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IMMIGRATION, IN-MIGRATION, ETHNICITY AND ENTREPRENEURSHIP IN THE UNITED KINGDOM

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Abstract

This paper develops and tests hypotheses concerning the effect of migrant status and ethnicity on propensity to engage in entrepreneurship (defined as new business activity) at the individual level in the UK. It uses a database of 40,000 working age adults collected in 2003 and 2004. The hypotheses are tested using bivariate analysis (Pearson tests of independence) and multivariate analysis (binary logistic regression). Bivariate analysis suggests that new business activity varies with migrant status and ethnicity. Multivariate analysis suggests that migration increases the odds of engaging in new business activity, that the independent effect of ethnicity is marginal, and that being a recent ethnic minority migrant decreases the odds, after controlling for other individual level factors. At the regional level, a preliminary analysis suggests that gross migration flows, or migration churn, has a higher correlation with new business activity than other commonly-used regional demographic or economic development measures.

JEL Classifications: F22, J15, M13, O18, O52

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1. Introduction

This paper examines the effect of origin (migrant status) and ethnicity on propensity to engage in entrepreneurship (defined as new business activity) in the UK. Three broad categories of origin are recognized in the paper: *life-long residents* i.e. those who were born in a region and never left it, *in-migrants* i.e. those who have re-located home from another region of the UK and *immigrants* i.e. those who have re-located from outside the UK. *Ethnic minority* individuals are distinguished from those from the *ethnic majority*, on the basis of commonly accepted socially or culturally distinctive categories they identify themselves with (Aldrich and Waldinger, 1990, Connolly, 2002). These categories have labels that may refer to ancestral, rather than personal, geographical origin (e.g. Asian) or skin colour (e.g. Black) or both (e.g. Black Caribbean). In the UK, the commonly accepted ethnic majority, and the label used in UK ethnic minority studies, is White (Ram and Smallbone, 2001, p.13).

Ethnic minority entrepreneurship in the UK has attracted considerable attention from sociologists and others (Waldinger, Aldrich and Ward, 1990, Ram and Jones, 1998; Barrett, Jones and McEvoy, 2001). Previous empirical research suggests that ethnic minorities are over-represented among start-up entrepreneurs in the UK (Bank of England, 1999) and the US (Kim, Aldrich and Keister, 2003). However, many ethnic minority entrepreneurs are also immigrants. This raises the question: which has the greater effect on propensity to engage in new business activity: origin or ethnicity? The role of human in-migration and immigration in new business activity in the UK is under-researched. Migrant entrepreneurs have been neglected by economic geographers (Williams, Balaz and Wallace, 2004) and tend to be measured indirectly (see Reynolds, Storey and Westhead, 1994, p.446). Exceptions include Keeble (1989) and Keeble and Tyler (1995). However, even in these works, in-migrants from elsewhere in the UK are not distinguished from immigrants from abroad.

This emphasis on ethnicity rather than on origin is reflected in government reports. For example, a recent Small Business Service review of UK small business and entrepreneurship research makes no mention of in-migrants, migrants or immigrants, but mentions the word "ethnic" 34 times (Small Business Service, 2004). Similarly, a review of migration policy for the UK Government Home Office in 2001 largely

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neglected immigrant entrepreneurship, citing anecdotal data in the popular press (Glover, Gott, Loizillon, Portes, Price, Spencer, Srinivasan and Willis, 2001, p.32). Yet some studies suggest that migration may be very important to local levels of entrepreneurship. For example, Keeble (1989) found that 70% of Cambridge (UK) area high technology entrepreneurs were not from the local area, and Keeble and Tyler (1995, p.984) in a large scale cross-England study found that "most rural new-firm founders are in-migrants from elsewhere".

Human migration is a significant economic issue for governments, particularly in Europe, given the aging demographics of some European countries. Indeed, Florida (2002) argues that the location decisions of creative people drive economic development in the knowledge-based economy. Florida's work focuses on cities. However, the issue of regional and rural regeneration is also important and highly sensitive in many countries. Policy decisions need to be made that balance national and regional economic development, social harmony and security issues. Policy makers need data on the activities of both in-migrants and immigrants on which to base these decisions.

One UK example illustrates this general point. Policies have recently been formulated to restrict immigration to the UK (Naughton, 2005). This conflicted with efforts by the regional government of Scotland, faced with predictions of a declining population, to actively attract immigrants (MacDonnell and Peev, 2005). The Scottish regional government began actively seeking to attract immigrants in February 2004 with a programme called "New Scots: attracting fresh talent to meet the challenge of growth" that aimed to

> "reverse the population decline that threatens our future prosperity, through a modern scheme of managed migration." (Scottish Executive, 2004, p.1)

In the "New Scots" policy document, no explicit distinction was drawn between immigrants from outside the UK and in-migrants from the rest of the UK. The only reference to in-migrants was in a chapter on education in which the retention of university students originating from the rest of the UK was mentioned. Yet evidence from Global Entrepreneurship Monitor Scotland surveys suggests that in-migrants contribute 4 to 5 times as much new business activity in Scotland as immigrants

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(Levie, Carter and Currie, 2005). The implication of this is that in-migrants from within the UK may be a more effective target for attraction than immigrants.

This paper builds on existing conceptual (Williams et al., 2004) and case-based and small-scale quantitative research on ethnicity, migration, and entrepreneurship in the UK (Ram and Smallbone, 2001; Basu and Altinay, 2002). Because many immigrants are also from an ethnic minority, immigrant and ethnic entrepreneurship is often conflated in research. Indeed, Ram and Smallbone (loc. cit., p.18) point out that a majority of ethnic majority business studies in the UK have in fact been studying immigrant entrepreneurs who were from ethnic minorities. It is difficult in qualitative studies to separate out the relative importance of being an immigrant and being a member of an ethnic minority group to propensity to engage in new business activity. Quantitative surveys at the firm, rather than the individual, level, (e.g. Keeble and Tyler, 1995), while suggestive of an association between migrant status and new business activity, do not answer this question either.

As outlined in more detail in the next section, these three streams of literature: conceptual, qualitative and quantitative, prompt several questions for further research. Why should different migrant and ethnic groups differ in their propensity to engage in new business activity? What is the relative contribution of these different groups to new business activity at a national and regional level, and if it differs, why? Answering these questions could result in better informed local economic development practice and national immigration policies.

The large scale empirical approach of this study enables estimation of the relative contribution of life-long residents, in-migrants and immigrants, of different ethnicity to new business activity rates in the UK at a national and a regional level. Two stratified random samples of around 20,000 working age adults, the Global Entrepreneurship Monitor UK 2003 and 2004 databases, are combined to tease out the relationships between migrant status, ethnicity and new business activity at the individual level, while controlling for other individual-level variables that previous research has shown to affect propensity to engage in new business activity, including age group, gender, education, work status, income, and entrepreneurial beliefs (Reynolds, Bygrave, Autio and others, 2004; Harding, 2004).

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In the next section, the literature is used as a guide to generate hypotheses around these questions. The methodology section describes the sampling system employed and how the samples were analysed. In the results section, the results of the statistical tests of the hypotheses are reported. In the analysis section, the results are interpreted both in terms of statistical and substantive significance. In the conclusion section, the implications of this interpretation are discussed, for entrepreneurial and non-entrepreneurial life-long residents, in-migrants and immigrants, for national and regional governments, and for further research.

2. Literature Review and Hypotheses

2.1 Introduction

In this section, the relative propensity to engage in new business activity of individuals that vary by origin and that vary by ethnicity is deduced. Following the literature on employment/self employment decision-making and immigrant and ethnic entrepreneurship, four factors are proposed to affect propensity to engage in new business activity: relative advantage in the labour market, ease of resource acquisition for new business activity, market opportunity perception, and attitude towards and experience of new business activity. It is proposed that the level of each of these factors can vary among individuals of different origin, time in region, and ethnicity. The individual and combined effect of these factors on individuals with different combinations of these attributes is discussed in turn below, starting with origin, then time in region, and finally ethnicity. From this theoretical discussion, hypotheses are deduced that predict the relative propensity to engage in new business activity by different individuals grouped by origin, time in region and ethnicity.

2.2 Origin and new business activity

Migration is an outcome of a range of factors, and there is no one model of migration that encompasses all of these (Stimson and Minnery, 1998). However, the most frequently cited model is the human capital model, in which migrants move because they perceive the economic benefits of moving to be greater than those of staying put (Williams et al., 2004). In the UK, most immigrants are indeed economic migrants. Many family immigrants, i.e. those who migrate to join relatives, are effectively

economic immigrants. Most of the remainder are political migrants, including refugees (Dudley, Roughton, Fidler and Woollacott, 2005). In addition, the UK admits a large number of educational migrants, some of whom may stay on after their studies. The UK tends to attract highly educated and skilled immigrants on the one hand and poorer, less-educated individuals on the other; the latter enter mainly through family connections (Buchel and Frick, 2004).

Motives for in-migration from one region to another within the UK are similar to immigration, but different to motives for local moves. For example, in one study of English migrants to Scottish towns, 73% of respondents offered employment as their dominant motivation for moving if their most recent move was from England to Scotland (Findlay, Stockdale, Hoy and Higgins, 2003). However, only 25% of all English born respondents in the Scottish survey said their most recent move was for employment reasons. Moves with lifestyle rather than economic well-being as a dominant reason are more likely to feature in regional urban-rural shifts, which have become the dominant trend in regional migration in the UK (Keeble and Tyler, 1995; Short and Stockdale, 1999; Countryside Agency, 2004).

Linking the human capital model to new business activity, several theories have been presented in the literature to explain differential entry rates for employment versus engaging in new business activity among different migrant groups. One is the theory of the disadvantaged worker (Light, 1972, 1979), which has some similarities to Shapero's (1975) notion of the displaced, uncomfortable entrepreneur. This theory suggests that migrant groups might be discriminated against in the local labour market because they are outsiders, or simply be uncompetitive because of poor language or education skills, or unrecognized qualifications and experience, or lack of knowledge of the local labour market, and thus be pushed into self-employment as the best hope of maximizing their income, given their skills and aspirations. Immigrants might face more disadvantage than in-migrants on some but not all of these dimensions. For example, controlling for education, they are more likely to face disadvantage on the basis of poor language and unrecognized qualifications.

There is empirical evidence that immigrant job search in the UK is less successful than that of UK-born individuals (Frijters, Shields and Price, 2005). Recent

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interpretations of the labour market disadvantage theory suggest that migrants are not, in general, driven to entrepreneurship through lack of an alternative way of making a living. Rather, they realize that they cannot get a job that fits their qualifications and experience (Basu and Altinay, 2002; Min and Bozorgmehr, 2003).

Another second factor that might be different for individuals of different migrant status is the ability to marshall the resources needed to exploit a perceived market opportunity. Social relationships are to some extent locked into particular places (Allen et al., 1998). Individuals new to a local area may not know or be known by sources of resources such as labour, capital, non-capital assets, and customers. Individuals new to the UK may not be familiar with regulations and incentives for new business activity and with the norms of doing business in the UK. In terms of this second factor, life-long residents face no disadvantage in marshalling resources, in-migrants will face some disadvantage and immigrants will face most disadvantage.

