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## Changing patterns of ethnic minority self-employment in Britain: evidence from census microdata

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# **Changing Patterns of Ethnic Minority Self-Employment in Britain: Evidence from Census Microdata**

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## ABSTRACT

### Changing Patterns of Ethnic Minority Self-Employment in Britain: Evidence from Census Microdata<sup>\*</sup>

The over-representation of certain ethnic minority and immigrant groups in self-employment is, in common with other developed countries, a notable feature of the UK labour market. Compared to substantial growth in self-employment in the 1980s, the 1990s saw overall self-employment rates plateau. Despite this, some minority groups experienced continued growth whilst others, particularly Chinese and Indian males and Pakistani, Bangladeshi and Chinese females, saw their self-employment rates decline. In this paper we use microdata samples from the 1991 and 2001 Censuses to investigate the trends in ethnic entrepreneurship. Using decomposition methods we find that, for males from the Asian groups, changes in observable characteristics associated with an increasing proportion of second generation individuals explain much of the decline in self-employment. This, which is also true of Chinese females, reflects in part the age structure and educational experiences of the second generation. The dynamics of Black male and Pakistani/Bangladeshi female entrepreneurship are less easy to explain. We also find that, while there is no evidence of self-employment being an “enclave” phenomenon, local economic conditions do affect rates of entrepreneurship for some groups, notably Pakistanis and Bangladeshis.

JEL Classification: J23, J7

Keywords: self-employment, entrepreneurship, ethnicity, immigrants

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## **1. Introduction**

In common with other countries, self-employment is generally considered to be an important form of economic activity for ethnic minorities in the UK. However, this broad generalisation, disguises considerable variation in self-employment rates by racial origin, gender, and over space and time. Measuring self-employment in a way which takes adequate account of this diversity is therefore important. Furthermore ethnic entrepreneurship matters for welfare: self-employment may be a positive choice made by individuals from minority groups which exploits particular talents or motivations and which may be rewarding both financially and in terms of life or job satisfaction. On the other hand, running a marginal business may be the only alternative to a paid labour market in which discrimination limits the opportunities for certain groups.

Previous research on ethnic entrepreneurship in the UK has emphasized these ‘push’ and ‘pull’ factors which affect the choice between self-employment and paid-employment. Metcalf, Modood and Virdee (1996), for example, argue that self-employment may be a response to “blocked upward mobility” or a manifestation of group-specific “cultural resources”. Clark and Drinkwater (2000) find some empirical evidence in favour of both push and pull factors. Specifically, ethnic minority individuals respond to earnings differentials between paid and self-employment, thus paid labour market discrimination leads to higher self-employment for discriminated-against groups. At the same time, some aspects of ethnic minority culture, particularly religion, may enhance entrepreneurial ambitions.

Other aspects of ethnic self-employment in the UK have also been addressed in the literature. Firstly, informal sources of finance are important for some minority businesses (Metcalf *et al.*, 1996), whilst Parker (2004) argues that there are racial differences in access to start-up capital

from banks. Secondly, there is little evidence that ethnic self-employment in Britain is the product of an enclave economy based around shared language or culture, or the production of ethnic goods (Clark and Drinkwater, 1998, 2000, 2002). Thirdly, ethnic minority entrepreneurs earn substantially less than White entrepreneurs (Clark, Drinkwater and Leslie, 1998). Fourthly, ethnic minority entrepreneurs tend to be concentrated in industrial sectors with high business failure rates such as retail, catering and transport (Parker, 2004). Fifthly, self-employment may enhance job satisfaction, feelings of self-worth and may strengthen family ties (Metcalf *et al.*, 1996). Finally, the employment of illegal immigrants by struggling ethnic minority businesses is common (Jones, Ram and Edwards, 2006).

Figure 1 provides some context for the analysis conducted in the paper. It presents aggregate statistics on self-employment rates for the UK. The self-employment rate is calculated here as the proportion of all those in either paid or self-employment who are self-employed. It is clear that the period we are examining has seen self-employment rates remain fairly stable, compared to the substantial growth of the 1980s. Growth in the 1980s has been attributed to a number of factors including changes in attitudes to entrepreneurship and business, as well as the prevailing policy environment which encouraged business start-ups and the push from (long-term) unemployment (Weir, 2003). The increase in self-employment for ethnic minorities was particularly large - Daly (1991) reported that self-employment rates for minorities grew by 95 per cent over the 1980s, compared to 52 per cent for Whites. By contrast, the 1990s saw a more favourable paid labour market than the previous decade, which may have accounted for the slowdown in the growth rate of entrepreneurship.

In this paper we use Census microdata to examine how patterns of ethnic entrepreneurship have changed in the UK between 1991 and 2001. We will show that the generally stable level of self-

employment in the aggregate data disguises considerable ethnic variation. We take a dynamic perspective and focus on how changes in the nature of the UK's ethnic minority population impacted on self-employment over time. It is important to understand whether future generations of minority groups will be as keen to enter self-employment as previous generations. If self-employment is declining, does this represent the closing-down of a route to success for young minority individuals, or is it an indicator of "assimilation" reflecting the fact that they are no longer trapped in an "economic dead end" (Aldrich *et al.*, 1981)?

We also consider the impact of some features of neighbourhoods or local areas on self-employment rates. For minority groups it has been suggested that self-employment may be more prevalent where there exists clusters of co-ethnic individuals to provide a source of product demand or a supply of labour for the minority business. Self-employment rates may also reflect the underlying economic performance of the area either through restricted paid-labour market opportunities pushing individuals to start their own business or through high levels of deprivation reducing product demand. We investigate these ideas using ethnic group specific regression models where features of local areas are considered as additional explanatory variables.

The remainder of the paper proceeds as follows. In the next section we describe the data sets used in the paper and present some descriptive statistics. Section 3 presents a decomposition analysis of changes in self-employment rates through time. In section 4, we exploit the detailed information available from Census microdata to investigate how the characteristics of local areas affect the probability of self-employment. Section 5 concludes.

## 2. Data and Descriptive Statistics

We employ micro data from the 1991 and 2001 population censuses. These are known as the Individual Samples of Anonymised Records (SARs) and consist of a 2% (in 1991) and 3% (in 2001) sample of all Census returns. For 2001 we also make use of a restricted access data file containing individual Census returns called the Controlled Access Microdata Sample (CAMS). This contains the geographical identifiers needed to examine local area effects on self-employment. Detailed empirical investigation of ethnic minority self-employment rates over this period of time can only be undertaken using Census records as no other data set contains a sufficient number of observations from each separate ethnic minority group to enable the requisite disaggregation by ethnicity. Such disaggregation is necessary because of the diverse labour market behaviour of different ethnic groups noted in various previous studies (e.g. Blackaby *et al.*, 2002; Clark and Drinkwater, 1998, 2000, 2002, 2005).

To undertake a comparison of ethnic groups across time we need a consistent measure of ethnicity and in this paper eight groups are considered: White, Black African, Black Caribbean, Indian, Pakistani, Bangladeshi, Chinese and Other.<sup>1</sup> In some analyses we combine the two Black groups and the Pakistani and Bangladeshi groups. Self-employment is identified by Census respondents' answers to questions about their economic activity. It is thus self-assessed and is not checked by the Census authorities. However, since the self-employed and paid-employed are taxed in distinct ways in the UK, it seems likely that the vast majority of individuals will be able to correctly assign themselves to the appropriate sector.

