such as increased amounts of circular/shorter term migration (Castles *et al.*, 2013). Therefore, given the UK's growing and increasingly diverse immigrant population, previous evidence and perceptions regarding ethnic and immigrant self-employment may now be less relevant. Furthermore, demographic change has continued for the more established immigrant communities and this will have further consequences for their self-employment decisions (Clark and Drinkwater, 2010a).

Changes in immigration policy can also influence self-employment, possibly through direct or indirect routes. For example, there have been significant policy changes with regards to migrants from countries from outside of the European Economic Area (EEA), especially with regards to the introduction of the Points Based System (PBS) in 2008. The PBS aims to simplify routes of entry to the UK but also to attract particular types of migrants. For example, there is specifically designated sub-category of a tier of the PBS (Tier 1) that relates to overseas entrepreneurs looking to work in the UK. Moreover, there is increasing competition between advanced economies for international entrepreneurs, especially amongst young graduates. For example, UK Trade & Investment runs the Sirius Programme, which aims to help graduates from overseas with bright ideas set up and grow businesses in the UK. Whilst in the

context of migration from Europe, although flows from the EU cannot be limited, certain restrictions have previously been imposed on the types of jobs that migrants from new EU member states could do. In particular, migrants from accession countries could enter the UK as self-employees before EU enlargement in May 2004 under the 1994 Europe Agreement, which boosted self-employment rates amongst migrants from these countries (Clark and Drinkwater, 2008). Similarly, migrants from Bulgaria and Romania could work in the UK as self-employees from when these countries joined the EU in January 2007 until the end of the transitional period in December 2013.

Not only have there been large changes in immigration to the UK in relation to the volume, origin and nature of the migration flows but self-employment/entrepreneurship has also evolved considerably over the past couple of decades. For example, there has been an increase in sub-contracting, part-time and flexible forms of self-employment (Ajayi-Obe and Parker, 2005; Boheim and Muhlberger, 2009). New types of self-employment have also emerged including false self-employment (Behling and Harvey, 2015) as well as the rise of social entrepreneurship (Doherty *et al.*, 2014). Moreover, there is likely to have been an important gender dimension to these changes since self-employment can offer more flexible work-life opportunities for women, especially for those with high levels of education (Wellington, 2006).

In this paper we use microdata from the 2011 Census of the Population to undertake a detailed analysis of self-employment for a range of migrant groups across England and Wales. Census microdata provide large samples that enable relatively narrowly defined groups to be examined separately for men and women, some years after the EU enlargements took place. In addition to detailing

the main differences in the relative concentrations and types of self-employment amongst these groups, we also carry out multivariate analysis using the new migration-related variables that were included in the 2011 Census to ascertain the extent to which these are able to provide further explanations for the observed differences. We focus particularly on the influence that period of arrival and English language ability have on self-employment for different categories of migrants.

Influences on Self-Employment Amongst Immigrants

There is a long-standing literature on self-employment and immigrants to the US. This applies to both sociological (Light, 1984; Cobas, 1986; Sanders and Nee, 1996; Portes and Zhou, 1999) and economic (Borjas, 1986; Yuengert, 1995; Lofstrom, 2002) studies. Such studies have highlighted large differences between immigrants including in identifying the groups that typically have high rates (e.g. migrants from China, Korea and some European countries) and those displaying noticeably lower rates (e.g. migrants from Mexico, Puerto Rico and some African countries). Evidence for the UK is less well established since the literature has tended to focus on ethnic differences, especially amongst Asian groups. This includes studies that have applied quantitative techniques to analyse Census data and large scale government surveys (Basu, 1998; Borooah and Hart, 1999; Clark and Drinkwater, 1998; 2010a,b) or more bespoke surveys (Metcalf *et al.*, 1997; Clark and Drinkwater, 2000; Basu and Altinay, 2002) as well as more detailed (qualitative) analysis on smaller scale data on particular groups (Ram and Deakins, 1996; Ram *et al.*, 2000). As in the US, some Asian groups have high rates of self-employment, especially Pakistani men, whilst rates are relatively

low for Black Africans and Caribbeans. Differences between groups can, at least partly, be explained by compositional effects in terms of group characteristics associated with either general socio-economic factors or migration-specific influences (Clark and Drinkwater, 2010a).

There now follows a brief review of the influences on self-employment, starting with general socio-economic factors, since these will typically affect different demographic groups in a fairly similar way, before moving onto effects related to migration. We particularly make reference to a recent study by Simeos *et al.* (2015), who have undertaken a detailed review of the theoretical and empirical literature, covering a wide range of studies and countries, on the determinants of self-employment.¹ Despite discussing different ways in which socio-economic characteristics can have a positive or negative affect on self-employment, several clear influences can be identified.² These include that men have far higher rates of self-employment than women and that self-employment increases with age but at a decreasing rate, typically peaking around mid-working age.³ The presence of family members can also affect the probability of self-employment, with both marriage and children tending to have a positive influence, although there may be differences by gender.

There are other variables that have a more indeterminate effect on self-employment. For example, education may either increase or decrease self-employment since more highly qualified individuals will typically have better

¹ This study essentially updates and extends that of Le (1999).

² Simeos *et al.* (2015) discuss the different influences that each characteristic has on the probability of self-employment from a theoretical perspective, as well as reviewing the empirical evidence.

³ Self-employment is also found to increase with experience in the labour market, both in terms of the amount and duration, which is closely related to age. There is, however, some indication that self-employment is becoming increasingly popular amongst older workers, with a growth in the number of 'olderpreneurs' (Fineman, 2014).

opportunities in paid-employment but they also tend to possess greater managerial ability and are better able to identify self-employment opportunities. Thus the overall impact will depend on which of the opposing influences dominates and as a result the effect of education on self-employment is found to vary across countries. Simeos *et al.* (2015) also note that there is not a large literature on the impact of health, in terms of either illness or disability, and that the empirical evidence on this relationship is far from conclusive, especially as it is affected by measurement and methodological issues.

Several residential variables can affect self-employment. Regional variations are often related to industrial structure and labour market conditions (Georgellis and Wall, 2000) but may also be due to different entrepreneurial traditions. Housing can also influence self-employment decisions, especially through its links with wealth. In particular, owner occupiers can use their houses as collateral to start-up a business and to increase the chances of getting external funding (Simeos *et al.*, 2015). Changes in house prices can also provide a form of windfall investment for existing or potential entrepreneurs (Disney and Gathergood, 2009).

In addition, there are a range of ethnic or immigrant-related influences that have been found to be important for self-employment. Some of these are connected to the factors that have already been discussed such as the clustering of migrant or ethnic groups into particular localities (Clark and Drinkwater, 2010a) and differences in the influence of education on self-employment across groups (Thompson *et al.*, 2010), partly because of variations in levels of discrimination.

Discrimination. Labour market discrimination can be manifested in the form of either lower wages or higher unemployment and can push (migrant or ethnic) minorities into self-employment (Clark and Drinkwater, 2000). This can occur as a result of the prejudice displayed by employers or co-workers. In addition, consumers may also be discriminating, whereby consumers from majority groups who have prejudices against entrepreneurs from minority groups may only purchase from these groups if they lower their prices (Borjas and Bronars, 1989). There may also be discrimination in the credit market since lenders may be less likely to approve loans or charge higher interest rates to individuals from certain migrant groups (Blanchflower *et al.*, 2003).

Ethnic Enclaves. High concentrations of co-ethnics in specific geographic locations can boost self-employment (Aldrich *et al.*, 1985). This can, for example, result from the provision of ethnic specific goods such as food and clothing and entrepreneurs can also provide jobs for others living in the enclave. Although support for the protected market hypothesis has been found in the US (Lofstram, 2002), there is contrasting evidence for the UK. Clark and Drinkwater (2010a) suggest that this may be due to the deprived nature of many enclaves as well as the presence of more intense competition. However, this relationship may alter over time with changes in tastes and technology.