A third factor that may vary among individuals of different migrant status is perception of new market opportunities. Some authors argue that migrants, having come from elsewhere, and often with specialist skills, see the world differently to life-long residents, and as a result see a wider set of opportunities in their local area (Min and Bozorgmehr, 2003). The notion of entrepreneurs as outsiders bringing different perspectives is well-established (Owens and Gwyther, 2001; Roddick, 2002). Migrants can take advantage of trade contacts in their society of origin. Among immigrants, this aspect has been given a distinct label: transnational entrepreneurship (Portes, Haller and Guarnizo, 2002, Morawska, 2004).

A fourth factor acting on individuals of different migrant status is attitudes towards new business activity. First, since these migrants have taken a bold decision to move a long distance, they may be less risk-averse than their stay-at-home peers. Second, they may be more confident of their own human capital and ability to succeed in a new, uncertain environment. This line of thinking suggests that attitudes to new business activity might be greatest among those who have come farthest. Therefore, immigrants may be more positively disposed to new business activity than life-long residents and in-migrants, while in-migrants may be more positively disposed to new business activity than life-long residents.

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Combining these four factors, it is apparent that life-long residents have no labour market disadvantage, no resource disadvantage, no opportunity perception advantage, and no attitude advantage. They represent a base level of propensity to engage in new business activity, against which groups of different origin can be compared. In-migrants face some labour market disadvantage, some resource disadvantage, some opportunity perception advantage, and some attitude advantage. If these factors were equally important, in-migrants have three factors propelling them to self-employment and one factor propelling them to employment, relative to life-long residents. Thus on balance one would expect in-migrants to have a higher propensity to engage in new business activity than life-long residents.

> Hypothesis 1: In-migrants have a greater propensity to engage in new business activity than life-long residents.

Immigrants face higher labour market disadvantage, higher opportunity perception advantage, higher resource disadvantage, and greater attitude advantage. Therefore they would be expected to have a higher propensity to engage in new business activity than life-long residents, and, possibly, in-migrants.

> Hypothesis 2: Immigrants have a greater propensity to engage in new business activity than life-long residents.
> Hypothesis 3: Immigrants have a greater propensity to engage in new business activity than in-migrants.

2.3 Origin, time in region and new business activity

Because of their relative ignorance of local labour markets, recent migrants will face higher labour market disadvantage than life-long residents and established migrants. In addition, recent migrants may experience labour market disadvantage with greater frequency than others, for the following reason. People who migrate within a country are likely to be people who are changing jobs voluntarily. People who lose their jobs are less likely to migrate across regions than people who are changing jobs voluntarily (Yankow, 2003). Recently arrived migrants, therefore, are more likely to have recently taken a new job in the local area than established migrants or life long residents. According to Jovanovic's (1979) theory of job turnover, workers only learn

about job match quality when they experience the job itself. This is likely to be even more likely for a job that is in a new location, since the quality of information on a job decreases with the distance of a move (Yankow, 2003). Given that a proportion of new jobs do not match well, the proportion of people who are dissatisfied with their job should therefore be higher among recent migrants than among others. There is some empirical support for this argument from US data on in-migration, job change and wage growth (Yankow, 2003). There is also empirical evidence from the UK that recent immigrants do not effectively compete for jobs (Frijters et al., 2005).

Recent immigrants are less familiar than recent in-migrants with the way UK labour markets and new business resource markets operate as economic and social systems. That should give recent in-migrants an advantage over recent immigrants in a new region in the labour market. Recent in-migrants may also have the edge in resource acquisition, since business regulations, bank loan applications, etc. do not vary much across the UK. However, recent immigrants should also have greater opportunity perception and more favourable attitudes to new business activity than recent in-migrants, as deduced in the previous sub-section. Thus we would expect recent immigrants, like recent in-migrants, to be more likely to be pushed towards new business activity than life-long residents or established immigrants due to labour market disadvantage, but face bigger hurdles in starting a business due to resource disadvantage.

If the initial job match is successful, the recent migrant will build up a stock of job-related capital, thus increasing the attractiveness of employment over self-employment, lowering the frequency of exposure to labour market disadvantage over time. In addition, as in-migrants and immigrants become established and join local networks, they will face lower absolute levels of labour market disadvantage. Empirical evidence suggests that immigrants to the UK do become more successful in their job search over time (Frijters et al., 2005). The combination of lower frequency of exposure to labour market disadvantage and lower absolute labour market disadvantage should result in a much lower pressure to engage in new business activity from this factor on established as compared with recent migrants.

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For migrants, resource disadvantage relative to life-long residents should decline substantially over time, as they penetrate local networks for potential customers, labour, capital and other assets. This force would act to increase propensity to engage in new business activity. The other two factors, opportunity perception and attitudes to new business activity, should not differ substantially between recent and established migrants.

In summary then, recent migrants face much a much higher labour market disadvantage effect, which may only be partially counteracted by their resource acquisition disadvantage. The force of the labour market disadvantage may cause a temporary lift in new business activity rates among recent migrants, which diminishes with time in region, as set out by the following hypothesis:

> Hypothesis 4: Recent migrants have a higher propensity to engage in new business activity than other individuals.

Empirical support for this hypothesis is mixed. Reynolds and White (1997) found that in Wisconsin, migrants took some time (at least five years) to settle in before starting businesses. Harrison, Cooper and Mason (2004) also found that over 68% of founders of high technology firms studied in Ottawa had worked in the region for more than 10 years before setting up their firm. On the other hand, Delmar and Davidsson (2000), found the opposite trend in a study of factors predicting nascent entrepreneurship in Sweden, but like Reynolds and White, did not explicitly separate out life-long residents, in-migrants and immigrants. They noted that Swedish nascent entrepreneurs are (on average) more geographically mobile. Overall mobility among the resident population of Sweden was limited in contrast to the US, but at the same time, Delmar and Davidsson did "not find a "very strong over-representation of immigrants among the nascent entrepreneurs" (p.14). The results of a study on new, recent and established Russian immigrants in Israel, (Mesch and Czamanski, 1997), and a study on 163 ethnic immigrant entrepreneurs in London (Basu and Altinay, 2002) however, appear to support the labour market disadvantage theory and the hypothesis. Basu and Altinay quote "one typical TR (Turkish) respondent" as follows: "I came here in 1990 alone, I left my wife and children in Turkey, I knew only my best friend and started to work for him…First, I did not know the market going wages…I did not know English

and did not know where to go and how to find another job…but once I learnt the job and realized that he was paying me half of the normal wage then I told myself that's enough working for him and let's go and buy a shop for myself." (p.382).

2.4 Origin, time in region, and ethnicity

The four factors have relevance to ethnic minorities as well as for migrants (Waldinger, 1995). There is considerable research evidence that ethnic minorities, and particularly ethnic minority immigrants, face and feel discrimination in the UK labour market (Cabinet Office, 2003). In a survey commissioned by Barclays bank (2000), 41 percent of black business owners cited lack of employment opportunities as being the key reason for them taking up self-employment, versus 30 per cent for other business owners. Debate continues in the UK over whether ethnic minorities face racial discrimination in commercial lending (Bank of England, 1999; Ram, Smallbone and Deakins, 2002), and surveys of ethnic minority business owners return mixed results on the extent and effect of racial discrimination on their businesses (Barclays, 2000, 2005). Evidence from the US suggests that ethnic minority individuals may counter resource acquisition disadvantage by utilizing networks in ethnic minority "enclaves", although this solution can be suboptimal (Waldinger, 1995; Bates, 1994). While ethnic networks are also a source of jobs, they limit employment choice. Their higher experienced labour market disadvantage suggests that ethnic minorities would be more likely to be pushed into new business activity than ethnic majorities.

In summary, being a member of an ethnic minority confers an independent labour market disadvantage irrespective of migrant status or time in region.

> Hypothesis 5: Ethnic minority individuals have a higher propensity to engage in new business activity than ethnic majority individuals.

Recent surveys suggest that ethnic minority individuals appear to be over-represented among the UK population of those who are seriously thinking about starting or buying a business or becoming self-employed (61% versus 52%), but appear to have the same rate of self-employment and business ownership (Small Business Service, 2003, p.38; Cabinet Office, 2003, p.24. These surveys do not however control for other factors that might explain the reason for the difference in nascent entrepreneurship rates.

While ethnic minorities, on average, may have a higher propensity to engage in new business activity, this may not be true of recent migrants. The push into self-employment experienced by recent migrants in general, proposed in hypothesis 4, is driven by the shock of facing disadvantage in the labour market. But for ethnic minorities, labour market disadvantage is a given; ethnic minority individuals face it whether they migrate or not. Arguably what ethnic minority individuals do face that is different when they migrate is additional resource disadvantage, due to loss of social networks, and confrontation with new resource networks dominated by an ethnic majority. It therefore may take time for potential ethnic minority entrepreneurs to enter and cultivate new spatial social networks, to acquire resources and customers.

The literature on immigration and ethnicity (e.g. Waldinger, 1995) supports this additional resource disadvantage argument, and suggests that connection with wider social networks might take longest for ethnic minority immigrants, who tend to settle initially in ethnic enclaves. Thus we might expect recently arrived ethnic minority migrants, and especially immigrants, to be at a higher resource disadvantage than recently arrived ethnic majority migrants.

This proposed temporary dampening effect on potential business startup rates for recently arrived ethnic minority migrants is consistent with case-based research on first generation ethnic minority entrepreneurs, who are more likely to feel discriminated against or be suspicious of local commercial networks than their white counterparts (see Ram and Smallbone, 2001 for a review). It is also consistent with the difficulties that immigrant ethnic minority entrepreneurs can face in adapting to a new country as described by Ley (2001). In Sweden, perceived membership of an established business network has been found to be a key factor in organizational emergence (Honig and Davidsson, 2000). In the Turkish immigrant case quoted above, the respondent was reliant on one individual when he arrived in London; he needed time to learn English, time to learn that he was being exploited, and time to learn how to operate a business in London.

This discussion is summarized by the sixth hypothesis:

Hypothesis 6. Ethnic minority recent migrants do not have a higher propensity to engage in new business activity than established ethnic minority individuals.

This discussion suggests that there are complex relationships between new business activity, migration and ethnicity at a national and regional level. In addition to the issues discussed above, differences in other variables such as age, gender, education, and income might account for the differences in new business activity between people of different origin or ethnicity. For example, Kim et al. (2003) found in a US study that being foreign born or of foreign born parents had no significant effect on the odds of being a nascent entrepreneur, but that being Black or Asian did, after controlling for a range of financial and human capital resources. These hypotheses should ideally be tested while controlling for possible confounding variables. This requires a very large dataset and careful sample design.

On the other hand, if uncontrolled differences between new business activity rates and different ethnic/migrant combinations are found, these may be important and valuable in their own right, for example for regional planners. A regional planner may be more interested, for example, in the finding that in-migrants are a major source of new businesses in her region than by the fact that the in-migrants are more entrepreneurial because they have a different age/education/gender/beliefs combination.