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<sup>1</sup> See Simpson and Akinwale (2004) and ONS (2006) for justification for using these groups. Clark and Drinkwater (2005) provide more detail on the issues involved in matching the data between the two Census data sets and deriving the relevant variables. Note that we also consider only Great Britain in what follows as the Census collected different ethnicity information from Northern Ireland than in the rest of the UK.



Table 1 presents self-employment rates calculated as the proportion of all those in paid and self-employment. For males, in both Census years there is considerable ethnic diversity in self-employment rates. In 1991 these varied from 9.1% for the Black Caribbean group to 34.1% for the Chinese. The two Black groups together with the Other category had lower rates than Whites, with the other 'Asian' groups having higher rates. Chinese and Pakistani males had relatively high proportions in self-employment, followed by Indians, Bangladeshis and Whites. Moreover, the ranking of the groups stayed the same between 1991 and 2001. However, in contrast to the broadly steady aggregate self-employment rates shown in Figure 1, there has been some important ethnic variation in the changes in self-employment rates over time. Broadly speaking, ethnic differences have narrowed: some of those groups with the highest self-employment rates – notably the Chinese and Indians – experienced a decline whilst groups with initially low rates such as Black Caribbeans showed some increase. Self-employment rates fell most for Chinese males (a drop of around 6 percentage points) followed by the Indians (around 2.5 points). The biggest increase was recorded by the Black Caribbean group, whose rate grew by around 4 percentage points.

It is clear from the table that self-employment is much less important for females, with negligible proportions in this activity for most groups.<sup>2</sup> The only exception is for the Chinese, where around 20% of workers were self-employed. While there is some evidence from other countries that female self-employment has been increasing, partly to allow female workers greater flexibility in child-care arrangements (Parker, 2004), there is little evidence of an increase in these data. This finding has been confirmed for the UK by Ajayi-Obe and Parker

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<sup>2</sup> One potential caveat here is that entrepreneurship is often a family activity and women (and indeed children) may play an important role in the operation of small firms which are "owned" by their male relative. See Metcalf, Modood and Virdee (1996) for a discussion of this in the context of the UK's Asian population.

(2005) using British Household Panel Survey data. Indeed Pakistani, Bangladeshi and Chinese females have seen a decline in their rate, substantially so for the former two groups.

Table 1 also provides self-employment rates, calculated separately for the UK born. Most ethnic minority individuals who were born overseas arrived prior to the 1980s hence many of the people who now identify themselves as members of these groups are in fact second or higher generation. It is often argued that the high rates of self-employment seen among immigrant communities in many host economies reflects the greater entrepreneurial drive of immigrants. These are, it is claimed, individuals and families who are risk-takers, prepared to seek out new opportunities in an unfamiliar environment. In fact, surveys of attitudes to risk do not always support this view (Bonin *et al.*, 2006; Metcalf *et al.*, 1996), however it is likely that the native born will have a markedly different experience of socialization and the acquisition of formal and informal human capital to that of their parents. Hence it is useful to examine the effect of being born in the UK.

From the table, it is clear that those born in the UK are less likely to be self-employed than first-generation immigrants, irrespective of ethnic group. Furthermore some of the native-immigrant differences are substantial. For males from the Indian, Pakistani and Chinese groups, these are 10 percentage points or more. Similarly large differences are apparent for females from some of the groups. Such differences may be due to unobservable motivational factors which drive both the desire to migrate and the desire to start a business. On the other hand, the age structure may explain the lower self-employment rates since the UK born members of ethnic minority groups will be younger on average and we expect self-employment rates to rise with age. In subsequent sections we will examine the impact of being native born where age (and other factors) are controlled for.

Table 2 continues the theme of describing the nature of ethnic self-employment by presenting self-reported hours of work for the paid and self-employed by ethnicity and year. It is well-established that the self-employed work longer hours than the paid-employed and this is confirmed in the Census data in both 1991 and 2001. It can be seen that the size of the differential tends to be positively correlated with a group's propensity for self-employment, especially for males. In particular, self-employed hours are highest for Indians and the Chinese. Average hours of work generally fell for the self-employed over the period however, with the exception of the Pakistani and Bangladeshi groups, the extent of this was small.

Parker *et al.* (2005) argue that the empirical regularity whereby the self-employed work longer hours but receive lower wages than the paid-employed is explained by the greater income uncertainty faced by the self-employed. Longer hours compensate for the uncertainty by increasing the amount of income that the self-employed can 'guarantee', the part that is not affected by random shocks. Parker *et al.* (2005) test this model using US data and find that self-employed workers with more uncertain incomes work longer hours. As noted by the Bank of England (1999), ethnic minorities in Britain tend to work in sectors where business failure rates are high, hence this additional uncertainty might provide some explanation for the patterns we observe in the data. Blanchflower (2004) notes that, while job satisfaction as a whole is generally higher for self-employees compared to the paid employed, entrepreneurs in many countries of the world consistently report that they are less satisfied than employees with their hours of work.

Self-employment tends to be concentrated in particular types of industry. In a sense this is not surprising: the startup costs associated with some service sector activities are likely to always be

much lower than those in manufacturing, for example. However ethnic entrepreneurship is much more concentrated for some groups than for others. Figure 2 explores this idea by illustrating the industrial structure of self-employment for eight ethnic groups. There are some marked differences by ethnicity for both genders. For males, both White and Black Caribbean groups have relatively high proportions of the self-employed working in the Construction sector (34% and 37% respectively in 1991). Black Africans and Indians have far smaller proportions (5% and 8%) in this sector, while the remaining groups have negligible numbers here. For the South Asian and Chinese groups, the combined category of Distribution, Hotels and Catering accounts for a large proportion of the self-employed. Indeed over 75% of male Chinese and Bangladeshi entrepreneurs worked in this sector in 1991. This sector includes both wholesale and retail trade as well as the operation of restaurants and other catering outlets. The transport sector was also a major source of self-employment for the Pakistani group in both Census years. Over the period between Censuses, self-employment in Transport has grown for Pakistanis and Bangladeshis, with corresponding declines in Distribution, Hotels and Catering. Whites, Black Caribbeans and Black Africans have seen a large increase in finance-based self-employment, with the growth (from 12% to 34%) particularly pronounced for Black Africans.

Females display a very different pattern of self-employment, with negligible proportions in Construction and Transport. Distribution, Hotels and Catering is again important, particularly for the Indian, Pakistani and Chinese groups. The residual, Other, category also accounts for a large proportion of self-employed females. Further investigation suggests that this is mainly in the area of Personal Services and Medical Services. There are also non-negligible numbers of the female self-employed in Finance. A large proportion of self-employed Bangladeshi females in 1991 were in manufacturing, however an important caveat when discussing the results based

on gender is that the number of female self-employed in our sample is small, hence these results should be treated with some caution.

Tables 3 and 4 further disaggregate the industry of the self-employed by reporting, for males only, a more detailed breakdown of the sector in which they worked in 1991 and 2001. This uses information on two-digit industries collected in each Census year. There are around 60 categories in total, and while these do not exactly match across Censuses, the breakdown allows a more detailed picture of the industry choice of ethnic minority entrepreneurs to be obtained. The table reports the five most important two-digit sectors for each group and the last row reports the proportion of all self-employment for each group accounted for by these five sectors. The large proportions of some groups in the restaurant trade, retail distribution and transport (which includes taxi driving) are notable. Even amongst White self-employed workers there is considerable concentration, with 65% of all entrepreneurs in the sample in the top five sectors. However, the other groups exhibit much greater concentration, rising in 1991 to over 90% of Chinese and Bangladeshi self-employment concentrated in the top five sectors. There is some evidence that this degree of concentration has declined slightly between 1991 and 2001 but this was by no means a steep decline and around 80% of Bangladeshis and Chinese self-employed males were still concentrated in the top five sectors.