Time since arrival. The number of years that the migrant has resided in the host country may be related to several forms of capital: human, physical and financial. Human capital that is obtained in the host country is likely to be more valuable than that obtained overseas, especially in the paid labour market given that

employers may fail to recognize certain qualifications and skills. Moreover, the portability of human capital from the migrant's home country is likely to influence the types of jobs that they are able to do in the host country (Friedberg, 2000). It also takes time to accumulate the financial capital that may be necessary to establish a business, implying that migrants may need to spend a period of time in the paid labour market in order to obtain the required financial resources. However, credit constraints could be attenuated for some groups if they have large families or via informal sources of finance from within their communities (Metcalf *et al.*, 1996).

English language skills. Poor language skills in the host country's main language can restrict certain self-employment opportunities but can also encourage them in other circumstances. The latter effect is particularly related to the enclave economy (Evans, 1989). Therefore, it is not clear what the link between language proficiency and self-employment may be, although with a more service-based economy where communication skills are becoming increasingly important then it is likely that some degree of fluency in the language of the host country would be required for successful entry and survival for entrepreneurs.

Culture and Religion. Group-specific cultures can impinge on values, social structures, resources, behavioural patterns and coping strategies, all of which can influence self-employment (Simeos *et al.*, 2015). In addition, self-employment may be promoted within certain cultures or religions such as amongst Muslims in the UK (Rafiq, 1992) and Protestants across Europe (Nunziata and Rocco, 2011). US studies have also identified a home country

effect, whereby migrants originating from countries that have high rates of self-employment are more likely to become self-employed in the host country (e.g. Yuengert, 1995; Fairlie and Meyer, 1996).

Self-employment can also be influenced by immigration policy. Self-employment can be boosted through direct attempts to encourage foreign entrepreneurs such as through Tier 1 of the UK's Points Based System, as well as issuing visas to wealthy individuals from overseas via the investor route (MAC, 2014).⁴ Self-employment can also be increased in a more indirect way such as has been the case with migration in the lead-up to and then following EU enlargement. In particular, self-employed migrant workers from EUA8 countries were allowed to work in the UK before these countries were admitted into the EU in 2004 and migrants from EUA2 countries could work as self-employees in the UK during the restrictions to mobility from Bulgaria and Romania that were imposed by the UK government between 2007 and 2013.

Ram *et al.* (2013) and Jones *et al.* (2015) have begun to explore some of these issues. Ram *et al.* (2013) discuss some of the policy and research implications of super-diversity in relation migrant businesses in the UK. Jones *et al.* (2015) use pooled information from the Labour Force Survey, and some of their own survey interviews, to split migrants to the UK into an established group, who arrived in the UK before 2004 (mainly from New Commonwealth countries and China) and new immigrants, who arrived in the UK between 2004 and 2013 (from a more diverse set of countries). They report differences in the distribution of the self-employed in terms of their sector of employment but have

⁴ The PBS was phased in from 2008 in an attempt by the UK government to simplify immigration from countries outside the EEA. For further details see Dewitt (2012).

relatively small sample sizes, especially for some of the new groups of migrants even though men and women have been combined. We now go onto investigate self-employment amongst migrant groups in England and Wales in more detail using Census microdata. The larger samples also enable some disaggregated multivariate analysis, which is also typically reported separately by gender.

Data and Descriptive Statistics

All of the analysis in this paper uses the Sample of Anonymised Records (SARs) from the 2011 Census of the Population that took place in England and Wales on March 27th 2011.⁵ The SARs is a 5% random sample of all Census returns and contains responses to each of the questions on the Census form for over 2.8 million individuals. As a result, it allows us to undertake a detailed investigation of self-employment amongst migrant groups since we can construct fairly narrowly defined groups and investigate the factors that influence self-employment.

The sample is restricted to the working age population i.e. males and females aged between 16 and 64 and excludes full-time students. Tables 1 and 2 report self-employment rates by gender for a number of different migrant groups. The self-employment rate is calculated as the percentage of employed workers reporting that their main economic activity was self-employment in the week prior to the Census. This was indicated by the respondent ticking the associated box on the Census questionnaire. The tables also report the number of

⁵ Separate Censuses are undertaken in Scotland and Northern Ireland and these are administered by different statistical agencies. As a result, each agency has different release policies for Census statistics and data, as well as there being some differences in the questions asked. Moreover, England and Wales captures well over 90% of all immigrants and ethnic minorities in the UK.

individuals in employment for each group (i.e. the denominator used to calculate the self-employment rate). Table 1 presents this information for detailed ethnic groups, separating out individuals who were born in the UK from those born overseas. Table 2 is an analogous table for the main migrant groups. Further details on the construction of these groups can be found in the Appendix.

The self-employment rates for ethnic groups in 2011 share several features with those reported in previous studies (Clark and Drinkwater, 2010b). In particular, the rates are highest for Pakistani men and lowest for the Black groups. There are some differences for women, with the highest rates observed for the Chinese and the lowest for Black Caribbeans.⁶ Some interesting differences for certain ethnic groups emerge if self-employment rates are compared according to whether workers were born in the UK or overseas, with rates tending to be slightly lower for those born in the UK for most ethnic groups but not all. The exceptions include men and women from the Other White and African ethnic groups.

The statistics reported in Table 2 provide further detail on some new migrant groups to the UK, especially in relation to the high levels of migration from other parts of Europe that has occurred over the last couple of decades. The increased importance of these groups can be seen by observing the number of observations, which indicate that migrants from new EU member states were the largest group for both men and women, with in excess of 19,000 and 17,000 workers from these countries present in the sample, respectively. Unsurprisingly, the majority (over 80%) of migrants from accession countries

⁶ Carter *et al.* (2015) discuss barriers to establishing businesses for women from ethnic minority groups in the UK.

arrived after the 2004 enlargement of the EU. This was the only migrant group where the percentage of arrivals after 2003 exceeded the percentage arriving before 2004. To provide some additional context for the self-employment statistics for each of the migrant groups, other key labour market indicators have been reported in Table A1 in the Appendix. More specifically, the table contains activity, employment (including and excluding students) and unemployment rates by gender.

Overall self-employment rates for men are highest for those born in Pakistan – with a very similar figure (36%) to that for the Pakistani ethnic group, as reported in Table 1. This is considerably higher than the next closest groups, men from Other European countries (28%) and Ireland (26%). The lowest rates belong to men from the Old-EU, the Americas (both categories) and India, who all have rates below those of the UK born. The self-employment rate for men arriving after 2003 was lower than earlier arrivals for each of the groups. This was particularly noticeable for the Asian groups, with self-employment rates of less than 10% observed for more recent male migrants from India and Bangladesh compared to over 25% for migrants arriving before 2004. Self-employment rates for women are more concentrated across the migrant groups, ranging only between 9% and 15%. Women born in the UK and Bangladesh have the lowest rates and the highest rates are observed for women born in Pakistan and other parts of Europe. There are far smaller differences in the self-employment rates of migrants arriving before and after 2004 in comparison to men. The differences are less than 5 percentage points for most groups, compared to typically over 15 percentage points for men. Moreover, the self-

employment rates for women from Central and South America arriving after 2003 are higher than for earlier arrivals from these countries.

Table 3 shows the type of self-employment for the main migrant groups by gender. Self-employment is categorized either on a full-time (works more than 30 hours a week) or part-time (works for 30 hours or less a week) basis and either working on their own or employing others (the actual number of others being employed is not recorded). The majority of self-employed men in each of the migrant groups are full-time and do not employ others. This is least apparent for self-employed men born in Bangladesh since almost 50% of this group work part-time, compared with less than 20% of men from most other groups. Interestingly, a relatively high proportion of men from Bangladesh (almost 20%) are in the part-time and employing others category, which is by far the highest amongst any of the groups.⁷ Over a third of self-employed men born in Pakistan work part-time. In contrast, part-time self-employment is a far more important activity for women, accounting for over a half of all self-employed women and in excess of 40% for all migrant groups. The percentage of women employing others is similar to men, at just over 20%, but is relatively high for some of the (South Asian) groups, especially those born in Bangladesh.