2.5 Ethnic minority sub-groups

It is assumed up to this point that ethnic minorities are a homogenous group. However, research suggests that entrepreneurial and self-employment activity in the UK does vary by ethnic group (Basu and Altinay, 2002; Cabinet Office, 2003). It varies within Black groups and Asian groups, with some sub-groups having higher and some having lower rates than the White population. Another interesting group is composed of individuals of mixed ethnicity. With social networks in two ethnic groupings, typically white plus another, these individuals might face less discrimination in the labour market than other ethnic minority groups and benefit from a cross-over role in resource acquisition.

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Many of these subgroups are very small fractions of the UK population, and would only be picked up in sufficient numbers for statistical analysis in extremely large random surveys. This needs to be taken into account in interpreting the results.

2.6 Migration intensity and new business activity

A second set of questions relates to the effect of migration intensity on regional levels of entrepreneurial activity. The pattern of migration within the UK is complex. London is the most popular destination for immigrants entering the UK. It is also a magnet for young single workers from the rest of the UK. However, while the population of London is increasing, London has by far the strongest net outflow of people from any region to other parts of the UK, with a 53,000 net outflow in the census year 2000/2001. These are typically couples with young children relocating to other parts of southern England[1]. In the UK as a whole, there is a net immigration of people of working age and a net emigration of retired people, and net migration from urban to rural areas. These figures mask high gross flows of different groups in both directions.

What is the effect of high population churn on new business activity rates? Population churn, as opposed to net population flows, appears to have been neglected in the migration literature. Typically, migration is measured as net, rather than gross, migration (Keeble and Walker, 1994). However, the firm formation literature suggests that gross flows of new business starts and closures are highly correlated (Geroski, 1995). In other words, high rates of growth in the stock of new firms are accompanied by high churn rates. High firm churn regions are typically dynamic, prosperous regions (Reynolds, Storey and Westhead, 1994). It seems reasonable that churn of people is an integral part of this dynamism. For the same reason that business start rates and business death rates are highly correlated, it is suggested that higher churn of people increases the scope for new combinations in the Shumpeterian sense (Shumpeter, 1926), thus increasing the rate of new business activity. In low churn regions, a static population lowers new interaction between people, increases the proportion of people's dense ties to weak ties (Williams et al., 2004), and increases peer influence, pressurizing people not to do new or different things.

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If this proposition is correct, then gross movement of people in and out of a region should be a better demographic predictor of new business activity than net movement. An example of this is provided by Saxenian (1999) who discusses the churn of Indian engineers between Bangalore and Silicon Valley, an activity that benefits both regions. In the UK context, an example might be London, which has a high rate of population churn and a high rate of new business activity. The theoretical perspective outlined above and the cases cited here suggest the following hypothesis:

> Hypothesis 7: The higher the population churn in a region, the higher the new business activity.

3. Method

The hypotheses were tested using the results of a large stratified random sample of the UK population. This data enables the testing of relative new business activity rates of different migrant and ethnic groups and also goes some way to isolating possible labour market disadvantage and resource acquisition disadvantage effects – in short, discrimination effects – on new business activity rates, by controlling for opportunity perception, attitudes to new business activity, entrepreneurial experience, age, gender and education.

A detailed description of the methodology behind the collection of GEM data is provided in Reynolds et al. (2005). UK GEM samples are much larger than is standard for GEM surveys, and they are stratified by the nine English Government Office Regions plus Wales, Scotland and Northern Ireland. Two stratified random samples of around 22,000 UK adults in summer/autumn of 2003 and around 24,000 one in the same period of 2004 were taken, using identical sampling methodology. The regional samples were taken to match as closely as possible, within a random sampling method, regional age group and gender patterns. Samples within each region varied from 1000 to 5000, and were dependent on available funding, rather than population size.

Respondents were contacted by telephone using a randomized direct dial technique by trained market research operatives employed by IFF Ltd, a professional market

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research company that is regularly retained to conduct large scale survey research on behalf of the Small Business Service of the UK government. The final samples were weighted by age group, gender, ethnic minority status and region to match the demographic contribution of each region to the UK population in mid 2003 (using the latest available estimates from the Government Actuary's Department and the 2001 census data on ethnic minorities). The resulting files were cleaned by IFF, the GEM global team, and the UK GEM team. Finally, the two annual samples were combined and new regional and national level weights calculated for the combined sample of 38,046 adults aged 18-64 years, i.e. of working age.

The dependent variable for each hypothesis is Total Entrepreneurial Activity (TEA), which is a composite measure of new business activity. It combines an estimate of a) the proportion of the working age population that are actively[2] trying to start a new business for themselves, including self-employment, or for their employer which they will own in whole or in part, and b) the proportion of the working age population that are managing their own new business that has been paying wages for at least three months but less than three and a half years. It is thus a good measure of propensity to engage in new business activity.

A range of individual-level control variables were included in the survey. Age, gender, education level, income and work status have all been shown to affect propensity to engage in new business activity with TEA as the chosen measure (Reynolds et al., 2004, Harding, 2004). They also affect propensity to migrate (Waldrop, 1993; Yankow, 2003), and thus should be controlled for in isolating the independent effect of migration on propensity to engage in new business activity.

A second set of control variables consisted of single item measures of individual beliefs, developed and tested over six annual GEM cycles. The three beliefs items are opportunity perception, representing one of the four factors discussed in the development of the hypotheses, and entrepreneurial skills self-perception and fear of failure[3], which control for the factor of entrepreneurial attitudes. These items have been shown to be associated with propensity to engage in new business activity in the UK and other countries (Harding, 2004, Reynolds, Carter, Gartner and Greene, 2004,

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Arenius and Minniti, 2005), and are consistent with the literature on nascent entrepreneurship generally (e.g. Honig and Davidsson, 2000; Wagner, 2004).

Prior business or management experience has been shown to predict nascent entrepreneurship (Mesch and Czamanski, 1997, Delmar and Davidsson, 2000). Unfortunately the GEM survey did not ask respondents if they had ever run a business. However, questions were asked on whether the individual knew a start-up entrepreneur, had themselves recently shut down a business, and had funded someone else's new business[4]. These items do not correlate highly with each other, but together provide some control for exposure to new business activity.

To measure the independent variables of interest, origin and ethnicity, the UK GEM questionnaire asks respondents about their ethnicity, country of origin and how many years they have been living in "this region". When compared with a respondent's age and country of origin, this last item enables the identification of life-long residents, in-migrants and immigrants.

The sample used in this study was not an unweighted, random sample, but a stratified sample of regions with unequal proportions, post- stratified (i.e. weighted) by age, gender, ethnicity and region. Thus it should ideally be analyzed using software that can handle complex survey data. The univariate relationships of each independent variable with TEA were tested using Chi-square equality of proportions tests on the combined, weighted sample using the complex survey option on SPSS12.0. This option adjusts standard errors to account for the design of the survey. In practice, this tends to increase standard errors, reducing the scope for Type I error in statistical tests due to the sample design. The design effects on the TEA positive cases are shown in Table I.

The data bears some resemblance to direct mail databases, with low numbers of positive cases on the dependent variable. To examine for possible interaction effects before conducting logit analysis, CHAID analysis (Kass, 1980) was used, as recommended by Magidson (1982) and Baron and Phillips (1994) for exploring possible interaction of categorical variables.

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CHAID can be unreliable if the sample contains a large number of missing values. In the present sample, four of the beliefs and experience items listed above and four additional culture items were asked of all those answering positively to the first level of questions on entrepreneurial activity, but for those answering negatively, respondents were randomly assigned either the beliefs questions or the culture questions. Culture values items were designed as national level variables for cross-national comparison rather than individual-level variables. Accordingly, only TEA negative cases who were asked the beliefs variables were included for CHAID analysis, along with a random sample of half the cases (including all TEA positive cases) that were asked both beliefs and culture variables. Minimum group size was set at 50, a significance level of .05 was chosen, and there were almost 1,000 cases per independent variable, far higher than the minimum recommended in the literature (Baron and Phillips, 1994).

The CHAID analysis was inconclusive, probably because TEA positive cases are rare events (see below), with similar results to those of Delmar and Davidsson's (2000) CHAID analysis of a Swedish sample. Beliefs and gender variables were best at identifying TEA positive cases, with migration variables appearing at third branch level and providing relatively little differentiation value. The largest identified cluster of TEA positive cases held just 15% of the sample, indicating that TEA positive cases appeared in a wide variety of combinations.

Hypotheses 1 to 6 were first tested at the bivariate level using Pearson tests of independence on the combined sample. Multivariate data analysis was then used to test whether origin and ethnicity had independent effects on new business activity, while controlling for other individual demographic, beliefs and experience factors that might otherwise account for observed differences between people of different origin and ethnicity. The measure of new business activity, TEA, can be considered to be more a measure of propensity to start a business than whether individuals have started a business or not, as it combines a measure of nascent entrepreneurial activity with new business ownership, in which the former comprises most of the combined measure. Therefore logistic regression, which is based on the assumption that the categorical dependent reflects an underlying qualitative variable (e.g. propensity to choose to engage in new business activity) and uses the binomial distribution, is

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arguably more appropriate than probit regression, which assumes the categorical dependent reflects an underlying quantitative variable (creating or not creating a new business) and uses the cumulative normal distribution.

Binary logistic regression on the reduced sample cannot accurately predict the instances of TEA because instances of TEA are "rare events" (King and Zeng, 2001a and b). There are only 6 cases of TEA in every 100 working age adults sampled in the UK, on average. In practice, this will result in a severe overestimation of zeros and an underestimation of ones in the model. Indeed, from an efficiency point of view, the over-collection of TEA-negative individuals is wasteful, as "the marginal contribution to the explanatory variables' information content for each additional zero starts to drop as the number of zeros passes the number of ones" (King and Zeng, 20001a, p143.)

For present purposes, it is not necessary to accurately estimate the magnitude of the effect of origin and ethnicity on the odds of new business activity, but rather whether these variables have an independent effect or not. Therefore the issue of the representativeness of the sample is not as critical[5]. One option therefore would be to rebalance the unweighted sample, taking a random sample of zeros (TEA negative cases) so that the number of zeros does not greatly outnumber the number of ones. This is known as a *case-cohort* study (King and Zeng, 2001, p.142). Provided the model is well-specified, even if one reduces the number of zeros by sampling randomly to approach the number of ones, the logit model slope coefficients remain statistically consistent estimates of β_1, and so correction is unnecessary (King and Zeng, 2001b, p700). Were one calculating probabilities associated with individual independent variables, one would need to apply prior correction to the intercept, β_0, and representativeness of the sample would become an issue. However this study is only testing for an effect and the direction of that effect, rather than the magnitude of that effect[6].

A rebalancing of the sample to offset the rare events problem will cause the rebalanced sample to be unrepresentative of the population. This would generate problems with statistical analysis using software that can conduct logistic regression on complex survey samples, such as STATA 8.1, that are intended to represent the

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population. A further problem with logistic regression on complex survey data is the lack of good methods of estimating goodness-of-fit. Thus the most practical solution was to rebalance the sample and perform logistic regression on the unweighted, rebalanced sample, varying the proportions of ones and zeros to ensure the logit model slope coefficients were indeed stable. While it could not be concluded that the results are representative of the magnitude of relationships between the dependent and independent variables in the UK, this is not the issue here.