### **3. Decomposing the Dynamics of Ethnic Entrepreneurship**

In this section we examine the changing probabilities of self-employment for different ethnic groups using a modification of the decomposition procedure outlined in Gomulka and Stern (1990). This is a method of applying the Oaxaca (1973) decomposition to the case of a discrete dependent variable model. Suppose we have estimated probit models of the self-employment

choice for each group in each year. For each ethnic group, we then use the coefficients from the probit models in the following decomposition<sup>3</sup>:

$$\hat{P}^{01} - \hat{P}^{91} = \{\bar{P}(x^{01}\hat{\beta}^*) - \bar{P}(x^{91}\hat{\beta}^*)\} + \{[\bar{P}(x^{01}\hat{\beta}^{01}) - \bar{P}(x^{01}\hat{\beta}^*)] - [\bar{P}(x^{91}\hat{\beta}^{91}) - \bar{P}(x^{91}\hat{\beta}^*)]\}. \quad (1)$$

Here  $\hat{P}^{01}$  is the average of the predicted employment probabilities for the relevant ethnic group in 2001 and  $\hat{P}^{91}$  is the same for 1991.  $\hat{\beta}$  is the vector of estimated coefficients from the probit model and  $\hat{\beta}^*$  is a vector of estimated coefficients from a probit model estimated on a pooled sample (1991 and 2001 samples pooled for the relevant ethnic group),  $\bar{P}(x^{91}\hat{\beta}^{91})$  is the average of the fitted probabilities from the probit model estimated using the observations in 1991 and the estimated coefficients in 1991 and so on. The first term in braces is the component of the probability difference over time due to changes in the distribution of observed characteristics, while the second term in braces is the effect of changing coefficients which corresponds to unobservable influences on the employment probability. This ‘unexplained’ component may reflect changes in differential treatment by the labour market such as employer discrimination or cultural/ethnic differences in motivation or preferences or, indeed, changes over time in any unobservable influence on sectoral choice.

Performing the decomposition involves estimating separate probit regression models for each group for both 1991 and 2001. The analysis is performed separately for males and females and the models control for age, educational attainment, marital status, whether there are children in the household, whether UK born, long-term illness and housing tenure. Due to the small sample sizes the two Black groups and the Pakistani and Bangladeshi samples are merged in these regressions. The marginal effects from these models are contained in the Appendix (Tables A1-A4) and are not discussed in detail here. The decomposition results are contained in Table 5. The first row of the table reports for each ethnic group the change in the self-employment rate

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<sup>3</sup> See Blackaby *et al.* (2002) for a discussion of this formula.

between 1991 and 2001. The next two rows decompose this into the amount due to differences in observable characteristics between the two years and the amount due to changes in the estimated probit coefficients.

For males, as already shown in Table 1, three of the groups saw a decline in their self-employment rate over this period: the Indians and Chinese by 2.3 and 7.5 percentage points respectively, while the Pakistani/Bangladeshi combined group saw a much smaller decline.<sup>4</sup> For the Indians and the Chinese the majority of this reduction in the self-employment rate is attributable to changes in observable characteristics. The Pakistani/Bangladeshi group is unusual in that decomposition suggests that the small reduction in the self-employment rate is due to two offsetting sets of factors. Changes in the characteristics of the Pakistani and Bangladeshi group tended to reduce self-employment but this was almost entirely counteracted by a positive coefficients effect. In other words, had only the characteristics of the Pakistani and Bangladeshi workers changed, their self-employment rate would have been almost 3 percentage points lower in 2001 compared to 1991. In contrast to the other groups, the Black group saw a relatively large increase in the self-employment probability (over 3 percentage points). The majority of this was attributable to changes in coefficients, that is, not explainable by changes in observable characteristics.

The remainder of Table 5 breaks down the characteristics effect into its component parts using the method described in Even and MacPherson (1993). Entries in the table here reflect the proportion of the characteristics effect which is due to the relevant explanatory variable. Thus, for example, the 26% of the characteristics effect due to age for the Pakistani/Bangladeshi group

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<sup>4</sup> In fact there are some slight discrepancies in these changes over time compared to Table 1. This is due to the regression sample being slightly different to that used to compute the descriptive statistics.

implies that 26% of the reduction in the self-employment probability due to characteristics can be attributed to changes in the age structure of the Pakistani/Bangladeshi sample over the period. A negative entry in this part of the table suggests that the explanatory variable in question is working in the opposite direction to the overall characteristics effect.

Considering first the three Asian groups who experienced declining self-employment rates, it is clear that age, education, marital status and country of birth are important influences on the characteristics effect and, hence, on the change in self-employment propensity over this period. As noted earlier, an important change in the characteristics of immigrant ethnic minority groups in the UK is that first-generation (i.e. foreign born) immigrants are being replaced in the workforce by the native born children of immigrants. In part this reflects changes in immigration policy which have restricted immigration from British Commonwealth countries and in part the propensity of certain ethnic groups to have relatively large numbers of children. Thus, in our sample, the proportion of Pakistani and Bangladeshi males who were aged under 30 in 1991 was 35%, which by 2001 had risen to 40%. For Indians the corresponding percentages were 27% in 1991 and 29% in 2001. Although these are modest increases in percentage point terms, the strong positive influence of age on self-employment probabilities makes this shift in the age distribution of ethnic minorities a contributory factor to the reduction in entrepreneurship for these groups.

Similarly, increasing educational attainment has been a feature of the experience of young members of these ethnic groups in the UK: over the period in question the proportion of Indians in our sample with a higher qualification grew from 24% to 41%. The equivalent figures for the Pakistani/Bangladeshi (Chinese) groups are 14% and 27% (33% and 43%). The importance of education for self-employment rates is clear from the regression models displayed in Tables A1



and A2. Higher qualifications are associated with paid-employment rather than self-employment and the increasing educational attainment of these groups has contributed to a reduction in self-employment.

In 2001, lower proportions of the Indian and Chinese groups were married and given the association between marital status and self-employment this contributed to the reduction in self-employment. Similarly, the proportions of the three Asian groups who were born in the UK rose from 14% to 31% for Indians, 13% to 26% for Pakistanis and Bangladeshis and 9% to 19% for the Chinese. Again the regression results in Tables A1 and A2 show that, controlling for other factors, immigrants are more likely to be self-employed than the UK born and again this contributed to reductions in self-employment propensity.

For these three groups the results suggest that, relative to their parents, second generation immigrants find self-employment a less attractive form of activity than the paid labour market. To some extent this may reflect the age and stage in the life-cycle of the second generation: as they get older and settle down entrepreneurship may again grow. However, it is interesting to note that for the Indians and Chinese the decompositions pick out qualifications and marital status, more than age *per se* as the key influences driving the characteristics effect. For the Pakistani/Bangladeshi group, age itself is an important factor and it is interesting that for this group the positive coefficients effect suggests that there exist positive influences on self-employment which are not being captured by observable characteristics. Any discussion of what these factors might be is necessarily speculative, nonetheless there is evidence that this group is among the most likely to face discrimination in the paid labour market and also that these predominantly Muslim individuals may prefer to be isolated from the majority white community or from other groups, a taste which it may be easier to indulge by working for

themselves rather than through paid work. Like the Pakistanis and Bangladeshis, the Black group exhibits a positive characteristics effect however, for this group, the characteristics effect is the major component of an increasing self-employment rate between the two years. Again this may reflect paid employment discrimination however it has been suggested that there are more positive pull factors leading Black workers to set up in business for themselves. Harding et al. (2006) find that Black Africans in 2005 were the most likely to have entrepreneurial aspirations and this could be attributed to positive attitudes towards business.