Given that the type of self-employment is related to industrial sector, Table 4 reports self-employment by grouped sectors for migrant groups by gender. There are some notable concentrations including in Transport, Food/Restaurants and Retail for men born in Asia, especially those from Pakistan and Bangladesh. Further information is available by examining more

⁷ The denominator for this group is relatively small, with only 746 self-employed men born in Bangladesh in the sample, which is the third smallest of the groups reported in Table 3.

disaggregated industrial categories. For example, over 40% of self-employed men born in Pakistan work in Transportation & Storage and around two-thirds of self-employed men born in Bangladesh either work in this sector or Accommodation & Food Service Activities. There are also relatively high sectoral concentrations amongst self-employed women born in Indian, Pakistan, Bangladesh and other parts of Asia in these sectors. More than a half of self-employed women from New-EU member states work in Health, Education, Administration and Public Services.

Multivariate Analysis

We now proceed to undertake some regression analysis in order to examine the influence of socio-economic characteristics on self-employment and also to establish whether the extent of the differences across migrant groups. Therefore, the first set of regressions relate to pooled probit models that have been estimated separately for men and women relative to the UK born to determine whether the raw differences identified in the previous section continue to be observed after controlling for other influences. Two empirical specifications have been estimated for each probit model. The basic specification includes a standard set of socio-economic characteristics as explanatory variables, while the augmented specification adds in controls for ethnicity, religion, self-reported health and housing tenure.⁸ Table 5 reports marginal effects, calculated at

⁸ These variables have been included in the augmented specification because of the inter-relationships that exist between migrant group, ethnicity and religion, which will influence the estimates for the different migrant groups (relative to the UK born). There are several data issues in connection to health and self-employment, as discussed in Simeos *et al.* (2015). Housing tenure can have an important effect on self-employment because of the ability to ease credit constraints (Black *et al.*, 1996) but housing tenure is likely to be endogenous in a single equation regression framework (Henley, 2004).

sample means, and associated p-values for the two specifications for men and women. The marginal effects indicate the probability of self-employment for each migrant group relative to the UK born after controlling for observable differences. A positive marginal effect indicates that a particular migrant group is more likely to be self-employed than the UK born after controlling for the explanatory variables that have been included in the particular model. The magnitude of the marginal effect represents the percentage-point differential relative to the UK born. Thus, a marginal effect of 0.05 indicates that the probability of an individual from that group being self-employed is 5 percentage points higher than a comparable person who was born in the UK. The p-value is used to determine the statistical significance of each effect, with a p-value of 0.05 or less suggesting a significant relationship at commonly used levels using a two-tailed test.⁹

As shown in Table 2, the highest probability of being self-employed belongs to men born in Pakistan. The estimates in Table 5 reveal that men born in Pakistan have a probability of self-employment that is 15 percentage points higher than the UK born after controlling for a basic set of factors. Migrants from New-EU member states and other parts of Europe are each 7 percentage points more likely to be self-employed. Self-employment is significantly lower for men from several migrant groups (Old-EU, Africa, India, North America & Caribbean and Central & South America) than the UK born but the magnitude of the differences are relatively small since they are in the order of 1-3 percentage points. Women from New-EU member states are most likely to be self-employed

⁹ A full set of results for each of the pooled models using the basic specification appears in Table A2 in the Appendix, along with the means of the explanatory variables. The estimates in this table are generally consistent with the empirical regularities summarised in Simeos *et al.* (2015).

after controlling for the basic set of characteristics, followed by migrants from Pakistan and other parts of Europe. The adjusted self-employment probabilities for the remainder of the groups of migrant women are clustered around the UK born, with marginal effects of between -2 and 2 percentage points observed for these groups.

The estimates from the augmented specifications tend to be fairly similar for most groups. The largest differences between the basic and augmented models can be seen for men born in Pakistan – most likely because of the inter-relationships between ethnicity, religion and country of birth. This group does not have the highest adjusted probability of self-employment in the augmented specification – this distinction belongs to migrants from New-EU member states. Some of the significant relationships in the basic models also become insignificant in the augmented models such as for male migrants from Africa, North America & the Caribbean and Central & South America and female migrants from Ireland and Bangladesh. There is also a change in sign for this latter group, as well as for women from India.

The final two columns in Table 5 report marginal effects and p-values for the probability that a self-employed person (men and women combined) employs others for each migrant group, relative to the UK born. The explanatory variables included in this probit model consist of the controls in the basic specification for estimating the probability of self-employment plus (21) dummy variables for industrial section based on the 2007 Standard Industrial Classification (SIC2007). After controlling for these variables, the probability of having employees is significantly higher than for the UK born for 7 out of the 12 migrant groups. Migrants from Bangladesh, other parts of Asia, India and other

European countries have the highest probability of employing others. This probability is at least 6 percentage points higher for these groups than it is for the UK born and 15 and 9 percentage points higher for entrepreneurs from Bangladesh and Other parts of Asia respectively. The only migrant groups to have a significantly lower probability of employing others are those born in New-EU member states, Central & South America and Oceania. However, the difference in the probability of employing others between these groups and the UK born is 4 percentage points or less.

The next set of regression models (reported in Tables 6-8) estimate the probability of self-employment and of employing others separately for four migrant categories. These categories relate to migrants from Old-EU member states (including Ireland), New-EU member states, Other Europe and Outside Europe. These are four policy-relevant categories since they relate to two groups with freedom of movement: one pre-2004 and another since 2004 and two which don't: one from Europe and another from outside. The models allow for the determinants of self-employment, including time of arrival and English language ability, to be investigated separately for the four aggregated migrant groups. Means for the explanatory variables for each category are reported in Table A3 in the Appendix.¹⁰ This table highlights some interesting differences between the categories including a relatively high proportion of people from immigrant groups in 'other qualifications' category. This is particularly the case for New-EU migrants, where this percentage is in excess of 40%, compared to 6% for the entire sample, as reported in Table A2. Estimating the models for

¹⁰ Some of the dummy variables included in the pooled models, such as for regions and marital status, have been combined because of the relatively small number of observations in some of the categories included in the pooled models for some of the migrant categories.

more categories provides more detailed information e.g. on cohort effects but also results in some relatively small cell sizes for some variables, making the estimates less precise.

In terms of the new migration-specific variables, then male migrants who have been in the UK for longer are far more likely to be self-employed. This is most noticeable for men from outside Europe, where the difference in the probability of self-employment between those arriving before 1990 compared to those after 2007 is around 12 percentage points. The comparable difference for migrants from Old-EU member states is 3 percentage points. The cohort dummies are far less important for male migrants from New-EU member states. In fact, migrants from this group who arrived in the UK between 2001 and 2003 are most likely to be self-employed and have a self-employment rate which is more than 8 percentage points higher than those arriving pre-1990 after controlling for other factors. This accords with evidence provided by Clark and Drinkwater (2008) who report that a high proportion of EUA8 migrants arriving in this period were self-employed because this group were able to enter the labour market through this route prior to the 2004 enlargement. These estimates suggest that this effect has persisted, with large numbers of EUA8 migrants arriving during this period remaining in the UK as self-employed workers.

The results for women migrants with respect to period of arrival in the UK are somewhat different to those for men. Although more recent female arrivals from outside Europe are also significantly less likely to be self-employed, the differentials are far smaller in comparison to their male counterparts (less than a 4 percentage point differential compared to around 12 percentage

points). Moreover, the cohort dummies are not significantly different from zero for women migrants from the other three categories: Old-EU, New-EU and Other Europe. In fact, women migrants arriving from New-EU member states and other parts of Europe since 2007 are slightly more likely (by around 1-2 percentage points) to be self-employed compared to earlier arrivals. This suggests that the migration policy-induced effects may be slightly different for men and women from these countries or that women arriving in the UK more recently are increasingly exploiting opportunities in self-employment.