The rebalanced sample was created as follows. First, those cases aged under18 and over 64 were removed. Then the sample was split into ones and zeros on the dependent variable (i.e. into those coded positive for TEA and negative for TEA), and the TEA negative set was split into those that were asked beliefs questions and culture questions and those who were randomly asked either beliefs or culture questions. (All TEA positive cases were asked both beliefs and culture questions.) Next, the (randomly sampled) respondents that were not asked a set of entrepreneurial beliefs questions were removed. Then, to balance this, an exact 50% random sample was drawn from the TEA negative cases that were asked both beliefs and culture questions. The two reduced TEA negative sets were merged to form a reduced TEA negative set. Next, the reduced set of TEA negatives was split into 6 sets of equal size using a random drawing. Finally, the ones (TEA positive cases) were merged individually with the reduced 100% and one sixth samples of zeros (TEA negatives), separately, to create seven rebalanced samples for analysis. These proportions were chosen to demonstrate that the logit model slope coefficients for the variables of interest were, in fact, consistent despite the sampling on the dependent variable and on the expectation that the one-sixth case cohorts would produce a more satisfactory model. The sample selection was unweighted, as explained above.

While logistic regression, uniquely, permits sampling on the dependent variable provided certain precautions are taken, there remains the danger of sampling inadvertently on one or more of the independent variables. Missing values were low (5% or less) on all chosen independent variables except for household income, an ordinal variable with 15 categories where 19% of the cases were missing. With household income included, the proportion of missing cases went up from 9% to 24%. However, this variable did not significantly affect the final models. The change to the

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-2log likelihood from omitting this variable was small and it was decided to omit household income from the model on the grounds that the error from additional missing cases outweighed the error from failure to include income in the model. Kim et al. (2003) using similar methodology on the United States PSED database of US found that household income (or household wealth) had no significant effect on propensity to be a nascent entrepreneur. Similarly, Delmar and Davidsson (2000, p.14) have concluded that economic variables "do not have very strong predictive power with respect to nascent entrepreneur status" when the model includes gender, age and education variables. This would suggest that omitting income should not result in mis-specification of the model, given the inclusion of age, gender and education variables, all of which correlate with income.

Logistic regression was then performed using a stepwise regression with TEA as the dependent variable and backwards likelihood regression on the independent variables for which an effect was being tested. All the independent variables used were categorical. Age and age squared were used in earlier runs as previous studies on this database have shown an inverted U-shaped relationship between TEA and age (Harding, 2004), but the model had a better fit with a binary age group variable that distinguished between individuals aged 18-44 and 45-64. Other variables with multiple age groups suffered from collinearity between groups. Tables II, III and IV list the categories for each variable. Prior to the analysis the independent variables were examined for list-wise inter-correlation using the Spearman correlation coefficient, which is recognized as more appropriate for ordinal data than the Pearson correlation coefficient. Table II shows low levels (less than .3) for correlations between all independent variables. The independent variables were also tested for multi-collinearity. The tolerance values of all variables were high (>.85). This suggests that multi-collinearity is absent.

The logistic regressions were applied hierarchically in two steps to show the contribution of the "control" variables and the different "test" variables of migrant and ethnic status. In the first step, four personal attributes were entered: age group (18-44 or 45-64), gender (male or female), education (post-secondary or not) and work status (in work or not), along with the three entrepreneurial beliefs variables and three entrepreneurial experience variables. In the next step, migrant and ethnicity

status variables were added with backwards likelihood regression to comprise the final model. The beliefs and experience blocks were then removed and the effect on the test variables was noted.

The binary education variable (and a four category education variable) added no value to the base model when entrepreneurial beliefs were included and did not affect the test variables. Education's overall marginal effect mirrors the finding of Honig and Davidsson for Swedish nascent entrepreneurship (2000). The results suggest that education may act through beliefs.

Various interaction terms were attempted on the base model variables, guided by the literature and the results of the CHAID analysis, although none added significantly to the base model. Delmar and Davidsson (2000) also found that interaction terms lacked significance in predicting nascent entrepreneurship. The base model appeared to have a good fit (Hosmer & Lemeshow test on 100% sample: Chi-square = 9.953, p = 0.268; on first 17% sample: Chi-square = 4.348, p = 0.824). It explained a moderate amount of variance in the sample (Nagelkerke Rsquared = 0.262 on 100% sample and 0.395 on first 17% sample) was stable across the 100% and different 17.5% samples. The Pearson correlation coefficient for the independent variable coefficients in the 100% and first 17% base model was 0.992 which suggests that the base model is well-specified. The first 17% base model predicted 69% of the TEA+ cases and 79% of the TEA- cases. Other 17% samples produced very similar results.

Testing Hypothesis 7 is limited by the fact that there are only 12 UK regions. This is insufficient to perform a meaningful regression analysis. However, a correlation matrix was prepared for the 2003 and 2004 samples separately and a range of demographic and economic variables on the UK regions, centred on data for 2002.

Except for Table VI, all p values reported in tables or text are for two-tailed tests of significance. Where hypotheses were directional, two-tailed tests of significance were converted to one-tailed tests by halving the p value.

4. Results

4.1 Descriptive statistics

Table 1 shows descriptive statistics for the independent variables on the full UK population-weighted sample, treated as a complex survey sample, for groups with different migrant status and ethnicity. In the sample, immigrants were slightly younger and in-migrants were slightly older than life-long residents. The average age of life-long residents was 39 and of migrants was 41. Migrants were much better educated than life-long residents and immigrants were slightly less likely to be in work, although the difference was not substantial. Without controlling for other variables, migrants had better opportunity perception and skills perception than life-long residents but did not have lower fear of failure. A separate logistic regression, not shown here, confirmed that this pattern holds after controlling for differences in age, gender, education and work status, with the exception that migrants have a lower fear of failure. Thus both opportunity perception and attitudes do appear to be more positive among migrants as proposed in the previous section. Migrants are more likely to have experience (direct or indirect) of new business activity generally than life-long residents.

Table 1 also shows that ethnic minorities in the sample are around five years younger on average than ethnic majority individuals, are more highly educated, and less likely to be in work, mirroring national trends. The ethnic minority sample contains 54% males compared with the national estimates for ethnic minority males in the 2001 census of 49%[7]. It was not possible to weight the sample for both genders separately by ethnicity by age group by region, because of missing cells in some regional combinations. Thus the sample, while generally weighted to represent the UK population, slightly overrepresents the proportion of ethnic minority males and underrepresents the proportion of females. The Table also shows that there were no significant differences between the two main ethnic groups in opportunity perception or attitudes. However, ethnic minorities are more likely to have direct or indirect experience of new business activity.

4.1 Hypotheses 1 to 6

Hypothesis 1: In-migrants have a greater propensity to engage in new business activity than life-long residents: supported

Hypothesis 2: Immigrants have a greater propensity to engage in new business activity than life-long residents: supported.

Hypothesis 3: Immigrants have a greater propensity to engage in new business activity than in-migrants: not supported.

Table II shows the TEA rates and 95% confidence intervals for life-long residents, in-migrants and immigrants on the full weighted sample, treated as a complex survey sample, and the results of the Chi square test of independence between TEA rate and migrant status. The test result is significant, and the confidence intervals indicate that TEA rates of in-migrants and immigrants were not significantly different from each other (7.0 and 8.4) but significantly higher than TEA rates of life-long residents (4.3), supporting Hypothesis 1 and 2 but not supporting hypothesis 3. Seven of the 12 regions had significant differences in TEA rates across the three migrant categories, and all followed the same pattern as the national trend. The point estimates of TEA were lower for life-long residents than for the other two categories in all regions except for the North East and East of England. In no region were in-migrant or immigrant rates significantly different from each other. This pattern was similar for men and women and for younger (18-44) adults and when the sample was split into ethnic majority and ethnic minority individuals. For older adults however, only in-migrants had significantly higher TEA rates than life-long residents.

This univariate result was maintained when a three-category migrant variable (life-long residents, in-migrants and immigrants) was added to the base logistic regression model. The parameter estimates of the in-migrant and immigrant dummy variables correlated with each other (0.359 in the 100% model and 0.343 in the first 16.7% sample), and being an in-migrant rather than an immigrant had no significant effect on the odds of engaging in new business activity (B = 0.117, S.E. = 0.101, p = 0.247 [100% model]; B = 0.104, S.E. = 0.561, p = 0.454 [16.7% model]). A separate dummy variable for immigrant status had no significant effect on the base model, or when other migrant or ethnicity variables were added. It had very little effect on other

variables, and was left out for the sake of parsimony. Using a binary migrant status variable (migrant versus life-long resident) had a significant but modest effect on the base model. Results are reported below for the reduced 100% sample, with results for the first-drawn reduced 16.7% sample in square brackets for comparison.

Removing the binary migrant variable from the base model increased the -2 log likelihood by 38.021 (p = 0.000) [20.737, p = 0.000]. If a four category ethnicity variable (White/Black/Asian/Other) was included in the model, removing the migrant variable increased the -2 log likelihood by 35.853 (p. = 0.000) [20.267, p = 0.000]. This model is shown in Table IV. Removal of the migrant variable had a larger effect if the base model did not contain the beliefs and experience items, increasing the -2 log likelihood by 78.172 (p = 0.000) [49.361, p = 0.000] and, if the ethnicity variable was included, by 74.528 (p = 0.000) [48.792, p = 0.000]. However, without the beliefs and experience items, these two latter models had a very poor fit. In all models, the slope of the migrant variable coefficient was the same and the coefficient was highly significant, indicating that being a migrant has a significant, independent, but modest positive effect on the odds of engaging in new business activity, after controlling for age, gender, education, ethnicity, and educational beliefs and experience. Use of a binary ethnicity variable instead of the four category variable, and a dummy variable for immigrants, produced virtually the same results.

In conclusion, the univariate results and multivariate results support Hypothesis 1 and 2 but do not support Hypothesis 3.

Hypothesis 4: Recent migrants have a higher propensity to engage in new business activity than other individuals: supported.

A Pearson test of independence of TEA rates and time in region (less than five years against five years or over) shows that recent migrants have significantly higher TEA rates at 8.4 than established individuals at 5.7 (Chi-square = 64.009, p = 0.000), supporting Hypothesis 4. However, recent migrants are significantly younger, with a mean age of 34, than established individuals at 41 years. Thus the difference between recent migrants and established individuals could simply be due to age and not migrant status. Table II shows the result of splitting the sample into younger and older

individuals, which equalizes the mean ages in each group (30 for younger recent migrants versus 32 for younger established individuals, and 53 for older recent migrants versus 54 for older established individuals). The point estimate TEA rates of younger recent migrants are higher, but the 95% confidence intervals suggested that they were not significantly different from those of younger established individuals (8.2 against 6.6). However, the TEA rates of older recent migrants are significantly, and substantially different from those of older established individuals (9.5 versus 4.5), and a Pearson test of independence indicated that these rates were significantly different (Chi-square = 130.829, p = 0.000). Thus the difference in TEA rates between recent migrants and others does not appear to be due to age differences, and Hypothesis 4 is supported after controlling for age.