Table 6 reports the results of a similar exercise for females. It should be noted here that the smaller samples of economically active females and relatively low female self-employment rates suggest that these results should be treated with more caution than those for males. Two groups stand out: the Pakistani/Bangladeshi group experienced a large decline in their self-employment rate over the period, most of which was not attributable to observable characteristics. On the other hand characteristics changes were again responsible for the declining Chinese rates. In fact, for Chinese women, qualifications, marital status and country of birth acted in much the same way as for their male counterparts.

#### **4. Enclaves, Neighbourhood Effects and Self-Employment**

An important strand of the literature on ethnic entrepreneurship argues that high rates of self-employment among minority and immigrant communities reflect an ‘enclave’ economy, whereby self-sustaining communities are based around shared ethnicity, culture, language or religion. Such communities offer additional sources of product demand for ethnic-specific goods and services, may involve lower levels of consumer discrimination against minorities, and can provide easy access to networks of information, credit, potential workers and other business services (see Parker, 2004, pp. 120-121). If this is the case we would expect to find the

percentage of an individual's own group in his or her local area to have a positive influence on that individual's self-employment probability. The existing literature, based on data sets from various countries, presents conflicting evidence on the impact of geographical concentrations of minorities on self-employment rates. For the UK, the available evidence based on different, complementary data sets suggests that for ethnic minority groups in the UK there is a negative effect of co-ethnic concentration on self-employment rates, even when controlling for other observable characteristics. These results have led to the conclusion that the relatively deprived nature of ethnically concentrated areas in Britain serves to depress self-employment opportunities rather than to foster an enclave economy (Clark and Drinkwater, 1998, 2000, 2002). In this section we update this work using 2001 Census microdata and explore the effect of alternative measures of neighbourhood characteristics on self-employment rates.

Table 7 illustrates the results of adding variables reflecting features of the local area to ethnic-specific regression models of self-employment propensity. For 1991, areas are defined as the so-called 'SARs areas'. These are mainly local authority areas, with some areas created by amalgamating adjacent local authorities, and there were 278 of them in 1991, with a minimum population size of 120,000. In 2001 we use local/unitary authorities, data from which were merged into the 2001 individual CAMS data set. There were 409 such areas with an average population of around 140,000. Note that as well as collapsing the ethnic groups as we did in the last section, we also combine males and females in these analyses.

In each panel of Table 7 there are three rows. The first reports the marginal effect of the local unemployment rate on the probability of self-employment. This marginal effect comes from an ethnic-specific regression model where in addition to the variables used in the previous regression models, the local unemployment rate has been added as an additional explanatory

variable. In the second row this variable is replaced by the percentage of the local population which is of the same ethnic group as the individual. Thus in the White regression this is the percentage White and so on. In the third row of the table, both of these variables are added together to the regression model to investigate the impact of one local area effect, controlling for the other. The interpretation of the marginal effects is as follows. Consider the -0.003 effect for Whites in the first row of Table 7. This means that, controlling for individual characteristics, an increase in the local unemployment rate by 1 percentage point from its average value (e.g from 10% to 11%) leads to a 0.3 percentage point decline in the self-employment probability of White workers.

Considering 1991 first, previous conclusions about the impact of ethnic concentration on self-employment are confirmed with negative effects on self-employment for all groups except Whites. These are also statistically significant in most cases. The magnitude of these effects may seem quite small in percentage point terms but one should consider the range of variation of the underlying variable. For example while the typical Indian in 1991 lived in an area where around 7.7% of the population was of the same ethnic origin, this percentage ranged from 0.02% to 22.3%. Moving from an area with the lowest proportion of Indians (e.g. Banff and Buchan) to one with the highest (Leicester) would imply a reduction in the Indian self-employment rate of around 6.5 percentage points. The large size of the Chinese marginal effect is also worth noting – this is statistically significant in the model where both local area variables are included together. This reflects the extremely dispersed nature of Chinese settlement in the UK. The Chinese are the least likely to live in areas with a high concentration of co-ethnics. In 1991, using these data, the typical Chinese individual lived in an area where Chinese comprised 0.5% of the population. Furthermore this only ranged from 0.06% to 1.6%. Unemployment rates were negative and statistically significant only for the White group in 1991. Interestingly they were

positive for Pakistanis and Bangladeshis and the Chinese, but only statistically significant for the former when the percentage of co-ethnics in the local area is also included. This may reflect workers being pushed into self-employment due to poor local labour market conditions for this group.

Turning to 2001, in the models where it enters on its own, the unemployment rate is uniformly negative and significant for all of the ethnic groups except Blacks. The effect is most pronounced for the Pakistani/Bangladeshi group. The percentage own group variable is again negative and significant for all groups except Whites. Including both variables in the model makes the unemployment variable insignificant in all cases except for Whites and the Chinese. Unemployment rates and percentage own group are positively correlated for all ethnic minority groups in the data but negatively correlated for Whites.

One caveat to the above analysis is that the areas that we investigate are too big to be properly classed as neighbourhoods and the kinds of enclave and neighbourhood effects that we are investigating may take place at a lower level of geography. Unfortunately, with the data available to us, we are not able to identify which local authority ward individuals reside in, however we can use the Index of Multiple Deprivation (IMD) which is collected at a lower level of aggregation. The IMD is measured at the lower level super-output area, which refers to areas with around 1500 inhabitants.<sup>5</sup>

Introducing the IMD score into an ethnic-specific regression model like those reported in the Appendix produces uniformly negative coefficients for all the ethnic groups. These effects were statistically significant for Whites, Indians and the Pakistani/Bangladeshi group. Rather than

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<sup>5</sup> See the ODPM (2005) for details of how the IMD has been constructed.

report the coefficient estimates, Figure 3 shows the results of re-estimating the model using a semi-parametric estimation technique. For each of the groups, the lines in Figure 3 illustrate the impact of the IMD on self-employment probabilities holding other observable characteristics constant at their mean values. Clearly it is the Pakistani and Bangladeshi group where self-employment declines the most with local deprivation. From very low levels of deprivation to levels of around 60 corresponds to a reduction in the self-employment rate of around 8 percentage points for this group and around 4 percentage points for Indians. To give some idea of what these levels of deprivation mean, the three lowest ranked local authority areas were Hart, Wokingham and Surrey Heath. These had IMD scores of around 1, while scores of around 60 corresponded to the average value in local authority areas such as Liverpool, Knowsley and Tower Hamlets. This analysis further emphasizes the effect of the deprived nature of the local area dominating enclave economy influences.