There is also some variation in the effect of (English) language proficiency on self-employment. For some categories, such as men from the Old-EU, those with the best (self-defined) English language skills are more likely to be self-employed. Whilst for some other categories (e.g. women from Outside Europe), those with the best language skills are more likely to be observed in the paid labour market, where they may be able to achieve higher rewards. The estimates for men born in the Old-EU are particularly interesting, with the difference in self-employment rates between men whose main language is English and those who do not speak English well at all being 9 percentage points. Men born in Other Europe and Outside Europe who speak English well are significantly more likely to be self-employed (by 4-5 percentage points after controlling for other influences) than those whose main language is English. There are fewer significant differences for women. In particular, the only significant effects at the 5% level are observed for women from the Old-EU and Outside Europe. Women from the Old-EU member states who speak English very well have slightly higher adjusted self-employment rates, whilst women from Outside Europe who speak English well and do not speak English well are significantly more likely to be self-

employed than those whose main language is English. Overall, there are no clear patterns amongst the categories but it certainly does not seem to be the case that self-employment is concentrated amongst migrants with the poorest English language skills.

Tables 6 and 7 also indicate a number of other differences between the migrant groups in relation to the determinants of self-employment. The largest age effects are observed for men from the Old-EU, with age being statistically insignificant for men from other parts of Europe apart from in the 55-64 age group. The influence of age is generally smaller for women. Male graduates from the New-EU, Other Europe and Outside Europe are significantly less likely to be self-employed than those with no qualifications. This is also the case for women migrants from New-EU member states. These findings therefore appear to augment the results with regards to English language ability. There are significant regional effects, especially for New-EU migrants, where adjusted self-employment rates for men living in London are in excess of 20 percentage points higher than they are in the other four regions. A similar effect can be observed for women from this group but the differentials compared to the other regions are lower at around 12 percentage points. The results with regards to marital status tend to suggest a positive effect of marriage, with significantly positive effects observed for three of the migrant categories for men and women. Workers with dependent children are also more likely to be self-employed, although there are some variations between the groups.

The migration-specific variables also influence the probability of employing others to a varying degree for the different migrant categories, as shown in Table 8. Some of the time of arrival dummies are significant, with a

clear indication that more recent arrivals are less likely to employ others observed for migrants from the New-EU and from Outside Europe. There are also some significant effects with regards to the English language indicators. Most notably, migrant entrepreneurs from Outside Europe who speak English as a main language are significantly less likely to employ others in comparison to other comparable workers in the four other language categories, with the difference increasing as the level of language proficiency deteriorates. The marginal effect for entrepreneurs from New-EU member states is also significant at the 10% level but indicates that who do not speak English well are less likely to employ others.

In terms of the other variables, the probability of employing others is highest for the youngest age category amongst migrants from Outside Europe after other characteristics have been controlled for.¹¹ Entrepreneurs with degrees from Other Europe are significantly less likely than those without any qualifications to employ others, with some other qualifications dummies significant for migrants from the Old-EU, Other Europe and Outside Europe. There are no significant regional effects. The family variables exert an influence for some of the categories, with an indication that married entrepreneurs with children are more likely to employ others, especially amongst migrants from the Old-EU and Outside Europe. Finally, as expected, part-time entrepreneurs in each of the four groups are significantly less likely to employ others, as are women from all categories apart from the New-EU.

¹¹ The percentage employing others does increase with age for all migration categories in the raw data but the age differences are relatively small for people born in the New-EU and Outside Europe.

Conclusion

The UK experienced an unprecedented increase in immigration in the first decade of the 21st century, especially following EU enlargement in 2004. As well as affecting public attitudes, these inflows have also influenced patterns of labour market activity including self-employment. In this paper, we have analysed how self-employment varies across different migrant groups, both in terms of its incidence and broad nature. Moreover, the reasons for the observed differences have been examined in some detail, with particular attention being paid to the influence of some new variables that were included in the 2011 Census, especially year of arrival in the UK and English language proficiency.

Our findings suggest that whilst self-employment has remained high for some established migrant groups, especially men born in Pakistan, high rates are also observed for migrants from countries that acceded to the EU in 2004 and 2007. However, the drivers of these high self-employment rates are likely to be quite different. Previous research has indicated that a lack of suitable opportunities in the paid employment, partly due to discrimination, is important for the more established groups (Clark and Drinkwater, 2000; 2010a). In contrast, changes in migration policy including allowing entrepreneurs to access the labour market in the pre-enlargement or transitional periods, as well as the introduction of the PBS for people from non-EEA countries, appear to have been important influences for newer groups of migrants to the UK. Self-employment is also relatively high amongst several groups of women migrants, in comparison to the UK born. Furthermore, there are only small differences between recent and earlier arrivals for some groups, such as for women from Old-EU and New-EU member states. In terms of the effect of explanatory variables, some

similarities are found amongst the different categories of migrants including in relation to broad regional variations. However, there are also some differences between the categories, including for English language ability and qualifications.

There are also significant differences in the probability of employing others and its determinants. Entrepreneurs from Bangladesh and Other Asian countries are most likely to employ others, whilst the probability of employing others is highest for those with poorer language skills amongst migrants from Outside Europe. These findings are important in the context of needing to expand and diversify the economic base in the UK following the recession, especially given the cuts to the public sector workforce that have already occurred and others that are planned. It may be possible to further investigate this aspect by examining the number of people that are employed by different migrant groups using the Labour Force Survey, although this may be limited to some extent by sample size restrictions.

Taken together, the findings suggest that recent changes in migration policy have had an impact, both directly and more indirectly, on self-employment and entrepreneurship in the UK. This applies both in relation to boosting rates of self-employment, given the high levels observed for some groups of (recent) migrants compared to the UK born – especially amongst women, as well as for the probability of employing others. As a result, there may be scope to further refine and develop migration policy with regards to immigrant entrepreneurship in order to achieve particular targets related to broadening the UK's economic base. More detailed sectoral analysis should be able to shed further light on the extent to which this can be achieved, especially since self-employment may be concentrated in particular low value/skill sectors for some groups.

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Table 1: Self-Employment Rates by Ethnic Group and Country of Birth (Whether Born in UK), 2011

	Males						Females					
	All		UK Born		Foreign Born		All		UK Born		Foreign Born	
	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N
White: UK	19.6	532,145	19.6	519,237	21.1	12,908	9.3	474,070	9.2	462,199	13.8	11,871
White: Irish	24.6	6,301	22.0	2,680	26.6	3,621	9.7	5,828	9.5	2,189	9.8	3,639
White: Gypsy or Irish	38.2	421	40.1	354	28.4	67	20.2	262	19.1	230	28.1	32
White: Other White	21.9	37,742	23.9	2,575	21.7	35,167	13.9	35,917	14.1	2,252	13.9	33,665
White and Black Caribbean	17.1	2,881	16.5	2,608	22.3	273	6.8	2,845	6.0	2,595	15.2	250
White and Black African	16.3	1,137	15.2	520	17.2	617	9.9	1,087	10.2	547	9.6	540
White and Asian Mixed	19.1	2,589	17.1	1,842	24.1	747	11.1	2,248	9.9	1,673	14.8	575
Other Mixed	19.6	2,312	18.9	1,241	20.5	1,071	10.6	2,308	9.4	1,258	12.0	1,050
Indian	19.8	19,050	18.6	6,319	20.4	12,731	10.0	15,031	8.2	5,628	11.1	9,403
Pakistani	31.9	11,079	24.2	3,915	36.1	7,164	10.6	4,911	7.4	2,701	14.5	2,210
Bangladeshi	20.5	4,240	12.6	988	22.9	3,252	7.3	1,813	4.9	797	9.3	1,016
Chinese	23.2	3,906	16.6	850	25.1	3,056	16.4	4,032	9.0	732	18.0	3,300
Other Asian	19.1	9,238	17.3	1,157	19.3	8,081	10.7	8,160	8.3	998	11.0	7,162
African	15.9	8,734	18.7	1,099	15.5	7,635	8.1	8,558	9.6	1,282	7.9	7,276
Caribbean	16.4	5,802	14.5	3,664	19.6	2,138	6.1	7,173	6.0	4,473	6.2	2,700
Other Black	16.6	2,330	15.9	1,368	17.7	962	9.0	2,074	7.7	1,281	11.1	793
Other: Arab	22.0	2,300	19.4	237	22.3	2,063	14.2	819	14.6	137	14.1	682
Other: Any other group	22.6	4,311	20.3	880	23.2	3,431	13.1	2,790	10.9	678	13.8	2,112
All Ethnic Groups	20.0	656,518	19.6	551,534	22.1	104,984	9.6	579,926	9.1	491,650	12.5	88,276

Notes: The self-employment rate is the self-employed expressed as a percentage of total employment for each group. N is the denominator and relates to the number of individuals in employment (excluding economically active full-time students).