The result of a logistic regression using the base model, the time in region binary variable (less than five years versus five years or more in region) and a four category ethnicity variable is shown in Table V. It suggests that time in region had an independent, significant, positive, and modest effect on the odds of participating in new business activity, supporting Hypothesis 4. Time in region also interacts significantly with ethnicity. It appears that for the Black and Asian groups, but not the Other group, being a recent migrant can significantly decrease the odds of engaging in new business activity relative to the ethnic majority, keeping all other variables constant, even though being a recent migrant has a positive effect in general. This is discussed further below and in the next section. The model has a good fit, particularly in the 16.7% model, and the correlation coefficient of the coefficients on the independent variables across the models is high at 0.988, suggesting the re-balancing of the sample has had little effect on the coefficients of the independent variables.

Overall, Hypothesis 4 is partially supported; the significant interaction term suggests that some ethnic minorities may not have a higher propensity to engage in new business activity if they are recent migrants.

Hypothesis 5: Ethnic minority individuals have a higher propensity to engage in new business activity than ethnic majority individuals: partially supported

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Table I shows the TEA rates and 95% confidence intervals for ethnic majority and ethnic minority individuals on the full weighted sample, treated as a complex survey sample, and the results of the Chi square test of independence between TEA rate and ethnic status. The test result is significant, and the confidence intervals indicate that TEA rates of ethnic minority individuals were significantly higher than those of ethnic majority individuals (9.5 and 5.8; Chi-square = 75.88137, p = 0.000), supporting Hypothesis 5. This pattern was similar for men and women and for younger (18-44) adults. However, only two of the 12 regions had significant differences in TEA rates across this variable, Scotland and the North-West. In Northern Ireland and the North-East, the point estimates of ethnic majority rates were greater than ethnic minority rates.

When TEA rates were calculated across a combination of ethnicity and migrant/non-migrant status, the chi square test of independence was significant (Chi-square = 182.8339, p = 0.000). The sample contained relatively few ethnic minority life-long residents, and though the point estimates suggested a difference between the two ethnic groups of life-long residents (6.7 against 4.2), their 95% confidence levels overlapped, indicating no significant difference between these groups given the sample size. Ethnic minority migrants did however appear to have significantly higher TEA rates than ethnic majority migrants (10.1 against 6.8).

Separate logistic regressions, not shown here, indicated that being an ethnic minority individual does not significantly effect the odds of being a migrant, although it significantly increases the odds of being an immigrant and significantly decreases the odds of being an in-migrant. These interactions between migrant and ethnic status do not appear to affect propensity to engage in new business activity. There were no significant differences in TEA rates between ethnic minority in-migrants and ethnic minority immigrants.

Overall, Hypothesis 5 is partially supported by the univariate data, controlling for migrant status.

This univariate result was not supported by the results of the multivariate analysis. Being an ethnic minority individual had a significant positive but very small

independent effect on the odds of engaging in new business activity in the 100% reduced model, but not in the first 16.7% sample, when all the variables in the base model are entered. Tables IV and V show that when a migrant indicator variable or a variable for being a recent migrant is entered, ethnicity is significant only if the recent migrant variable is included. Results are reported below for the reduced 100% sample, with results for the first reduced 16.7% sample in square brackets for comparison.

Removing the binary ethnicity variable from the base model increased the -2 log likelihood by 5.792 (p = 0.016) [reduced by 1.121, p = 0.290]. The 4 category variable produced similar results (- 2 log likelihood on removal = 8.936, p = 0.035 [2.684, p = 0.413]. If a binary migrant status variable was included in the model, removing the ethnicity variable reduced the -2 log likelihood by 2.694 (p. = 0.101) [reduced by 0.136, p = 0.712]. Removal of the ethnicity variable had a larger effect if the base model did not contain the beliefs and experience items, increasing the -2 log likelihood by 7.713 (p = 0.005) [reduced by 1.227, p = 0.268] and, if the migrant status variable was included, by 2.880 (p = 0.090) [reduced by 0.008, p = 0.930]. However, without the beliefs and experience items, these two latter models had a very poor fit in both samples reported on here, and the ethnicity variable was still not significant in the 16.7% sample.

Overall, this suggests that ethnicity has a marginal independent effect on propensity to engage in new business activity, when the factors included in the base model are controlled, especially if migrant status is included, and that observed differences in new business activity between ethnic minority and ethnic majority groups may be mainly due to other differences between these groups. Age appears to have the most effect on the ethnicity variable, which becomes significant if the age variable is removed. The mean age for ethnic minority individuals in the full sample, corrected for the effects of the complex survey, was 35, while the mean age for the ethnic majority individuals was 41. The fact remains, of course, that ethnic minority individuals are more likely to engage in new business activity, but this is because they are younger on average, not specifically because of their ethnic background. Therefore Hypothesis 5 is only partially supported.

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Hypothesis 6: Ethnic minority recent migrants do not have a higher propensity to engage in new business activity than established ethnic minority individuals: supported

When the full sample was split into recent migrants and established individuals by ethnicity, the chi-square test of independence was significant (157.583, p = 0.000). Ethnic minority recent migrants did not have significantly higher TEA rates than ethnic majority recent migrants (7.7 against 8.5), but ethnic minority established individuals did have significantly higher rates than ethnic majority established individuals (10.4 and 5.3; 95% confidence intervals are shown in Table II). This supports Hypothesis 6. Part of the reason for this could be age differences. Ethnic minority recent migrants are not that much younger than ethnic majority recent migrants (31 versus 35) but the age gap between ethnic minority and ethnic majority established individuals is wider (36 and 42). This possibility was tested using logistic regression.

When an interaction term that estimated the effect of being an ethnic minority recent migrant versus others was introduced to the base logistic regression model with the binary time in region and ethnicity variables, the coefficient on the interaction term was negative and significant, suggesting that being an ethnic minority individual significantly reduces the odds engaging in new business activity if one is a recent migrant, even though being a recent migrant has a significant and positive independent effect. Table V shows that when the four category ethnicity term was substituted for the binary ethnicity variable, the Black recent migrant and Asian recent migrant coefficients were significant, but the Other recent migrant was not. An age and time in region interaction term was not significant, suggesting that both younger and older recent in-migrants have a higher propensity to engage in new business activity. Thus Hypothesis 6 is supported. Possible reasons for the lack of significance of the Other recent migrant variable are discussed in the next section.

4.3 Hypothesis 7
Table VI shows the correlation between TEA and various economic and population measures for the 12 UK regions. It shows, consistent with Hypothesis 7, that the strongest, most significant correlations of both regional TEA measures are with gross

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migration flows, i.e. total human regional churn. Spearman correlation coefficients, a non-parametric test which does not assume normality among interval data, produced similar results and are not reported here.

5. Discussion

The results of the univariate and multivariate tests of Hypothesis 1 are similar: across the UK, life-long residents of a region tend to have lower new business activity rates than either in-migrants or immigrants. However, this is not true of all regions, suggesting the existence of special regional factors. In-migrants and immigrants to Northern Ireland, for example, appear to have the same rates of new business activity as life-long residents in that region. In England, life-long residents in the south of England appear to have higher TEA rates than their peers in the North of England, and thus the gap between the three groups of entrepreneurs by origin is narrower. Where background rates of new business activity are low, such as in Scotland, or where there are many immigrants, such as in London, the difference between those born in and not born in their region of residence is most apparent.

The lack of support for Hypothesis 3 is surprising, as theoretically, immigrants would be expected to have greater opportunity perception and face higher labour market disadvantage, although it does support the empirical findings of Kim et al. (2003) that being foreign-born made no difference to nascent entrepreneurship levels in the United States, if suitable controls were included. In this UK sample, immigrants and in-migrants have similar rates of new business activity whether one controls for ethnicity, age group or time in region. In most regions, immigrants and/or in-migrants have elevated new business activity levels. The latter make a major contribution to total new business activity in a region, and this may have been overlooked in previous policy studies of migration and economic activity[8]. It is the act of migrating, not the crossing of international borders, that influences propensity to engage in new business activity.

It is noteworthy that the proportion of immigrants in the sample (reflecting the population) varies dramatically from 28% in London to 4% in the north of England, Scotland, Wales and Northern Ireland. In these latter regions, in-migrants make up

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40% to 50% of the population but contribute 50% to 60% of the new business activity, while immigrants only contribute 4% to 10% of the new business activity. In-migrants contribute far more than immigrants to new business activity in regions with low levels of new business activity (see Table VII for a national summary of contributions). This finding reinforces the results of Keeble and Tyler (1995) who found that many firms in rural areas were being started by migrants, and studies of ethnic minority businesses in cities, many of whom were started by immigrants (Asian Business Initiative, 1999).

The results of the tests of Hypothesis 4 and 5 suggests that new business activity rates are higher among recent migrants for ethnic majority individuals, but are depressed for Black and Asian recent migrants. This supports the theory of increased exposure to and temporary disadvantage in the labour market by recent migrants, but it also supports the theory that ethnic minority groups may be slower at penetrating resource networks in a new area. Interestingly, new business activity rates were not depressed among Other recent migrants, 80% of whom were individuals of mixed race. These people might benefit from dual ethnic networks and be able to relate to and penetrate resource networks composed of ethnic majority strangers faster than their mono-ethnic peers.

One possible explanation for the marginal independent effect of ethnicity on new business activity might be that ethnic minority cases were rare in the samples employed in the logistic regression. In the first 16.7% sample, there were 288 ethnic minority cases and 4747 ethnic majority cases. Yet two of the experience variables had half as many positive cases and still made consistent, significant contributions to the base model. This suggests that the result is not a consequence of the small number of ethnic minority cases in the samples. A difference in average age seems to be the main contributor, although other factors such as education, beliefs and experience also play a part. Since the full sample was weighted to reflect the UK population, this suggests that the younger average age of ethnic minority individuals should be taken into account when explaining the high rate of new business activity in this group.

Grouping all ethnic minority individuals into one group, or even into the three broad groups employed in this study, ignores the different propensity of people from

different ethnic minorities to start businesses, at different chronological periods, and in different regions of the UK. There is a growing theme in the ethnic minority and migration literature that different waves of immigrants, combined with generation effects, mean that findings at one period and in one country may not be generalisable. The observed differences between recently arrived ethnic migrants and more established ethnic individuals may be due to their different origins, and not due to disadvantage in the labour market or in resource acquisition as theorized. Within the Black and Asian groups, there were substantial differences in the point estimates of TEA rates of groups of different geographical origin. However, these differences were not statistically significant, given the small numbers at this level of analysis, and could be due to sampling error. Further analysis might be possible as further annual GEM UK samples are added to the existing sample.