## **5. Conclusions**

Entrepreneurship is important for many of Britain's ethnic groups and in this paper we have attempted to provide a description of, and some explanations for, changes in ethnic self-employment through time. Over the period 1991-2001 there has been some convergence in self-employment rates between ethnic groups. Part of this can be explained by changes in the composition of ethnic groups – since younger, better educated, UK born individuals are less likely to be self-employed than their parents. To this extent our findings have resonance with those of Metcalf *et al.* (1996) who, on the basis of a smaller more detailed data set, noted:

“While future self-employed need not come from the same families, the wishes of the current groups of entrepreneurs about inheritance of the business added to the idea that the very high levels of self-employment may be a passing phase. The migrant generation's employment expectations for themselves, and what they were willing to do, were very

different to their aspirations for their children. They may have been willing to put family before self, and work over leisure, but few entrepreneurs felt that the business provided what they would wish for a son in his first job.” (Metcalf *et al.*, 1996, p.141)

We would argue that in the 2001 Census we can see the realisation of these aspirations for the children of Indian and Chinese entrepreneurs.

The other dynamic patterns in self-employment rates are somewhat less easy to explain. The Pakistani and Bangladeshi group are, in some sense, the dog that did not bark: while facing similar demographic changes in the composition of their group, self-employment rates have remained broadly constant over the 1990s. This suggests the existence of other factors which are making self-employment more attractive for this group over this period. Purely on the basis of our Census data, any explanation is speculative, but it is worth noting that these groups face some of the most serious wage and employment discrimination in the paid labour market and this may help to explain their differential self-employment trends.

Pakistanis and Bangladeshis are also the most likely to be concentrated in particular geographic areas where there is a large proportion of co-ethnics. There continues to be little evidence that self-employment is an ‘enclave’ phenomenon but rather that geographical concentration in relatively deprived areas reduces entrepreneurial opportunities. Government policy targeted at poor neighbourhoods, where Britain’s ethnic minorities tend to live, may disproportionately boost self-employment for non-whites, however this must be weighed against the other, longer-term, trends that we have noted in the demographic composition of specific ethnic groups.

It seems likely that the future self-employment rates of some groups will be lower as the proportion of first generation immigrants in the population continues to fall. This is also

consistent with increasing educational attainment among some groups. Whether, on balance, this represents economic progress for the individuals or groups concerned is an important point. Parker (2004) and Blanchflower (2004) emphasise that more self-employment, which can be a demanding form of activity, need not indicate an improvement in either welfare or economic performance. This is in spite of the fact that the self-employed tend to be more satisfied with their jobs than the paid-employed. Current policy towards ethnic minority self-employment in the UK is geared towards boosting the self-employment rates of under-represented groups.<sup>6</sup> Given the declining rates of entrepreneurship observed in Census data, the concentration of this type of work in relatively unattractive sectors of the economy and observations about the difficult nature of self-employment, it would seem advisable that the government should pay attention to the quality, and not simply the quantity, of self-employment for all ethnic groups.

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<sup>6</sup> The Department of Trade and Industry's targets or Public Service Agreement requirements are described at <http://www.dti.gov.uk>.



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**Figure 1**

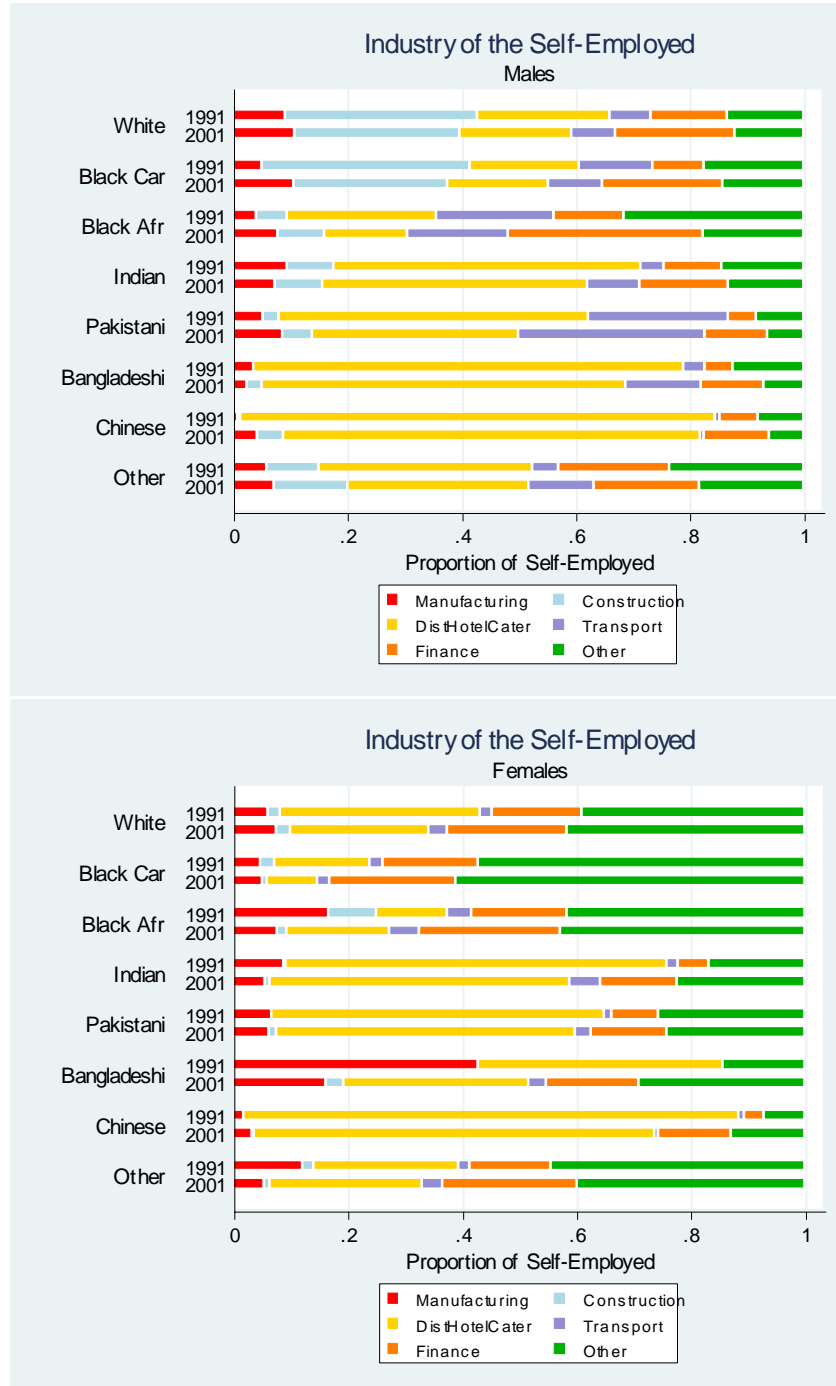
**UK Self-Employment and Unemployment Rates, 1970-2004**



Source: ONS.