Table 2: Self-Employment Rates by Country/Region of Birth, 2011

	Males						Females					
	All		Arrived Pre-2004		Arrived 2004-11		All		Arrived Pre-2004		Arrived 2004-11	
	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N
UK	19.6	551,534	-	-	-	-	9.1	491,650	-	-	-	-
Ireland	26.1	3,919	27.9	3,137	18.9	782	9.7	3,915	10.4	3,208	6.4	707
Old-EU	16.5	12,439	19.3	7,796	11.7	4,643	12.2	12,325	13.2	8,250	10.2	4,075
New-EU	24.1	19,029	39.1	3,302	21.0	15,727	14.1	17,800	17.7	3,958	13.1	13,842
Other Europe	27.6	4,202	29.8	2,926	22.5	1,276	15.1	3,159	15.6	2,129	13.9	1,030
Africa	19.7	18,578	22.0	13,975	12.9	4,603	10.7	15,977	11.3	12,408	8.7	3,569
India	18.7	10,241	26.0	5,855	8.9	4,386	10.7	7,283	12.9	4,857	6.2	2,426
Pakistan	36.4	7,119	42.7	5,174	19.7	1,945	15.4	2,186	15.8	1,743	13.5	443
Bangladesh	23.2	3,221	26.3	2,597	9.9	624	9.1	1,035	9.3	843	8.3	192
Other Asia	21.9	14,823	26.1	10,549	11.5	4,274	13.6	12,551	15.2	8,574	10.1	3,977
North America & Caribbean	18.8	5,802	22.2	4,003	11.3	1,799	12.1	6,382	12.6	4,786	10.6	1,596
Central & South America	18.2	2,200	19.4	1,198	16.9	1,002	14.2	2,368	13.4	1,403	15.2	965
Oceania	20.8	3,411	23.3	1,894	17.6	1,517	13.0	3,295	15.9	1,715	9.8	1,580
All Countries of Birth	20.0	656,518	-	-	-	-	9.6	579,926	-	-	-	-

Note: See notes to Table 1.

Table 3: Type of Self-Employment by Country/Region of Birth, 2011

	Males				Females			
	% PT with	% FT with	% PT own	% FT own	% PT with	% FT with	% PT own	% FT own
UK	1.7	20.9	15.8	61.6	6.8	14.0	45.0	34.2
Ireland	2.2	25.6	12.4	59.9	5.8	18.2	35.3	40.8
Old-EU	1.9	23.5	17.1	57.6	4.6	10.5	48.3	36.5
New-EU	2.2	16.2	15.2	66.4	5.3	8.6	53.9	32.2
Other Europe	8.3	26.6	19.1	46.0	7.1	10.7	43.5	38.7
Africa	3.5	26.8	18.9	50.8	6.7	17.2	38.3	37.8
India	4.3	31.4	15.3	49.0	10.1	21.1	31.8	37.0
Pakistan	7.8	19.2	32.8	40.2	13.1	13.7	42.6	30.7
Bangladesh	19.2	26.0	28.4	26.4	23.4	16.0	38.3	22.3
Other Asia	6.8	34.3	18.8	40.0	10.5	23.8	32.2	33.5
North America & Caribbean	1.4	21.4	18.5	58.8	3.9	11.5	45.5	39.0
Central & South America	3.2	15.0	23.4	58.4	7.5	9.3	48.1	35.2
Oceania	1.3	19.2	15.1	64.4	5.1	8.4	36.2	50.2
All Countries of Birth	2.2	21.5	16.4	59.9	6.9	14.1	44.5	34.6

Notes: “FT” relates to full-time self-employed (those working more than 30 hours a week in their main job) and “PT” relates to part-time employment (those working 30 or less hours a week). “With” relates to those employing others and “own” relates to those not employing others.

Table 4: Sectoral Distribution of Self-Employment by Country/Region of Birth, 2011

	Males				Females			
	% Sectors A-E	% Sector F	% Sectors G-I	% Sectors J-U	% Sectors A-F	% Sectors G-I	% Sectors N-Q	% Sectors J-M and R-U
UK	11.1	31.4	20.6	36.9	10.2	20.0	33.0	36.7
Ireland	6.1	39.3	15.7	39.0	9.7	17.4	33.2	39.7
Old-EU	6.3	16.7	21.4	55.7	6.8	15.8	36.3	41.1
New-EU	4.6	55.2	19.5	20.8	8.3	16.2	51.4	24.1
Other Europe	4.4	25.3	40.0	30.3	7.6	18.1	31.3	43.1
Africa	5.0	13.6	32.8	48.6	6.0	23.7	37.3	33.1
India	6.4	14.3	39.0	40.3	5.2	41.6	30.2	23.1
Pakistan	5.0	6.3	66.2	22.6	10.1	39.9	32.4	17.6
Bangladesh	3.5	3.6	74.4	18.5	8.5	36.2	33.0	22.3
Other Asia	4.5	9.0	49.9	36.5	5.7	35.7	27.0	31.7
North America & Caribbean	6.1	20.4	15.2	58.3	6.7	12.8	32.0	48.4
Central & South American	3.2	19.5	27.2	50.1	5.4	17.3	37.9	39.4
Oceania	5.8	18.8	11.7	63.7	3.7	11.0	32.9	52.3
All Countries of Birth	10.0	29.9	23.2	36.9	9.6	20.6	33.9	36.0

Notes: Sectors have been constructed according to SIC2007. Sectors A-E are primary & secondary industries, Sector F is Construction, Sectors G-I are Retail, Food/Restaurants & Transport and Sectors J-U are Other Services. The sectors for females are slightly different to those for males, with Sectors A-F combined into one category and Other Services split into two. Sectors N-Q relate to Health, Education, Administration and Public Services.

Table 5: Estimates of Self-Employment Probabilities for Country/Region of Birth

	Males - Self-Employed				Females - Self-Employed				All - With Employees	
	Basic		Augmented		Basic		Augmented		M.E.	p-value
	M.E.	p-value	M.E.	p-value	M.E.	p-value	M.E.	p-value		
Ireland	0.036	0.000	0.021	0.014	-0.013	0.002	-0.005	0.393	0.047	0.000
Old-EU	-0.031	0.000	-0.031	0.000	0.017	0.000	0.008	0.008	-0.009	0.212
New-EU	0.070	0.000	0.084	0.000	0.063	0.000	0.062	0.000	-0.019	0.001
Other Europe	0.070	0.000	0.049	0.000	0.038	0.000	0.026	0.000	0.061	0.000
Africa	-0.017	0.000	-0.002	0.555	-0.005	0.015	0.010	0.002	0.038	0.000
India	-0.015	0.000	-0.027	0.000	0.000	0.942	0.004	0.380	0.067	0.000
Pakistan	0.152	0.000	0.054	0.000	0.050	0.000	0.053	0.000	0.020	0.015
Bangladesh	0.004	0.575	0.027	0.064	-0.015	0.050	0.014	0.369	0.147	0.000
Other Asia	0.010	0.003	0.018	0.000	0.022	0.000	0.017	0.000	0.094	0.000
North Am. & Caribbean	-0.029	0.000	-0.008	0.142	0.003	0.327	0.020	0.000	-0.016	0.089
Central & South America	-0.028	0.000	-0.014	0.111	0.022	0.000	0.026	0.000	-0.036	0.017
Oceania	0.013	0.058	0.013	0.068	0.021	0.000	0.012	0.026	-0.030	0.013
Pseudo R-Squared	0.034		0.037		0.034		0.040		0.081	
Number of Observations	656,518		652,447		579,926		578,485		186,883	

Notes: Augmented specification is the basic specification plus controls for ethnicity, religion, self-reported health and housing tenure. Dependent children not applicable has been included as a control in both specifications. Ethnicity, religion and tenure not applicable have been removed from the augmented specification but religion not stated has been included as a category.