Overall, the patterns in the data suggest that, controlling for basic demographic variables, and for differences in opportunity perception, risk propensity and experience, being a migrant, and specifically a recent migrant, has a significant positive effect on propensity to engage in new business activity. This is consistent with the theory of differential labour market disadvantage outlined in section 2. Ethnic minority recent migrants, but not those of mixed race, have a lower propensity to engage in new business activity than others, again controlling for other variables that might affect this relationship, and this is consistent with the theory of resource disadvantage. Overall, ethnic minorities as a group do not have a higher propensity to engage in new business activity if one controls for differences in average age, gender, education and working status. These basic demographic variables, and not entrepreneurial beliefs or experience, differentiate the ethnic minority and ethnic majority groups. A separate logistic regression with the binary ethnic variable indicated that, controlling for age, gender, education and working status, there were no significant differences between these two groups in opportunity perception, self-perception of entrepreneurial skills, knowing an entrepreneur, or having shut down a business. Ethnic minority groups were less likely to fear failure and more likely to have funded someone else's business[9].

The results of Hypothesis 7 are highly suggestive that gross migration flows are a better predictor of TEA than other demographic or economic variables.

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However, the results are limited by the low number of cases: 12 regions are not sufficient to test using regression analysis. A more fine-grained analysis might be possible by combining the two samples and measuring TEA and demographic and economic variables at the local authority level. This would provide more cases but the estimations of TEA would be less accurate, although adding more annual cohorts will help.

6. Conclusion

Research in Europe (Basu and Altinay, 2002; Buchel and Frick, 2000) and the US (Min and Bozorgmehr, 2003) demonstrates that immigrants are a very heterogeneous group. Some immigrants will be entrepreneurial and others will not. Much less research has been conducted on the entrepreneurial tendencies of in-migrants. However, on average for the UK in 2003 and 2004, the immigrants and regional in-migrants in the samples used in this study appear to be more entrepreneurial than life-long residents of the same region. This is in part because they are better educated and trained and have more positive attitudes and beliefs towards entrepreneurship, but there is a small residual effect of "being different" through origin. Interestingly, in-migrants seem to be just as "different" as immigrants. There is no gain from international as compared with intra-national migration as far as propensity to engage in new business activity is concerned.

Ethnic minorities are also "different", but this difference manifests itself not in greater levels of entrepreneurial activity because of their ethnicity, but in reduced levels in the first few years after migration. What appear to be greater overall levels of new business activity among ethnic minorities can be explained by the relative youth of the ethnic minority population in the UK.

These findings have possible implications for public policy. As mentioned in the introduction, there is considerable public debate in the UK about the merits of immigration. This study suggests that at a regional level, in-migrants and immigrants contribute more than their expected contribution of new businesses and that this is in part because of their better than average education and thus higher perceived entrepreneurial capacity and opportunity perception, but also because they are not

from the region in which they now reside. If regions wish to increase their new business activity, then the potential contribution from in-migrants as well as immigrants should form part of an overall policy. Indeed, as ethnic majority migrants may start faster, and most in-migrants are from the ethnic majority, then attracting in-migrants may bring faster results than attracting immigrants. Evidence from other studies (e.g. Keeble and Tyler, 1995) suggests that environmental attractiveness is a key attraction for relocation of individuals who subsequently become entrepreneurs, particularly in rural areas. This is something that some UK regional development agencies can and do promote (Sanghera, 2005).

The finding that ethnic minority recent migrants have lower odds of engaging in new business activity than others chimes with recent UK government policy moves to broker improved resource acquisition for ethnic minority business, particularly in inner city areas where ethnic enclaves exist (National Employment Panel, 2005). The experience of Israel (Lerner, Menachem and Hisrich, 2005) suggests that government intervention can increase entrepreneurship rates among recent immigrants, especially among those most resource-constrained.

With each annual GEM data collection cycle, another 20,000 or so survey respondents are added to the data pool, greatly increasing our ability to conduct multivariate analysis on subsets of the UK population with increasing accuracy and at finer levels of analysis. The logistic regression models presented here contain unexplained variance. One source of this unexplained variance is undoubtedly the local economic and social conditions of the individuals in the sample. In fact, a major theme of the ethnic and immigrant entrepreneurship literature is "embeddedness" (Kloosterman and Rath, 2001). In future work, hierarchical modelling techniques could be used to incorporate local conditions into a wider model of individual propensity to engage in new business activity. Possible candidate variables for inclusion might be, at the local authority level, population growth as a measure of growth in customer demand, population density as a measure of customer availability, and house values or the proportion of professionals and managers in the local workforce as a measure of both capital and management talent availability (Reynolds, Storey and Westhead, 1994). The special case of London could be examined, and the effect of Local Enterprise

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Agency activity and local political regimes might also be worth exploring (Keeble and Walker, 1994).

In addition, the role of local clustering of ethnic minorities in promoting or inhibiting the propensity of ethnic minority and/or immigrant individuals to engage in new business activity could be examined. The extent to which ethnic and/or immigrant entrepreneurs, rather than ethnic majority in-migrants and life long residents are transnational (Morawska, 2004; Williams et al., 2004) could be explored. Also, some ethnic groups may remain focused on traditional sectors, but case-based research suggests that inter-generational differences are becoming apparent (Ram and Smallbone, 2001). It should be possible to test for differences in first generation and subsequent generation ethnic entrepreneurs' industry choices.

The strong correlations between gross regional migration flows and regional entrepreneurial activity require more research at a more fine-grained level of analysis, such as local authority level to confirm the suggestive univariate relationships and control for economic factors. If they hold at this level, they will be powerful support for the Shumpeterian view of entrepreneurship as restless and dynamic, as a constant creating and breaking of combinations of resources. Such a finding would suggest that regional policymakers should enable inflows and outflows of people, rather than try to stifle either inflows or outflows in an attempt to manage stable local populations.

Notes

[1] See http//www.statistics.gov.uk/cci/nugget.asp?id=765 (accessed 04/03/05)
[2] To remove 'dreamers' from the measure, all respondents who said yes to the question "You are, alone or with others, currently trying to start a new business, including any type of self-employment or selling any goods or services to others" were asked three filter questions, including "Over the past twelve months have you done anything to help start a new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activity that would help launch a business?" See Reynolds et al. (2004) for a complete description of the filtering protocol.
[3] The precise items were as follows:
"In the next six months there will be good opportunities for starting a business in the area where you live"
"You have the knowledge, skill and experience required to start a new business"
"Fear of failure would prevent you from starting a business"
[4] The precise items were as follows:
"You know someone personally who started a business in the past 2 years"

 You have, in the past 12 months, shut down, discontinued or quit a business you owned and managed; or you have discontinued any form of self-employment, or selling goods or services to anyone. Do not count a business that was sold."
"You have, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of shares or mutual funds."
[5] One solution to this issue might have been to use a method, RELOGIT for STATA (King and Zeng, 2001a and b) that "estimates the same logit model as the standard logit procedure, but uses an estimator that gives lower mean square error in the presence of rare events for coefficients, probabilities, and other quantities of interest" (Wagner, 2005). Unfortunately, RELOGIT appears to be incompatible with the STATA 8.0 logit procedure for complex surveys. See http://www.stata.com/statalist/archive/2004-09/msg00499.html (accessed 27/11/05)
[6] See King and Zeng *ibid*., p700 for the formula for prior correction of β_0.
[7] Table T13, 2001 census; see http://www.statistics.gov.uk
[8]Thanks to an anonymous referee for suggesting a comparison of relative contributions to new business activity.
[9]Statistical results are not shown here, but are available from the author on request.

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References

Aldrich, H., Jones, T. and D. McEvoy, 1984, 'Ethnic Advantage and Minority Business Development', in (Ward R. and Jenkins R., eds.), *Ethnic Communities in Business: Strategies for Economic Survival*, Cambridge, UK: Cambridge University Press, pp. 189-210.

Aldrich, H. and R. Waldinger, 1990, 'Ethnicity and Entrepreneurship', *Annual Review of Sociology* **16**, 111-135.

Allen, J., Cochrane, A. and D. Massey, 1998, *Rethinking the Region*, London: Routledge.

Arenius, P. and M. Minniti, 2005, 'Perceptual Variables and Nascent Entrepreneurship', *Small Business Economics* **24**(3), 233-247.

Asian Business Initiative, 1999, *Newsagents Mean Business: The Future of Asian Owned Cornershops in the New Millenium*, London: Centre of Expertise on Ethnic Minority Business.

Bank of England, 1999, *The Financing of Ethnic Minority Firms*, London: Bank of England.

Barclays, 2000, Ethnic Businesses. Paper reference 9971490 07/00 July, London: Barclays Banks PLC.

Barclays, 2005, Black and Minority Ethnic Business Owners: A market research perspective. Barclays SME Research Team paper, May 25. London: Barclays Bank PLC.

Baron, S. and D. Phillips, 1994, 'Attitude Survey Data Reduction using CHAID: An Example in Shopping Centre Market Research', *Journal of Marketing Management* **10**, 75-88.

Barrett, G.A., Jones, T.P. and D. McEvoy, 2001, 'Socio-economic and policy dimensions of the mixed embeddedness of ethnic minority business in Britain', *Journal of Ethnic and Migration Studies* **27**(2), 241-258.

Basu, A. and E. Altinay, 2002, 'The interaction between culture and entrepreneurship in London's immigrant businesses', *International Small Business Journal* **20**(4), 371-393.

Bates, T., 1994, 'Social Resources Generated by Group Support Networks May Not be Beneficial to Asian Immigrant-owned Small Businesses', *Social Forces* **72**(3), 671-689.

Buchel, F. and J.R. Frick, 2000, *The Income Portfolio of Immigrants in Germany – effects of ethnic origin and assimilation or: who gains from income redistribution?*, Discussion Paper no. 125. Berlin: Institute for the Study of Labor (IZA).

Migration, In-migration, Ethnicity and Entrepreneurship in the United Kingdom

Camarota, S., 2000, *Reconsidering Immigrant Entrepreneurship: an examination of self-employment among natives and the foreign-born*. Washington: Center for Immigration Studies, January. ISBN 1-881290-05-0

Cabinet Office, 2003, *Ethnic Minorities and The Labour Market: Final report.* London: UK Government Cabinet Office Strategy Unit. March.

Connolly, P., 2002, *'Race' and Racism in Northern Ireland: A Review of the Research Evidence,* Belfast: Office of the First Minister and Deputy First Minister.

Countryside Agency, 2004, *The State of the Countryside 2004*, Wetherby, UK: Countryside Agency Publications.

Delmar, F. and P. Davidsson, 2000, 'Where do they come from? Prevalence and characteristics of nascent entrepreneurs', *Entrepreneurship andRegional Development* **12**, 1-23.

Dudley, J., Roughton, M., Fidler, J. and S. Woollacott, 2005, 'Control of Immigration: Statistics United Kingdom, 2004, Research, Development and Statistics Directorate Paper 14/05, 23 August 2005. London: National Statistics Office.

Findlay, A.M., Stockdale, A., Hoy, C. and C. Higgins, 2003, 'The Structuring of Service-class Migration: English Migration to Scottish Cities', *Urban Studies* **40**(10), 2067-2081.

Florida, R., 2002, *The Rise of the Creative Class*, New York: Basic Books.