**Figure 2**

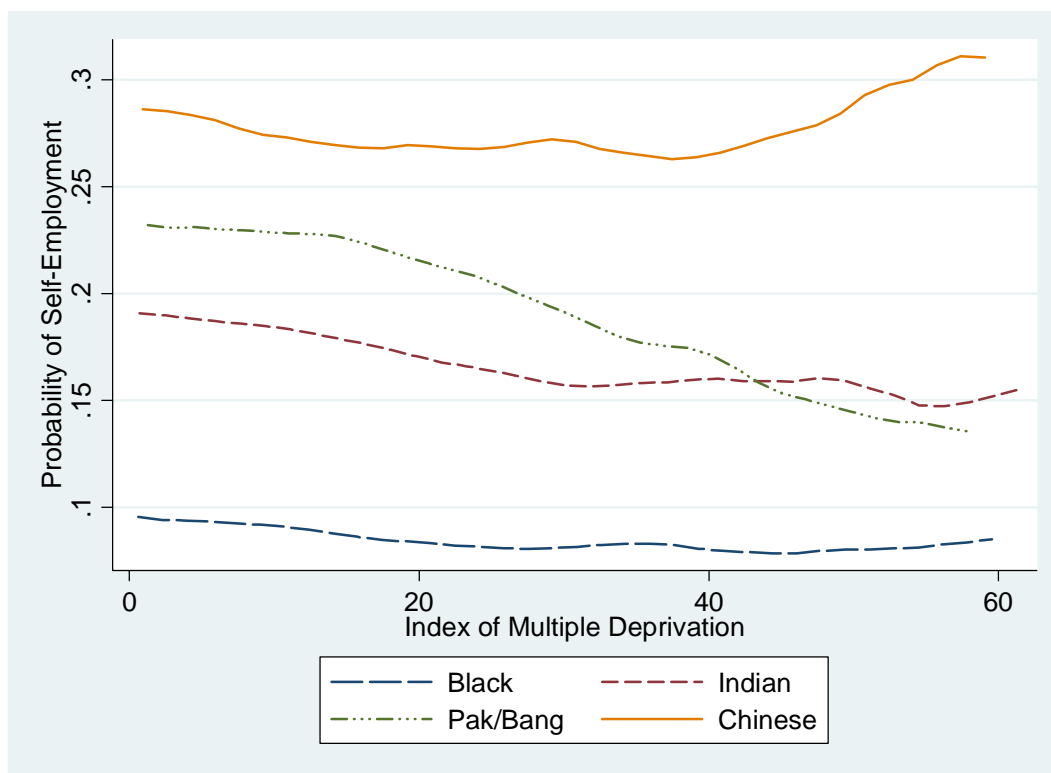
**Industrial Distribution of Self-Employment by Ethnicity**



Source: 1991 and 2001 SARs.

**Figure 3**

**Multiple Deprivation and Self-Employment by Ethnic Group**



Source: 2001 CAMS

Note: The figure reports the predicted rate of self-employment for a 'typical' individual from each ethnic group. These are based on a partially linear model (Robinson, 1988; Yatchew, 2003) which controlled for age, marital status, housing tenure, illness, education and region.

**Table 1**

**Self Employment Rates by Ethnic Group**

<b>Males</b>						
	<b>1991</b>			<b>2001</b>		
	<b>Self- Employment Rate - All (%)</b>	<b>Self- Employment Rate - UK Born (%)</b>	<b>N (All)</b>	<b>Self- Employment Rate - All (%)</b>	<b>Self- Employment Rate - UK Born (%)</b>	<b>N (All)</b>
White	16.6	16.5	247,074	17.0	16.9	398,278
Black Caribbean	9.1	7.1	1,975	13.0	10.6	3,470
Black African	12.2	9.4	608	13.5	11.7	2,869
Indian	23.7	15.2	3,777	21.4	13.1	8,002
Pakistani	26.6	15.3	1,364	26.5	18.1	4,073
Bangladeshi	18.8	15.2	431	19.1	11.2	1,433
Chinese	34.1	12.3	663	27.8	13.3	1,667
Other	13.4	12.7	2,321	16.2	12.8	6,645
<b>Females</b>						
	<b>1991</b>			<b>2001</b>		
	<b>Self- Employment Rate - All (%)</b>	<b>Self- Employment Rate - UK Born (%)</b>	<b>N (All)</b>	<b>Self- Employment Rate - All (%)</b>	<b>Self- Employment Rate - UK Born (%)</b>	<b>N (All)</b>
White	6.0	5.8	188,439	7.3	7.1	331,540
Black Caribbean	2.0	1.6	2,136	3.3	3.0	4,150
Black African	4.4	5.1	545	4.5	3.4	2,600
Indian	11.5	6.8	2,645	10.3	4.8	6,457
Pakistani	17.6	9.6	420	9.9	5.3	1,753
Bangladeshi	9.1	5.3	77	5.9	5.3	527
Chinese	20.3	9.5	558	18.3	9.2	1,533
Other	5.5	3.5	1,811	7.3	6.0	5,848

Source: 1991 and 2001 SARs.

**Table 2**

**Hours of Work for the Paid and Self-Employed by Ethnic Group**

	<b>Males</b>				<b>Females</b>			
	<b>1991</b>		<b>2001</b>		<b>1991</b>		<b>2001</b>	
	<i>Paid</i>	<i>Self</i>	<i>Paid</i>	<i>Self</i>	<i>Paid</i>	<i>Self</i>	<i>Paid</i>	<i>Self</i>
<b>White</b>	40.5	46.9	41.8	45.8	30.3	37.6	31.3	33.7
<b>Black</b>	39.0	43.3	39.4	42.9	33.8	37.7	33.6	35.0
<b>Caribbean</b>								
<b>Black</b>	38.7	43.0	37.7	42.8	34.0	33.4	33.1	33.9
<b>African</b>								
<b>Indian</b>	40.7	51.2	39.9	50.0	34.5	47.2	33.2	42.9
<b>Pakistani</b>	40.3	48.1	37.5	43.8	33.4	43.2	30.0	34.3
<b>Bangladeshi</b>	38.9	48.2	32.4	41.1	33.2	38.6	29.3	30.7
<b>Chinese</b>	41.4	49.6	38.9	48.4	34.8	46.8	33.8	43.1
<b>Other</b>	40.2	48.2	39.4	44.1	33.6	36.9	32.9	34.4

Source: 1991 and 2001 SARs.



**Table 3**

**Detailed Industry Distribution of Self-Employed Males by Ethnic Group, 1991**

<b>Group</b>	<b>White</b>	<b>Black Car.</b>	<b>Black Afr.</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
2-digit Industry	Construction	Construction	Other Inland Transport	Remainder of Retail Distribution.	Remainder of Retail Distribution	Restaurants etc.	Restaurants etc.
	Business Services	Other Inland Transport	Remainder of Retail Distribution	Business Services	Other Inland Transport	Medical and Vet. Services	Business Services
	Remainder of Retail Distribution	Business Services	Business Services	Construction	Restaurants etc.	Business Services	Medical and Vet. Services
	Agriculture	Remainder of Retail Distribution	Medical and Vet. Services	Medical and Vet. Services	Manufacture of leather, footwear, clothing	Manufacture of leather, footwear, clothing	Recreational and Cultural Services
	Other Inland Transport	Repair and Servicing of Motor Vehicles	Recreational and Cultural Services	Manufacture of leather, footwear, clothing	Business Services	Other Inland Transport	Wholesale Distribution
5-industry concentration	65%	72%	63%	74%	81%	91%	92%

Source: 1991 SARs.

**Table 4**

**Detailed Industry Distribution of Self-Employed Males by Ethnic Group, 2001**

<b>Group</b>	<b>White</b>	<b>Black Car.</b>	<b>Black Afr.</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
2-digit industry	Construction	Construction	Other Business Activities	Retail Trade	Land Transport	Hotels and Restaurants	Hotels and Restaurants
	Other Business Activities	Other Business Activities	Land Transport	Health and Social Work	Retail Trade	Land Transport	Retail Trade
	Agriculture	Retail Trade	Construction	Construction	Hotels and Restaurants	Retail Trade	Other Business Activities
	Retail Trade	Land Transport	Computer and Related Activities	Other Business Activities	Wholesale Trade	Other Business Activities	Construction
	Land Transport	Computer and Related Activities	Retail Trade	Wholesale Trade	Construction	Wholesale Trade	Health and Social Work
5-industry concentration	57%	56%	52%	62%	68%	78%	82%

Source: 2001 CAMS.