Table 6: Estimates of the Probability of Self-Employment for Men by Migrant Category

	Old-EU		New-EU		Other Europe		Outside Europe	
	M.E.	p-value	M.E.	p-value	M.E.	p-value	M.E.	p-value
Arrived in 1990s	0.007	0.439	0.030	0.188	-0.023	0.284	-0.041	0.000
Arrived 2000-3	-0.024	0.046	0.083	0.000	-0.070	0.005	-0.076	0.000
Arrived 2004-6	-0.024	0.044	-0.033	0.068	-0.062	0.018	-0.110	0.000
Arrived 2007-9	-0.030	0.009	0.003	0.893	-0.078	0.002	-0.120	0.000
Arrived 2010-11	-0.030	0.021	0.004	0.837	-0.099	0.001	-0.117	0.000
Speaks English very well	-0.040	0.000	-0.016	0.258	0.015	0.443	-0.001	0.799
Speaks English well	-0.022	0.034	0.006	0.682	0.051	0.012	0.037	0.000
Does not speak English well	-0.064	0.000	-0.001	0.956	-0.009	0.765	-0.020	0.007
Does not speak English at all well	-0.092	0.041	0.013	0.621	0.004	0.969	-0.055	0.019
Aged 25-34	0.144	0.000	0.050	0.000	0.060	0.066	0.088	0.000
Aged 35-44	0.204	0.000	0.103	0.000	0.051	0.152	0.132	0.000
Aged 45-54	0.302	0.000	0.134	0.000	0.077	0.056	0.157	0.000
Aged 55-64	0.369	0.000	0.149	0.000	0.135	0.009	0.192	0.000
GCSEs or equivalent	-0.033	0.006	0.000	0.969	-0.036	0.128	-0.040	0.000
A Levels/Apprenticeship	0.006	0.630	-0.019	0.157	-0.034	0.232	-0.049	0.000
Degree	-0.043	0.000	-0.078	0.000	-0.120	0.000	-0.066	0.000
Other qualification	-0.009	0.491	0.004	0.699	-0.011	0.605	-0.013	0.025
South/East England	-0.045	0.000	-0.224	0.000	-0.032	0.066	-0.026	0.000
Midlands	-0.048	0.000	-0.238	0.000	-0.095	0.000	-0.014	0.004
North England	-0.064	0.000	-0.242	0.000	-0.076	0.000	0.012	0.011
Wales/South West	-0.038	0.000	-0.217	0.000	0.004	0.875	-0.024	0.000
Married/Civil Partnership	0.000	0.986	0.051	0.000	0.022	0.292	0.028	0.000
Widowed/Divorced/Separated	0.000	0.984	0.052	0.000	0.062	0.024	0.030	0.000
1 dependent child	0.007	0.498	0.005	0.587	0.033	0.136	-0.004	0.465
2 dependent children	0.029	0.009	0.019	0.113	0.024	0.289	0.008	0.139
3+ dependent children	0.040	0.017	0.061	0.007	0.044	0.193	0.073	0.000
Dependent Children N/A	0.014	0.087	-0.009	0.259	0.043	0.049	-0.003	0.569
Pseudo R-Squared	0.051		0.178		0.033		0.052	
Number of Observations	16,358		19,029		4,202		65,395	

Notes: Default categories are arrived before 1990, main language is English, aged 16-24, no qualifications, lives in London, single and no dependent children.

Table 7: Estimates of the Probability of Self-Employment for Women by Migrant Category

	Old-EU		New-EU		Other Europe		Outside Europe	
	M.E.	p-value	M.E.	p-value	M.E.	p-value	M.E.	p-value
Arrived in 1990s	0.000	0.961	-0.003	0.845	-0.035	0.045	-0.011	0.004
Arrived 2000-3	-0.005	0.641	-0.003	0.835	-0.032	0.139	-0.043	0.000
Arrived 2004-6	0.005	0.649	-0.021	0.106	-0.037	0.078	-0.037	0.000
Arrived 2007-9	0.004	0.696	0.013	0.383	-0.004	0.872	-0.034	0.000
Arrived 2010-11	0.010	0.451	0.018	0.298	0.007	0.831	-0.024	0.000
Speaks English very well	0.013	0.047	-0.006	0.524	-0.028	0.055	-0.011	0.006
Speaks English well	0.012	0.252	0.016	0.100	-0.012	0.517	0.015	0.001
Does not speak English well	-0.011	0.598	0.019	0.117	0.002	0.959	0.036	0.000
Does not speak English at all well	-0.046	0.301	0.005	0.817	-0.009	0.905	0.004	0.855
Aged 25-34	0.027	0.042	0.010	0.233	0.043	0.179	0.034	0.000
Aged 35-44	0.088	0.000	0.043	0.000	0.056	0.108	0.061	0.000
Aged 45-54	0.125	0.000	0.044	0.002	0.122	0.006	0.077	0.000
Aged 55-64	0.162	0.000	0.091	0.000	0.159	0.005	0.091	0.000
GCSEs or equivalent	-0.036	0.000	-0.025	0.004	0.073	0.111	-0.037	0.000
A Levels/Apprenticeship	0.004	0.746	-0.036	0.000	0.160	0.004	-0.021	0.001
Degree	0.016	0.144	-0.035	0.000	0.102	0.001	-0.008	0.167
Other qualification	0.003	0.809	-0.005	0.526	0.208	0.000	0.002	0.731
South/East England	-0.028	0.000	-0.122	0.000	-0.013	0.384	-0.003	0.342
Midlands	-0.048	0.000	-0.125	0.000	-0.079	0.000	-0.023	0.000
North England	-0.041	0.000	-0.122	0.000	-0.077	0.000	-0.002	0.708
Wales/South West	-0.005	0.544	-0.113	0.000	-0.038	0.058	0.005	0.360
Married/Civil Partnership	0.021	0.003	0.023	0.001	-0.014	0.472	0.029	0.000
Widowed/Divorced/Separated	0.013	0.162	0.034	0.000	-0.003	0.903	0.006	0.295
1 dependent child	0.010	0.220	0.025	0.001	0.019	0.318	0.000	0.927
2 dependent children	0.051	0.000	0.073	0.000	0.055	0.018	0.022	0.000
3+ dependent children	0.079	0.000	0.146	0.000	0.059	0.161	0.038	0.000
Dependent Children N/A	0.012	0.115	-0.001	0.910	-0.014	0.439	0.019	0.000
Pseudo R-Squared	0.038		0.107		0.040		0.021	
Number of Observations	16,240		17,800		3,159		51,077	

Notes: Default categories are arrived before 1990, main language is English, aged 16-24, no qualifications, lives in London, single and no dependent children.