Frijters, P., Shields, M.A., and S.W. Wheatley, 2005, 'Job Search Methods and their Success: A Comparison of Immigrants and Natives in the UK', *Economic Journal* **115**(507), F359-F376.

Geroski, P.A., 1995, 'What do we Know about Entry?', *International Journal of Industrial Organisation* **13**(4), 421-441.

Glover, S., Gott, C., Loizillon, A., Portes, J., Price, R., Spencer, S., Srinivasan, V. and C. Willis, 2001, *Migration: an economic and social analysis*, RDS Occasional Paper No 67. London: UK Government Home Office.

Harding, R., 2004, *Global Entrepreneurship Monitor 2003 United Kingdom Report*, London: London Business School.

Harrison, R.T., Cooper, S.Y. and C. Mason, 2004, 'Entrepreneurial activity and the Dynamics of Technology-based Cluster Development: The Case of Ottawa', *Urban Studies* **41**(5/6), 1045-1070.

Honig, B. and P. Davidsson, 2000, 'The role of Social and Human Capital among Nascent Entrepreneurs', *Academy of Management Proceedings* ENT:B1-B6.

Jovanovic, B., 1979, 'Job Matching and the Theory of Turnover', *Journal of Political Economy* **87**, 972-990.

Kass, G.V., 1980, 'An Exploratory Technique for Investigating Large Quantities of Categorical Data', *Applied Statistics* **29**(2), 119-127.

Keeble, D., 1989, 'High Technology Industry and Regional Development in Britain: The case of the Cambridge Phenomenon', *Government and Policy* **7**, 152-172.

Keeble, D. and S. Walker, 1994, 'New Firms, Small Firms and Dead Firms: Spatial Patterns and Determinants in the United Kingdom', *Regional Studies* **28**(4), 411-427.

Keeble, D. and P. Tyler, 1995, 'Enterprising Behaviour and the Urban-Rural Shift', *Urban Studies* **32**(6), 975-997.

Kim, P.H., Aldrich, H.E., and L.A. Keister, 2003, 'If I were Rich: The Impact of Financial and Human Capital on Becoming a Nascent Entrepreneur', University of North Carolina at Chapel Hill and Ohio State University, draft mimeo, January.

King, G. and L. Zeng, 2001a, 'Logistic Regression in Rare Events Data', *Political Analysis* **9**(2), 137-163.

King, G. and L. Zeng, 2001b, 'Explaining Rare Events in International Relations', *International Organization* **55**(3), 693-715.

Kloosterman, R. and J. Rath, 2001, 'Immigrant Entrepreneurs in Advanced Economies: Mixed embeddedness further explored', *Journal of Ethnic and Migration Studies* **27**(2), 189-201.

Lerner, M, Menachem, G, and R. Hisrich, 2005, 'Does Government Matter: The impact of occupational re-training, gender and ethnicity on immigrants' incorporation, *Journal of Small Business and Enterprise Development*, forthcoming.

Levie, J., Carter S. and C.A.C. Currie, 2005, *Global Entrepreneurship Monitor Scotland 2004*, Glasgow: Hunter Centre for Entrepreneurship, University of Strathclyde.

Ley, D., 2000, *Seeking Homo Economicus: The Strange Story of Canada's Business Immigration Programme*, Working Paper no. 00-02, Vancouver: Research on Immigration and Integration in the Metropolis.

Light, I., 1972, *Ethnic Enterprise in America*, Berkeley and Los Angeles: University of California Press.

Light, I., 1979, 'Disadvantaged Minorities in self-employment', *International Journal of Comparative Sociology* **28**, 31-45.

Macdonnell, H. and G. Peev, 2005, 'Immigration U-turn rocks McConnell's bid to attract 'fresh talent' into Scotland', *The Scotsman*, 8 February.

Magidson, J., 1982, 'Some Common Pitfalls in Causal Analysis of Categorical Data', *Journal of Marketing Research* **19**, 461-471.

Mesch, G.S. and D. Czamanski, 1997, 'Occupational Closure and Immigrant Entrepreneurship: Russian Jews in Israel', *Journal of Socio-Economics* **26**(6), 597-610.

Min, P. G. and M. Bozorgmehr, 2003, 'United States: The Entrepreneurial Cutting Edge', Chapter 2 of (Kloosterman, R. and J. Rath, eds.) *Immigrant Entrepreneurs: Venturing Abroad in the Age of Globalization*, Oxford: Berg Publishers.

Morawska, E., 2004, 'Immigrant Transnational Entrepreneurs in New York: Three varieties and their correlates', *International Journal of Entrepreneurial Behaviour & Research* **10**(5), 325-348.

Mulholland, K., 1997, 'The Family Enterprise and Business Strategies', *Work, Employment and Society* **11**(4), 685-711.

National Employment Panel, 2005, *Enterprising People, Enterprising Places*, London: National Employment Panel.

Naughton, P., 2005, 'Clarke says immigrants will face skills test'. *Timesonline*, February 7.

Owens, R and M. Gwyther, 2001, 'Editorial: The Entrepreneur as Outsider', *Management Today*, September, 14.

Portes, A., Haller, W. and L.E. Guarnizo, 2002, 'Transnational Entrepreneurs: The emergence and determinants of an alternative form of immigrant economic adaptation', *American Sociological Review* **67**, 278-298.

Ram, M. and T. Jones, 1998, *Ethnic Minorities in Business*, Milton Keynes: Small Business Research Trust.

Ram, M. and D. Smallbone, 2001, *Ethnic Minority Enterprise: Policy in Practice*, Final report prepared for the Small Business Service, June.

Ram, M., Smallbone, D. and D. Deakins, 2002, *The Finance and Business Support Needs of Ethnic Minority Firms in Britain*, British Bankers Association Research Report.

Reynolds, P., Bosma, N., Autio, E.; Hunt, S.; De Bono, N., Servais, I., Lopez-Garcia, P., and N. Chin, 2005, 'Global Entrepreneurship Monitor: Data Collection Design and Implementation 1998–2003', *Small Business Economics* **24**(3), 205-231.

Reynolds, P., Bygrave, W., Autio, E. and others, 2004, *Global Entrepreneurship Monitor 2003 Executive Report*, London: London Business School.

Reynolds, P.D., Carter, N.M., Gartner, W.B. and P.G. Greene, 2004, 'The Prevalence of Nascent Entrepreneurs in the United States: Evidence from the Panel Study of Entrepreneurial Dynamics', *Small Business Economics* **23**(4), 263 – 284.

Reynolds, P., Storey, D.J. and P. Westhead, 1994, 'Cross-national Comparisons of the Variation in New Firm Formation Rates', *Regional Studies* **28**(4), 443-456.

Reynolds, P. and S. White, 1997, *The Entrepreneurial Process*, London: Quorum Books.

Roddick, A. 2002, 'A View From the Chair', *New Academy Review* **1**(2), 3-6.

Sanghera, S., 2005, 'Yorkshire is lovely but London is best for business', *Financial Times*, March 11.

Saxenian, A., 1999, 'The Bangalore Boom: From Brain Drain to Brain Circulation? Revised paper prepared for Working Group on Equity, Diversity, and Information Technology, National Institute of Advanced Study, Bangalore, India, Dec 3-4.

Saxenian, A., 2002, 'Silicon Valley's New Immigrant High-Growth Entrepreneurs', *Economic Development Quarterly* 16(1), 20-31.

Schumpeter, J., 1926, *The Theory of Economic Development*, New York: Oxford University Press.

Shapero, A., 1975, 'The Displaced, Uncomfortable Entrepreneur', *Psychology Today* **9**(11), 83–6.

Short, D. and A. Stockdale, 1999, 'English migrants in the Scottish countryside' *Scottish Geographical Journal* **115**, 177-192.

Small Business Service, 2003, *Survey of Entrepreneurship 2003*, London: Department of Trade and Industry.

Small Business Service, 2004, *A Government Action Plan for Small Business: The Evidence Base*, London: Department of Trade and Industry.

Stimson, R.J., and J. Minnery, 1998, 'Why People Move to the 'Sun-belt': A case study of long-distance migration to the Gold Coast, Australia', *Urban Studies* **35**(2), 193-214.

Wagner, J., 2004, *Nascent Entrepreneurs*, Discussion Paper no. 1293, Bonn:Institute for the Study of Labour (IZA).

Waldinger, R., 1995, 'The 'other' side of embeddedness: a case study of the interplay of economy and ethnicity', *Ethnic and Racial Studies* **18**(3), 554-580.

Waldinger, R., Aldrich H. and R. Ward, 1990, *Ethnic Entrepreneurs: Immigrant Business in Industrial Society*, Newbury Park, CA: Sage.

Waldrop, J., 1993, 'Movers Today', *American Demographics* **15**(6), 4.

Williams, A.M., Balaz, V. and C. Ward, 2004, 'International Labour Mobility and Uneven Regional Development in Europe: human capital, knowledge and entrepreneurship', *European Urban and Regional Studies* **11**(1), 27-46.

Yankow, J.J., 2003, 'Migration, Job Change, and Wage Growth: A new perspective on the pecuniary return to geographic mobility', *Journal of Regional Science* **43**(3), 483-516.

Table I Descriptive statistics for independent variables by origin and ethnicity; adjusted to represent the UK population

Variable	Life-long residents	In-migrants	Immigrants	Chi-square*	Sig.	Ethnic majority	Ethnic minority	Chi-square*	Sig.
Mean age (95% C.I.)†	38.6 - 39.2	41.9 - 42.4	36.7 - 38.1	n.a.	n.a.	40.8 - 41.1	34.1 - 35.6	n.a.	n.a.
% males	50.0	49.2	51.7	8.861	.123	49.3	54.3	30.195	.001
% with post-secondary education	33.5	50.1	62.0	1399.894	.000	43.7	57.6	236.924	.000
% in work	76.7	77.6	74.4	17.585	.018	77.4	71.2	64.271	.000
Opportunities: % saying yes**††	26.9	31.3	29.9	38.726	.000	29.4	29.9	.201	.790
Skills: % saying yes††	44.6	51.4	52.1	83.361	.000	48.5	52.8	11.054	.048
Fear failure: % saying yes††	34.1	33.8	35.1	1.364	.709	34.1	32.4	1.973	.407
Know an entrepreneur: % saying yes††	23.0	26.0	30.5	50.799	.000	24.6	32.1	46.228	.000
Shut down own business: % saying yes	1.1	2.4	2.8	89.531	.000	1.8	2.7	11.214	.043
Funded an entrepreneur: % saying yes	1.0	1.6	2.4	49.953	.000	1.3	3.1	69.144	.000

*Pearson test statistic of independence, adjusted for complex survey design
† 95% confidence intervals
** % saying yes versus no or don't know. 19% of respondents who answered this question answered don't know. In regressions, they behaved like the no group and are included with them in this item. Don't know responses on all other items are very low and treated as missing data.
†Statistics for these variables were obtained on a representative subset of the main sample. Respondents who were asked these items but not a set of culture questions were added to a 50% random sample of respondents who were selected to answer both these items and a set of culture questions. The combined sub-sample was reweighted to represent the UK population and subject to complex survey analysis techniques using SPSS 12.0.