**Table 5****Decomposition of the Change in the Self-Employment Probability by Ethnic Group for Males, 1991-2001**

	White	Black	Indian	Pakistani/ Bangladeshi	Chinese	Other
Differential ( $P_{01} - P_{91}$ ) x 100	0.30	3.42	-2.31	-0.17	-7.48	2.65
Coefficients	-0.36	2.73	-0.97	2.77	-3.45	3.10
Characteristics	0.66	0.69	-1.35	-2.94	-4.03	-0.45
% of characteristics due to:						
Age	61	122	13	26	13	5
Qualifications	-30	3	32	31	49	23
Marital Status	-10	-1	38	6	34	71
Children	-9	7	8	7	8	21
UK Born	1	-6	19	3	8	19
Illness	6	-1	-6	-1	1	-33
Housing Tenure	71	-43	10	25	-7	-28
Region	11	19	-13	3	-7	21

Source: 1991 and 2001 SARs.

Note: Black refers to both Black Caribbean and Black African groups combined. The Pakistani and Bangladeshi groups have also been merged. Groups were merged to increase sample sizes as the decomposition procedure can be sensitive to missing cells in categorical variables. It was also necessary to collapse categories for some of the explanatory variables in the decomposition, see tables in the appendix for details.

**Table 6****Decomposition of the Change in the Self-Employment Probability by Ethnic Group  
for Females, 1991-2001**

	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pakistani/ Bangladeshi</b>	<b>Chinese</b>	<b>Other</b>
Differential ( $P_{01} - P_{91}$ ) x 100	1.31	1.28	-1.16	-7.33	-2.43	1.94
Coefficients	0.74	1.04	-0.93	-5.17	0.50	1.75
Characteristics	0.57	0.23	-0.23	-2.16	-2.93	0.19
% of characteristics due to:						
Age	45	71	-28	12	12	70
Qualifications	4	36	-78	11	55	92
Marital Status	-13	-4	105	8	33	-60
Children	7	1	44	1	9	-23
UK Born	2	-6	123	31	5	-16
Illness	7	7	-33	0	-4	38
Housing Tenure	43	-11	-42	22	-13	64
Region	5	7	9	16	1	-65

Source: 1991 and 2001 SARs

Note: See note to Table 5.

**Table 7**

**Local Area Effects on Self-Employment by Ethnic Group**

<b>1991</b>					
	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pakistani/ Bangladeshi</b>	<b>Chinese</b>
<b>Unemployment Rate</b>	-0.003***	-0.001	-0.001	0.002	0.002
<b>Percentage Own Group</b>	0.001***	-0.003***	-0.004***	-0.011***	-0.138**
<b>Unemployment Rate</b>	-0.003***	-0.000	0.003	0.007**	0.005
<b>Percentage Own Group</b>	0.001***	-0.003***	-0.005***	-0.014***	-0.168**
<b>N</b>	429,403	5,114	6,348	2,271	1,175
<b>2001</b>					
	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pakistani/ Bangladeshi</b>	<b>Chinese</b>
<b>Unemployment Rate</b>	-0.006***	-0.002	-0.008***	-0.010***	-0.011**
<b>Percentage Own Group</b>	0.001***	-0.001*	-0.004***	-0.003***	-0.081**
<b>Unemployment Rate</b>	-0.005***	-0.001	-0.002	0.004	-0.008**
<b>Percentage Own Group</b>	0.000**	-0.001	-0.004***	-0.011***	-0.068**
<b>N</b>	621,027	9,289	12,651	6,697	2,336

Source: 1991 SARs and 2001 CAMS.

Note: The full regression model also contained controls for age, education, marital status, gender, illness, housing tenure, region, marital status, UK born, children in household. \*\*\* indicates statistical significance at 1%, \*\* at 5% and \* at 10%.

## Appendix

### Table A1

#### Self-Employment Probit Marginal Effects for Males, 1991

	White	Black	Indian	Pak./ Bang.	Chinese	Other
Age 20-24	0.121*** (0.008)	–	0.101 (0.075)	0.105 (0.080)	–	0.059 (0.056)
Age 25-29	0.201*** (0.009)	0.084** (0.037)	0.134* (0.079)	0.204** (0.086)	0.073 (0.109)	0.015 (0.046)
Age 30-44	0.218*** (0.007)	0.141*** (0.038)	0.204*** (0.068)	0.307*** (0.070)	0.197** (0.093)	0.086* (0.044)
Age 45-59	0.252*** (0.008)	0.109*** (0.042)	0.224*** (0.083)	0.290*** (0.087)	0.279** (0.110)	0.133** (0.062)
Age 60-65	0.277*** (0.011)	0.090 (0.064)	0.157 (0.102)	0.210* (0.126)	0.162 (0.164)	–
Higher Quads	-0.063*** (0.002)	-0.005 (0.015)	-0.020 (0.016)	-0.064** (0.027)	-0.252*** (0.038)	-0.050*** (0.014)
Single	-0.038*** (0.003)	-0.014 (0.023)	0.068 (0.066)	-0.032 (0.091)	-0.198* (0.109)	-0.085*** (0.031)
Married	-0.027*** (0.003)	-0.016 (0.022)	0.092** (0.047)	0.000 (0.091)	-0.033 (0.123)	-0.037 (0.035)
Dep. Children	0.030*** (0.002)	0.045*** (0.014)	0.054*** (0.016)	0.038 (0.026)	0.018 (0.046)	0.015 (0.016)
UK Born	-0.011*** (0.004)	0.006 (0.019)	-0.006 (0.027)	-0.005 (0.037)	-0.106 (0.085)	0.028 (0.019)
Long term ill	-0.000 (0.004)	0.020 (0.031)	0.076* (0.042)	-0.043 (0.041)	-0.062 (0.132)	0.076 (0.049)
Owns, mortgage	-0.056*** (0.002)	0.003 (0.020)	-0.026 (0.021)	0.023 (0.028)	-0.061 (0.062)	-0.012 (0.028)
Social Renter	-0.108*** (0.002)	-0.025 (0.021)	-0.105*** (0.029)	-0.093*** (0.036)	-0.210*** (0.059)	-0.089*** (0.020)
Other Renter	-0.040*** (0.003)	-0.029 (0.023)	0.017 (0.035)	-0.059 (0.039)	-0.166*** (0.061)	-0.068*** (0.024)
N	243,231	2,523	3,727	1,777	632	2,194

Notes: \*\*\* indicates statistical significance at 1%, \*\* at 5% and \* at 10%. Regional dummies also included. \_ denotes that the self-employment probability is perfectly predicted for that category.