Table 8: Estimates of the Probability of Having Employees by Migrant Category

	Old-EU		New-EU		Other Europe		Outside Europe	
	M.E.	p-value	M.E.	p-value	M.E.	p-value	M.E.	p-value
Arrived in 1990s	0.010	0.555	-0.033	0.108	0.030	0.399	-0.034	0.000
Arrived 2000-3	-0.017	0.517	-0.077	0.000	-0.012	0.800	-0.039	0.001
Arrived 2004-6	-0.028	0.248	-0.094	0.000	-0.002	0.965	-0.080	0.000
Arrived 2007-9	-0.005	0.859	-0.077	0.000	-0.085	0.070	-0.113	0.000
Arrived 2010-11	-0.066	0.015	-0.085	0.000	0.017	0.816	-0.080	0.000
Speaks English very well	-0.016	0.299	-0.006	0.711	0.078	0.021	0.043	0.000
Speaks English well	-0.014	0.526	-0.004	0.816	0.075	0.030	0.050	0.000
Does not speak English well	-0.035	0.461	-0.030	0.091	0.029	0.578	0.053	0.002
Does not speak English at all well	0.268	0.162	-0.006	0.867	0.018	0.921	0.122	0.057
Aged 25-34	-0.026	0.582	-0.023	0.187	0.016	0.809	-0.073	0.004
Aged 35-44	0.015	0.755	-0.020	0.276	0.023	0.751	-0.062	0.018
Aged 45-54	0.025	0.626	-0.017	0.418	0.041	0.586	-0.075	0.004
Aged 55-64	0.022	0.680	-0.009	0.742	0.080	0.381	-0.064	0.015
GCSEs or equivalent	-0.053	0.020	-0.001	0.951	-0.033	0.415	-0.003	0.784
A Levels/Apprenticeship	-0.024	0.324	-0.021	0.260	-0.054	0.248	-0.029	0.046
Degree	0.016	0.503	-0.028	0.059	-0.092	0.015	0.015	0.195
Other qualification	0.011	0.644	-0.038	0.004	-0.045	0.197	-0.009	0.428
South/East England	-0.017	0.240	-0.018	0.123	-0.029	0.325	-0.012	0.165
Midlands	-0.013	0.544	0.028	0.115	-0.060	0.251	0.004	0.700
North England	-0.006	0.748	0.010	0.570	0.002	0.958	0.008	0.411
Wales/South West	-0.008	0.690	0.009	0.656	-0.036	0.365	-0.019	0.169
Married/Civil Partnership	0.068	0.000	-0.004	0.740	0.024	0.503	0.086	0.000
Widowed/Divorced/Separated	0.044	0.054	0.014	0.386	0.041	0.351	0.049	0.001
1 dependent child	0.039	0.054	0.026	0.059	0.026	0.490	0.023	0.028
2 dependent children	0.030	0.141	0.004	0.803	0.087	0.028	0.047	0.000
3+ dependent children	0.133	0.000	0.044	0.107	0.068	0.238	0.037	0.002
Dependent Children N/A	-0.014	0.430	-0.003	0.805	-0.053	0.138	0.018	0.129
Female	-0.068	0.000	-0.016	0.173	-0.117	0.000	-0.057	0.000
Part-time	-0.156	0.000	-0.091	0.000	-0.093	0.000	-0.146	0.000
Pseudo R-Squared	0.120		0.053		0.160		0.106	
Number of Observations	4,962		7,098		1,636		20,528	

Notes: Default categories are arrived before 1990, main language is English, aged 16-24, no qualifications, lives in London, single and no dependent children. Controls for industrial sector have also been included. In particular, 15 dummies from the 21 SIC 2007 sections have been included in the probit models for each of the four categories. A smaller number of categories have been included in comparison to Table 5 because of the need to combine the smaller industrial sections for some of the categories.

Appendix

Construction of Migrant Groups and Categories

The following categories can be identified in the SARs in terms of the respondents' countries of birth.

Code	Country/Region of Birth
1	England
2	Scotland
3	Northern Ireland
4	Wales
5	United Kingdom not otherwise specified
6	Ireland
7	Germany
8	Poland
9	EU countries: Member countries in March 2001
10	EU countries: Accession countries April 2001 to March 2011
11	Rest of Europe
12	North Africa
13	Central and Western Africa
14	South and Eastern Africa
15	Africa not otherwise specified
16	Middle East
17	Eastern Asia
18	Southern Asia: Bangladesh
19	Southern Asia: India
20	Southern Asia: Pakistan
21	Rest of Southern Asia
22	South-East Asia
23	Central Asia
24	North America and the Caribbean
25	Central and South America
26	Antarctica, Oceania (including Australasia) and other

These codes were then used to construct the following groups as a result of sample sizes and geographical considerations.

Migrant Group	SARs Codes
UK	1, 2, 3, 4, 5
Ireland	6
Old-EU	7, 9
New-EU	8, 10
Other Europe	11
Africa	12, 13, 14, 15
India	19
Pakistan	20

Bangladesh	18
Other Asia	16, 17, 21, 22, 23
North America and Caribbean	24
Central and South America	25
Oceania	26

Migrant Category	SARs Codes
Old-EU	6, 7, 9
New-EU	8, 10
Other Europe	11
Outside Europe	12-26

Table A1: Labour Market Statistics by Country/Region of Birth, 2011

	Males				Females			
	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate
UK	82.2	76.2	80.5	8.3	73.0	69.2	72.2	6.3
Ireland	80.0	74.8	76.9	7.0	70.8	67.9	69.9	4.5
Old-EU	80.8	76.1	85.9	7.3	72.4	68.5	76.0	6.9
New-EU	89.5	85.9	91.0	4.9	80.1	75.7	79.1	6.3
Other Europe	76.5	71.0	79.1	8.5	55.9	50.3	55.5	12.1
Africa	81.4	73.5	78.5	12.2	68.5	61.5	64.7	13.2
India	83.6	80.1	85.5	6.7	64.1	59.0	60.6	9.5
Pakistan	78.3	72.3	77.0	10.4	29.9	24.4	23.8	20.7
Bangladesh	81.4	73.7	75.6	11.8	32.7	26.2	25.0	23.2
Other Asia	68.2	63.0	78.3	10.2	55.8	51.6	60.9	10.1
North America & Caribbean	79.5	72.3	78.8	10.3	70.4	65.4	70.7	8.4
Central & South America	81.6	76.7	84.8	7.8	70.3	65.5	70.1	8.3
Oceania	90.7	87.7	91.5	3.9	83.2	80.4	83.7	3.8
All Countries of Birth	81.9	76.0	80.7	8.4	71.6	67.6	70.9	6.8