Table II. Descriptive statistics: TEA rates by variable, corrected for complex survey effect

		Un-weighted count n	Design effect on TEA+ cases	TEA rates	95% C.I.*	Chi-square test statistic	Sig.
Migrant Status	Life-long residents	16140	1.878	4.3	3.9-4.8	139.999	.000
	In-migrants	19446	1.894	7.0	6.5-7.5		
	Immigrants	2403	2.965	8.4	7.0-10.1		
Time in region	Less than 5 years	4848	2.264	8.4	7.4-9.5	64.009	.000
	5 years or more	33093	1.978	5.7	5.3-6.1		
Age group	18-44 yrs	21474	2.185	7.0	6.5-7.5	73.457	.000
	45-64 yrs	16673	1.693	4.8	4.4-5.3		
Time in region by age group	Less than 5 years; 18-44	3762	2.389	8.2	7.0-9.4	130.829	.000
	Less than 5 years, 45-64	1086	1.742	9.5	7.4-12.1		
	5 years or more, 18-44	17652	2.125	6.6	6.1-7.2		
	5 years or more, 45-64	15516	1.688	4.5	4.0-4.9		
Ethnicity	Minority	1860	3.348	9.5	7.8-11.4	71.606	.000
	Black	394	3.368	10.1	7.0-14.3		
	Asian	833	3.651	9.2	6.8-12.2		
	Other ethnic	475	2.741	9.3	6.5-13.1		
	Majority	36445	1.830	5.8	5.5-6.1		
Time in region by ethnicity	< 5 years, minority	533	3.421	7.7	5.3-11.2	157.583	.000
	< 5 years, majority	4315	2.028	8.5	7.5-9.7		
	5 years +, minority	1153	3.332	10.4	8.3-12.9		
	5 years +, majority	31940	1.786	5.3	5.0-5.7		

* 95% Confidence Intervals

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Table III. Listwise Spearman Correlation Coefficient matrix for independent variables

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Age (18-44 or 45-64)	1												
		(1)												
2	Gender (male or female)	-.018	1											
		(.015)	(1)											
3	Education (post-secondary or no post-secondary)	.112	.033											
		(.000)	(.00)	(1)										
4	Work status (In work or not in work)	.141	.124	.123	1									
		(.000)	(.000)	(.000)	(1)									
5	Good opportunities to start a business in this area (yes or no/don't know)	.061	.105	.087	.077	1								
		(.000)	(.000)	(.000)	(.000)	(1)								
6	Have knowledge, skills, experience to start a business (yes or no)	.002	.201	.119	.137	.202	1							
		(.000)	(.000)	(.000)	(.000)	(.000)	(1)							
7	Fear of failure would prevent me starting a business (yes or no)	.062	.042	.019	.043	-.042	-.160	1						
		(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(1)						
8	Personally know someone who started a business in last 2 years (yes or no)	.112	.103	.114	.093	.229	.224	-.036	1					
		(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(1)					
9	Shut down a business in the last 12 months (yes or no)	-.022	.059	.019	-.005	.042	.105	-.032	.081	1				
		(.003)	(.000)	(.012)	(.488)	(.000)	(.000)	(.000)	(.000)	(1)				
10	Funded some-one else's new business in the last 3 years (yes or no)	-.001	.038	.029	.016	.079	.076	-.025	.127	.098	1			
		(.906)	(.000)	(.000)	(.027)	(.000)	(.000)	(.001)	(.000)	(.000)	(1)			
11	Migrant (yes or no)	-.059	-.001	.172	.010	.056	.082	-.023	.040	.050	.031	1		
		(.000)	(.886)	(.000)	(.184)	(000)	(.000)	(.002)	(.000)	(.000)	(.000)	(1)		
12	Time in region (less than 5 years or at least 5 years)	-.156	-.017	-.127	-.005	-.026	-.037	.022	-.039	-.039	-.024	-.328	1	
		(.000)	(.025)	(.000)	(.478)	(.000)	(.000)	(.003)	(.000)	(.000)	(.001)	(.000)	(1)	
13	Ethnic minority (yes or no)	-.098	-.036	-.069	.000	-.009	-.021	.017	-.028	-.020	-.046	-.106	.108	1
		(.000)	(.000)	(.000)	(.981)	(.239)	(.005)	(.022)	(.000)	(.006)	(.000)	(.000)	(.000)	

Correlations are for the reduced set. Listwise N = 18262. Note: Variables 11 and 12 were not entered together

Table IV. Logistic Regression model 1 for 100% and first 17% case-cohort sample

2004	100% sample			Case-cohort (17%TEAneg.)		
Model 1	B	Wald	Sig.	B	Wald	Sig.
Age (18-44)	.335	34.860	.000	.289	14.327	.000
Gender (male)	.355	42.506	.000	.433	34.854	.000
Education (post-secondary)	.005	.009	.925	-.020	.076	.782
Work status (in work)	.937	109.508	.000	.960	76.386	.000
Good opportunities in this area (yes)	.816	227.097	.000	.867	136.993	.000
Have skills to start a business (yes)	1.717	505.846	.000	1.706	377.574	.000
Fear failure would stop me (yes)	-.756	127.178	.000	-.653	59.167	.000
Know an entrepreneur (yes)	.684	153.728	.000	.668	77.080	.000
Shut my business last year (yes)	.829	41.959	.000	.963	20.679	.000
Funded an entrepreneur (yes)	.368	5.561	.018	.607	5.673	.017
Migrant (yes)	.342	35.132	.000	.349	20.163	.000
Ethnic minority (yes)		5.759	.124		2.381	.497
Black versus White	.167	.551	.458	.175	.333	.564
Asian versus White	.026	.024	.878	-.180	.224	.422
Other versus White	.445	5.286	.022	.316	1.341	.247
Final Model						
Chi-square		2534.248	.000		1623.950	.000
-2 Log likelihood		9600.420			4617.462	
Nagelkerke R-square		.267			.400	
H&L goodness of fit		14.166	.078		7.670	.466
% cases correctly classified TEA+		7.5			68.2	
% cases correctly predicted TEA-		99.2			79.8	
Change in -2LL if Migrant removed (backward stepwise)		35.853	.000		20.267	.000
Change in -2LL if Ethnic minority removed (backward stepwise)		5.463	.141		2.394	.495

Pearson correlation coefficient of independent variable regression coefficients for both samples: 0.982

Table V Logistic Regression model 2 for 100% and first 17% case-cohort sample

2004	100% sample			Case-cohort (17%TEAneg.)		
Model 2	B	Wald	Sig.	B	Wald	Sig.
Age (18-44)	.280	24.010	.000	.232	9.227	.002
Gender (male)	.340	39.179	.000	.422	33.326	.000
Education (post-secondary)	.044	.659	.417	.026	.125	.723
Work status (in work)	.921	106.306	.000	.950	75.107	.000
Good opportunities in this area (yes)	.816	227.066	.000	.858	134.722	.000
Have skills to start a business (yes)	1.724	511.140	.000	1.706	378.717	.000
Fear failure would stop me (yes)	-.751	125.607	.000	-.651	58.965	.000
Know an entrepreneur (yes)	.681	152.800	.000	.668	77.538	.000
Shut my business last year (yes)	.848	43.797	.000	.986	21.710	.000
Funded an entrepreneur (yes)	.394	6.376	.012	.649	6.457	.011
Recent migrant (<5 years) (yes)	.317	17.943	.000	.313	8.951	.003
Ethnic minority (white is ref. group)		15.778	.001		7.669	.053
Black versus white	.659	6.038	.014	.714	3.840	.050
Asian versus white	.287	2.255	.133	.184	.484	.487
Other ethnic versus white	.626	8.093	.004	.603	3.563	.059
Recent migrant X Ethnic minority interaction term		10.664	.014		9.598	.022
Black and Recent migrant	-1.159	5.708	.017	-1.316	4.110	.043
Asian and Recent migrant	-.804	4.137	.042	-.996	3.783	.052
Other and Recent migrant	-.537	1.333	.248	-.929	2.281	.131
Final Model						
Chi-square		2505.716	.000		1603.799	.000
-2 Log likelihood		9614.209			4630.882	
Nagelkerke R-square		.264			.396	
H&L goodness of fit		10.424	.236		4.866	.772
% cases correctly classified TEA+		6.2			70.2	
% cases correctly predicted TEA-		99.4			78.2	
Change in -2LL if Recent Migrant removed (backward stepwise)		17.344	.000		8.972	.003
Change in -2LL if Ethnic minority removed (backward stepwise)		14.649	.002		7.751	.051
Change in -2LL if Recent Migrant X Ethnic minority interaction term removed (backward stepwise)		11.359	.010		9.712	.021

Pearson correlation coefficient of independent variable regression coefficients for both samples: 0.988

Table VI. Correlation matrix for UK regions

Variable Number and Description	Mean	Std. Deviation	N	1	2	3	4	5	6	7	8	9	10
1 TEA rate 2003	6.02	1.62	12	1.00									
2 TEA rate 2004	5.63	1.13	12	0.76	1.00								
				0.002									
3 Gross Value Added (as % of UK 2002 average)	95.07	16.91	12	0.77	0.68	1.00							
				0.002	0.007								
4 Regional economic growth rate (1992-2002, %)	2.59	0.73	12	0.68	0.64	0.70	1.00						
				0.008	0.012	0.006							
5 Projected population change (2002-2011, %)	1.75	2.21	12	0.57	0.76	0.52	0.86	1.00					
				0.025	0.002	0.041	0.000						
6 Actual population change (1982-2002, %)	5.18	5.94	12	0.56	0.76	0.46	0.85	0.98	1.00				
				0.029	0.002	0.066	0.000	0.000					
7 Net migration (% of 2002 population)	0.28	0.28	12	0.65	0.79	0.67	0.50	0.68	0.63	1.00			
				0.011	0.001	0.008	0.005	0.008	0.013				
8 Internal gross migration flow (% of 2002 population)	3.91	1.30	12	0.58	0.73	0.66	0.46	0.64	0.54	0.81	1.00		
				0.025	0.004	0.010	0.067	0.013	0.035	0.001			
9 International gross migration flow (% of 2002 population)	1.14	1.13	12	0.79	0.61	0.81	0.46	0.33	0.29	0.72	0.49	1.00	
				0.001	0.017	0.001	0.067	0.149	0.183	0.004	0.053		
10 Gross migration flow (% of 2002 population)	5.05	2.10	12	0.78	0.78	0.84	0.53	0.57	0.49	0.89	0.88	0.84	1.00
				0.001	0.001	0.000	0.038	0.026	0.054	0.000	0.000	0.000	

Bivariate correlations showing Pearson correlation coefficients and 1-tailed significance levels

Table VII. Proportion of respondents and proportion of entrepreneurs by origin and ethnicity

Unweighted count = 37987

2004	White life-long residents	Non-white life-long residents	White in-migrants	Non-white in-migrants	White immigrants	Non-white immigrants	Total
% of respondents	36.7	1.6	49.1	2.5	4.9	5.1	100
% of entrepreneurs	25.5	1.8	54.4	4.5	5.9	7.9	100

χ^2 adjusted = 181.569, p =.000