**Table A2**

**Self-Employment Probit Marginal Effects for Males, 2001**

	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pak./ Bang.</b>	<b>Chinese</b>	<b>Other</b>
Age 20-24	0.118*** (0.007)	—	0.199*** (0.077)	0.115** (0.049)	—	-0.035* (0.021)
Age 25-29	0.218*** (0.008)	0.049 (0.030)	0.319*** (0.077)	0.253*** (0.052)	0.349*** (0.090)	0.003 (0.022)
Age 30-44	0.270*** (0.006)	0.130*** (0.019)	0.341*** (0.060)	0.310*** (0.043)	0.416*** (0.063)	0.073*** (0.020)
Age 45-59	0.352*** (0.007)	0.171*** (0.033)	0.468*** (0.071)	0.451*** (0.053)	0.502*** (0.079)	0.106*** (0.026)
Age 60-65	0.472*** (0.009)	0.169*** (0.046)	0.549*** (0.075)	0.518*** (0.060)	0.683*** (0.061)	—
Higher Quals	-0.038*** (0.001)	-0.004 (0.009)	-0.028*** (0.010)	-0.072*** (0.013)	-0.182*** (0.021)	-0.015 (0.009)
Single	-0.024*** (0.002)	-0.028 (0.017)	-0.040 (0.030)	-0.044 (0.045)	-0.112** (0.053)	-0.074*** (0.020)
Married	-0.014*** (0.002)	-0.017 (0.016)	0.032 (0.027)	0.002 (0.045)	0.008 (0.052)	-0.028 (0.020)
Dep. Children	0.024*** (0.001)	0.011 (0.010)	-0.010 (0.010)	0.015 (0.013)	0.063** (0.026)	0.019* (0.010)
UK Born	-0.009*** (0.003)	-0.024** (0.010)	-0.011 (0.012)	-0.004 (0.016)	-0.011 (0.036)	-0.026** (0.011)
Long term ill	0.014*** (0.002)	-0.018 (0.017)	0.022 (0.018)	0.026 (0.023)	-0.012 (0.050)	0.062*** (0.021)
Owns, mortgage	-0.050*** (0.002)	-0.002 (0.016)	-0.013 (0.011)	0.012 (0.015)	-0.007 (0.029)	-0.056*** (0.013)
Social Renter	-0.080*** (0.002)	-0.037** (0.015)	-0.067*** (0.019)	-0.062*** (0.018)	-0.156*** (0.029)	-0.080*** (0.012)
Other Renter	-0.026*** (0.002)	-0.038** (0.015)	-0.075*** (0.014)	-0.046** (0.019)	0.033 (0.038)	-0.086*** (0.012)
N	395,175	6,268	7,940	5,483	1,636	6,456

Notes: \*\*\* indicates statistical significance at 1%, \*\* at 5% and \* at 10%. Regional dummies also included. \_ denotes that the self-employment probability is perfectly predicted for that category.

**Table A3**

**Self-Employment Probit Marginal Effects for Females, 1991**

	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pak./ Bang.</b>	<b>Chinese</b>	<b>Other</b>
Age 20-24	0.062*** (0.008)	-0.015 (0.009)	-0.041* (0.022)	-0.068 (0.046)	-0.031 (0.078)	-0.015 (0.028)
Age 25-29	0.113*** (0.010)	-0.016 (0.011)	—	0.082 (0.088)	—	0.004 (0.035)
Age 30-44	0.115*** (0.007)	-0.005 (0.016)	0.057*** (0.018)	0.073 (0.069)	0.082 (0.051)	0.011 (0.034)
Age 45-59	0.138*** (0.009)	-0.022* (0.013)	0.053* (0.027)	0.164 (0.107)	0.009 (0.062)	-0.013 (0.030)
Higher Quals	-0.004*** (0.001)	0.002 (0.006)	0.018 (0.018)	-0.064** (0.032)	-0.136*** (0.032)	0.011 (0.012)
Single	0.003 (0.002)	0.008 (0.012)	-0.016 (0.032)	0.017 (0.107)	-0.150*** (0.055)	-0.029 (0.018)
Married	0.006*** (0.002)	0.021* (0.012)	0.039 (0.024)	0.093 (0.083)	-0.048 (0.068)	-0.007 (0.018)
Dep. Children	0.017*** (0.001)	-0.001 (0.006)	0.037*** (0.014)	0.065** (0.032)	0.091** (0.036)	-0.009 (0.010)
UK Born	-0.015*** (0.003)	-0.002 (0.007)	0.005 (0.022)	-0.008 (0.042)	-0.052 (0.054)	-0.022* (0.012)
Long term ill	0.009*** (0.003)	0.020 (0.019)	0.070 (0.044)	—	-0.026 (0.090)	0.052 (0.037)
Owns, mortgage	-0.015*** (0.002)	-0.010 (0.010)	0.021 (0.016)	0.066* (0.038)	-0.089* (0.047)	-0.016 (0.018)
Social Renter	-0.046*** (0.001)	-0.014* (0.008)	-0.000 (0.035)	-0.031 (0.061)	-0.141*** (0.027)	-0.024 (0.015)
Other Renter	0.004* (0.002)	0.022 (0.021)	0.127*** (0.045)	0.014 (0.087)	-0.111*** (0.034)	-0.030** (0.013)
N	186,172	2,610	2,621	494	543	1,763

Notes: \*\*\* indicates statistical significance at 1%, \*\* at 5% and \* at 10%. Regional dummies also included. \_ denotes that the self-employment probability is perfectly predicted for that category.



**Table A4****Self-Employment Probit Marginal Effects for Females, 2001**

	<b>White</b>	<b>Black</b>	<b>Indian</b>	<b>Pak./ Bang.</b>	<b>Chinese</b>	<b>Other</b>
Age 20-24	0.063*** (0.007)	0.049 (0.053)	-0.015 (0.017)	0.000 (0.026)	-0.005 (0.050)	0.003 (0.022)
Age 25-29	0.118*** (0.008)	0.053 (0.051)	–	0.047 (0.034)	–	0.044 (0.028)
Age 30-44	0.142*** (0.006)	0.051** (0.025)	0.087*** (0.014)	0.111*** (0.037)	0.136*** (0.038)	0.062*** (0.022)
Age 45-59	0.182*** (0.007)	0.101* (0.060)	0.141*** (0.022)	0.159*** (0.059)	0.160*** (0.052)	0.073** (0.031)
Higher Quals	0.006*** (0.001)	0.005 (0.005)	0.018** (0.008)	-0.000 (0.011)	-0.137*** (0.018)	0.008 (0.007)
Single	-0.005*** (0.002)	-0.003 (0.008)	0.009 (0.020)	-0.027 (0.023)	-0.093** (0.038)	-0.012 (0.012)
Married	0.008*** (0.001)	0.012 (0.008)	0.049*** (0.013)	0.005 (0.021)	0.008 (0.034)	0.002 (0.011)
Dep. Children	0.013*** (0.001)	0.001 (0.005)	0.006 (0.008)	-0.014 (0.011)	0.017 (0.020)	0.021*** (0.007)
UK Born	-0.015*** (0.002)	-0.003 (0.005)	-0.023** (0.009)	-0.021* (0.012)	-0.005 (0.031)	0.001 (0.008)
Long term ill	0.016*** (0.002)	0.009 (0.010)	0.027* (0.014)	–	0.071 (0.054)	0.021 (0.015)
Owms, mortgage	-0.026*** (0.001)	0.010 (0.009)	-0.013 (0.008)	-0.014 (0.012)	-0.023 (0.023)	-0.024*** (0.009)
Social Renter	-0.047*** (0.001)	0.003 (0.010)	-0.014 (0.016)	-0.046*** (0.012)	-0.069** (0.030)	-0.054*** (0.007)
Other Renter	-0.008*** (0.001)	-0.002 (0.010)	-0.002 (0.013)	-0.027* (0.014)	0.019 (0.031)	-0.032*** (0.008)
N	329,873	6,663	6,402	2,271	1,508	5,716

Notes: \*\*\* indicates statistical significance at 1%, \*\* at 5% and \* at 10%. Regional dummies also included. \_ denotes that the self-employment probability is perfectly predicted for that category.