Table A2: Estimates of Self-Employment Probabilities from Pooled Models

	Male			Female			With Employees		
	Mean	M.E.	p-value	Mean	M.E.	p-value	Mean	M.E.	p-value
Ireland	0.006	0.036	0.000	0.007	-0.013	0.002	0.008	0.047	0.000
Old-EU	0.019	-0.031	0.000	0.021	0.017	0.000	0.019	-0.009	0.212
New-EU	0.029	0.070	0.000	0.031	0.063	0.000	0.038	-0.019	0.001
Other Europe	0.006	0.070	0.000	0.005	0.038	0.000	0.009	0.061	0.000
Africa	0.028	-0.017	0.000	0.028	-0.005	0.015	0.029	0.038	0.000
India	0.016	-0.015	0.000	0.013	0.000	0.942	0.014	0.067	0.000
Pakistan	0.011	0.152	0.000	0.004	0.050	0.000	0.016	0.020	0.015
Bangladesh	0.005	0.004	0.575	0.002	-0.015	0.050	0.004	0.147	0.000
Other Asia	0.023	0.010	0.003	0.022	0.022	0.000	0.027	0.094	0.000
North America & Caribbean	0.009	-0.029	0.000	0.011	0.003	0.327	0.010	-0.016	0.089
Central & South America	0.003	-0.028	0.000	0.004	0.022	0.000	0.004	-0.036	0.017
Oceania	0.005	0.013	0.058	0.006	0.021	0.000	0.006	-0.030	0.013
Aged 25-34	0.236	0.091	0.000	0.233	0.042	0.000	0.174	-0.002	0.714
Aged 35-44	0.253	0.159	0.000	0.255	0.086	0.000	0.271	0.018	0.003
Aged 45-54	0.244	0.199	0.000	0.259	0.102	0.000	0.293	0.020	0.001
Aged 55-64	0.164	0.257	0.000	0.148	0.142	0.000	0.219	0.008	0.215
0-4 GCSEs or equivalent	0.143	-0.024	0.000	0.148	-0.006	0.000	0.139	-0.002	0.594
5+ GCSEs or equivalent	0.146	-0.029	0.000	0.184	-0.001	0.553	0.143	-0.007	0.062
Apprenticeship	0.059	0.020	0.000	0.010	0.136	0.000	0.061	-0.020	0.000
2+ A Levels or equivalent	0.137	-0.030	0.000	0.145	0.010	0.000	0.128	-0.009	0.017
Degree	0.343	-0.062	0.000	0.379	0.019	0.000	0.336	0.026	0.000
Other qualification	0.063	-0.025	0.000	0.046	0.017	0.000	0.069	-0.004	0.437
North West	0.120	0.035	0.000	0.123	0.013	0.000	0.106	-0.018	0.002
Yorkshire & the Humber	0.092	0.035	0.000	0.091	0.015	0.000	0.081	-0.020	0.000
East Midlands	0.081	0.035	0.000	0.081	0.021	0.000	0.073	-0.024	0.000
West Midlands	0.096	0.042	0.000	0.096	0.017	0.000	0.088	-0.034	0.000
East of England	0.109	0.064	0.000	0.107	0.034	0.000	0.111	-0.038	0.000
Inner London	0.063	0.122	0.000	0.062	0.092	0.000	0.076	-0.034	0.000
Outer London	0.090	0.113	0.000	0.089	0.049	0.000	0.108	-0.041	0.000
South East	0.160	0.072	0.000	0.159	0.042	0.000	0.172	-0.047	0.000
South West	0.095	0.075	0.000	0.097	0.052	0.000	0.106	-0.045	0.000
Wales	0.051	0.047	0.000	0.052	0.021	0.000	0.048	-0.018	0.005
Married	0.505	-0.002	0.154	0.489	0.020	0.000	0.577	0.077	0.000
Civil Partnership	0.003	-0.001	0.859	0.003	0.060	0.000	0.004	0.054	0.003
Separated	0.026	0.004	0.214	0.036	0.001	0.507	0.031	0.044	0.000
Divorced	0.079	0.014	0.000	0.113	0.004	0.018	0.104	0.030	0.000
Widowed	0.006	-0.005	0.434	0.016	0.001	0.828	0.011	0.088	0.000
1 dependent child	0.159	0.011	0.000	0.197	0.008	0.000	0.162	0.022	0.000
2 dependent children	0.145	0.022	0.000	0.156	0.028	0.000	0.163	0.037	0.000
3+ dependent children	0.055	0.062	0.000	0.048	0.052	0.000	0.070	0.057	0.000
Dependent Children N/A	0.203	-0.008	0.000	0.155	0.012	0.000	0.178	0.007	0.033
Female	-	-	-	-	-	-	0.299	-0.017	0.000

Part-time	-	-	-	-	-	-	0.284	-0.144	0.000
Mining & Quarrying	-	-	-	-	-	-	0.001	-0.100	0.000
Manufacturing	-	-	-	-	-	-	0.056	0.005	0.439
Electricity, Gas etc	-	-	-	-	-	-	0.002	-0.086	0.000
Water Supply; Sewerage etc	-	-	-	-	-	-	0.003	0.022	0.208
Construction	-	-	-	-	-	-	0.220	-0.079	0.000
Wholesale and Retail	-	-	-	-	-	-	0.118	0.071	0.000
Transportation and Storage	-	-	-	-	-	-	0.061	-0.068	0.000
Accommodation and Food	-	-	-	-	-	-	0.045	0.265	0.000
Information and Comm.	-	-	-	-	-	-	0.047	-0.088	0.000
Financial and Insurance	-	-	-	-	-	-	0.023	-0.047	0.000
Real Estate	-	-	-	-	-	-	0.016	0.034	0.001
Professional Sci. & Tech.	-	-	-	-	-	-	0.101	0.001	0.862
Administrative and Support	-	-	-	-	-	-	0.064	-0.028	0.000
Public Admin. & Defence	-	-	-	-	-	-	0.010	-0.095	0.000
Education	-	-	-	-	-	-	0.051	-0.087	0.000
Health and Social Work	-	-	-	-	-	-	0.067	0.034	0.000
Arts & Entertainment	-	-	-	-	-	-	0.035	-0.103	0.000
Other Service Activities	-	-	-	-	-	-	0.052	0.013	0.089
Households as Employers	-	-	-	-	-	-	0.002	-0.126	0.000
Extra-Territorial Orgs	-	-	-	-	-	-	0.000	-0.071	0.102
Pseudo R-squared		0.034			0.034			0.081	
Number of Observations		656,518			579,926			186,833	

Note: Table reports marginal effects (calculated at sample means) and p-values (calculated using robust standard errors).

Table A3: Means of Explanatory Variables by Migrant Category

	Old-EU		New-EU		Other Europe		Outside Europe	
	Men	Women	Men	Women	Men	Women	Men	Women
Arrived before 1990	0.099	0.116	0.012	0.015	0.095	0.088	0.221	0.247
Arrived in 1990s	0.213	0.248	0.032	0.046	0.400	0.330	0.236	0.210
Arrived 2000-3	0.118	0.124	0.070	0.084	0.142	0.143	0.165	0.163
Arrived 2004-6	0.173	0.164	0.426	0.397	0.147	0.184	0.163	0.178
Arrived 2007-9	0.228	0.198	0.320	0.341	0.152	0.172	0.151	0.145
Arrived 2010-11	0.168	0.149	0.139	0.117	0.064	0.083	0.063	0.055
English is main language at home	0.570	0.574	0.103	0.138	0.331	0.429	0.573	0.639
Speaks English very well	0.284	0.309	0.204	0.284	0.298	0.339	0.189	0.172
Speaks English well	0.121	0.098	0.449	0.382	0.282	0.170	0.182	0.141
Does not speak English well	0.023	0.017	0.223	0.178	0.083	0.056	0.053	0.043
Does not speak English at all well	0.002	0.002	0.022	0.019	0.006	0.004	0.004	0.004
Aged 16-24	0.068	0.099	0.120	0.149	0.058	0.064	0.045	0.047
Aged 25-34	0.405	0.398	0.566	0.557	0.414	0.414	0.312	0.299
Aged 35-44	0.328	0.304	0.209	0.171	0.329	0.302	0.334	0.323
Aged 45-54	0.138	0.137	0.079	0.091	0.158	0.168	0.207	0.228
Aged 55-64	0.061	0.062	0.025	0.033	0.041	0.053	0.103	0.103
No qualifications	0.064	0.042	0.140	0.119	0.215	0.089	0.183	0.143
GCSEs or equivalent	0.083	0.078	0.138	0.126	0.136	0.100	0.162	0.175
A Levels/Apprenticeship	0.073	0.080	0.068	0.065	0.062	0.075	0.062	0.070
Degree	0.494	0.554	0.189	0.297	0.298	0.509	0.331	0.396
Other qualification	0.286	0.246	0.464	0.393	0.290	0.228	0.261	0.216
London	0.553	0.506	0.315	0.328	0.578	0.573	0.429	0.447
South/East England	0.224	0.267	0.242	0.262	0.198	0.206	0.184	0.209
Midlands	0.064	0.062	0.175	0.160	0.063	0.067	0.161	0.146
North England	0.090	0.091	0.169	0.153	0.100	0.088	0.177	0.137
Wales/South West	0.069	0.074	0.098	0.098	0.060	0.066	0.049	0.061
Single	0.548	0.535	0.496	0.478	0.253	0.252	0.185	0.163
Married/Civil Partnership	0.381	0.367	0.422	0.377	0.623	0.580	0.757	0.695
Widowed/Divorced/Separated	0.072	0.098	0.082	0.145	0.123	0.168	0.059	0.142
No dependent children	0.290	0.326	0.300	0.367	0.244	0.355	0.247	0.345
1 dependent child	0.125	0.158	0.174	0.218	0.188	0.217	0.180	0.223
2 dependent children	0.111	0.124	0.094	0.095	0.195	0.156	0.184	0.178
3+ dependent children	0.040	0.038	0.025	0.022	0.070	0.037	0.143	0.082
Dependent Children N/A	0.434	0.354	0.407	0.298	0.303	0.235	0.247	0.172
Number of Observations	16,358	16,240	19,029	17,800	4,202	3,159	63,395	51,077