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Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales

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Abstract

High rates of self-employment among ethnic minorities in England and Wales are investigated using a framework in which the self-employment decision is influenced by ethnic-specific attributes as well as sectoral earnings differentials. As expected, differences in an individual's predicted earnings in paid and self-employment are strongly correlated with self-employment decisions. Individuals with low English fluency, and recent immigrants, are less likely than other members of ethnic minorities to be self-employed. Perhaps surprisingly, this is also true of individuals living in "enclaves" — areas with a high percentage of their own ethnic group. The relatively deprived nature of such areas of England and Wales may explain this.

JEL classification: J23; J7
Keywords: Ethnic minorities; Self-employment; Discrimination

1. Introduction

In many developed countries ethnic minorities are disproportionately represented in self-employment. In Britain, the 1991 Census of Population reported that non-whites had a self-employment rate of 14.6% compared to 12.3% for whites. This disguises significant variation between different ethnic groups however. Self-employment rates ranged from 5.8% for Black Caribbeans to 26.6% for

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Chinese. Research on this issue in Britain (Metcalf et al., 1996; Clark and Drinkwater, 1998) has focused on two sets of causal factors.[1] First, it is argued that ethnic minority workers enter self-employment as a rational response to the labour market obstacles, often in the form of employer discrimination, facing their group. These obstacles (or push factors) reduce the opportunity cost of self-employment and hence, other things equal, should lead to an increased representation of discriminated-against groups in that sector. This, however, ignores the possibility that there may be group-specific influences which would lead minorities into self-employment even in the absence of discrimination. This second set of (pull) factors includes such things as the existence of ethnic enclaves which may provide a self-sustaining economic environment, the influence of religion and access to informal sources of finance and labour through familial ties or shared language.

In this paper a simple theoretical model is presented, which demonstrates that both push and pull factors can influence the rewards available to members of different ethnic groups and so alter the attractiveness of self-employment relative to paid-employment. An empirical model of self-employment propensity is then estimated using an econometric framework incorporating the determination of earnings and choice of sector. The data set used, *the Fourth National Survey of Ethnic Minorities*, was specially designed to investigate the economic and social circumstances of Britain's ethnic population. The results suggest a role for both group-specific and labour market factors.

2. Theoretical background

Self-employment is a diverse and multi-faceted form of economic activity. It is therefore unlikely that one all-encompassing theory will explain why ethnic minorities are over-represented in this sector. One explanation emphasises the disadvantages faced by ethnic minorities in the paid labour market as the primary cause for their higher rates of self-employment. However, it is difficult to reconcile this explanation with the observed variation in self-employment rates across ethnic groups. A number of alternative explanations, mainly concerned with group-specific or cultural factors and developed in the sociological literature, have been proposed. In this section a simple theoretical model is developed which shows that both push and pull factors may be important.

The model developed here shares two of the essential features of the classic contributions of Evans and Jovanovic (1989) and Lucas (1978). First, choice of sector depends on a comparison of relative rewards and, second, there is a

[1] For details on other countries, see Borjas (1986), Yuengert (1995) and Fairlie and Meyer (1996) on the United States, Maxim (1992) on Canada, Kidd (1993) on Australia and Marie (1996) on European Union member states.

distribution of entrepreneurial ability across individuals. As in the simplest, static, canonical model developed by de Wit (1993), the complications posed by liquidity constraints and dynamic entry are abstracted from. The original contribution here is to consider individuals from more than one ethnic group.

Consider a perfectly competitive goods market in which entrepreneurs (a term used interchangeably with the self-employed) can sell their output x at price p. Entrepreneurial ability $\theta \in [\underline{\theta}, \bar{\theta}]$ is distributed among individuals with distribution function $F(\theta)$. The firm faces a cost function $c(x,\theta)$ with partial derivatives $c_x > 0$, $c_\theta < 0$, $c_{xx} > 0$ and $c_{x\theta} < 0$. Maximisation of the profit function

$$\pi = px - c(x,\theta) \tag{1}$$

yields $x^* = x(p,\theta)$ and $\pi^* = \pi(p,\theta)$ where output and profits are increasing in both price and entrepreneurial ability.

Suppose that "outside" earnings from paid-employment are exogenously given by e. Individuals will choose to enter self-employment so long as $e < \pi^*$. This condition defines a marginal value of θ, denoted θ^*, such that

$$e = \pi(p,\theta^*) \tag{2}$$

Those individuals with $\theta > \theta^*$ enter self-employment. The remainder enter paid-employment. The proportion of individuals entering self-employment is $1 - F(\theta^*)$.

Suppose now that there are two ethnic groups, whites and non-whites.[2] Due to discrimination in paid-employment, non-whites face lower earnings, i.e., $e_N < e_W$. From Eq. (2) it follows that $\theta_W^* > \theta_N^*$ and, assuming the same distribution of ability for both groups, a higher proportion of non-whites enter self-employment compared to whites.

This is an entirely intuitive result. Lower earnings in paid-employment reduce the opportunity cost of self-employment for non-whites thus pushing such workers out of paid-employment by making self-employment a more attractive option. In fact, non-whites in Britain do face a considerable earnings disadvantage in the paid labour market. Recent estimates by Blackaby et al. (1998) suggest that the difference in mean log earnings between white and non-white males is around 0.11. Decomposition analysis suggests that only 5% of this earnings gap can be explained by differences in human capital endowments between whites and non-whites. There is therefore a potential role for discrimination as a push factor in explaining higher non-white self-employment rates.

This is, however, an unduly restrictive view of ethnic minority self-employment. As Rafiq (1992) points out:

> Culture is important in any discussion of entrepreneurship because it can determine the attitudes of individuals towards entrepreneurship... certain cul-

[2] The analysis can be easily extended to allow for more ethnic groups.

tural institutions may facilitate or hinder entry into entrepreneurship. Culture is also important in influencing consumer attitudes and the creation of demand for certain goods and services. (p. 46).

While culture is undoubtedly important, it is less clear how this concept should be operationalised within the context of a formal model or an empirical investigation. The approach taken here is to explore certain aspects of ethnicity which potentially attract minority individuals towards entrepreneurship. Four such pull factors are considered in turn.

2.1. Enclaves

An enclave is usually defined as a concentration of individuals from the same ethnic background within a specific geographical location. In theory, this provides a number of incentives to become self-employed. It is argued that enclaves give rise to a protected market in which particular ethnic groups are able to trade with one another through their preferred language. Aldrich et al. (1985) note that minority entrepreneurs will usually know more about the special tastes and preferences of ethnic markets which gives them an initial advantage but expanding the business into the wider community might prove difficult. The provision of foodstuffs or clothing with religious or other significance is an example of the type of business in which minorities should have a comparative advantage. Aldrich and Waldinger (1990) outline a counter argument whereby enclaves could spark too much competition amongst entrepreneurs and could have the effect of limiting entrepreneurial opportunities. Allied to the fact that incomes within enclaves tend to be lower, the potential for the growth of these businesses may be constrained.

2.2. Language

Related to the enclave hypothesis is the view that lack of fluency in the English language is another form of labour market disadvantage faced by some ethnic groups.[3] Those who are less fluent face a restricted set of paid-employment opportunities. Given that minorities are able to trade with individuals from the same ethnic group using their own language, it might be expected that self-employment rates for people with English language difficulties would be higher. Evans (1989) suggests that it is group fluency that is important because minorities who are not fluent in the English language form a linguistically isolated labour pool and it will be more efficient for them to be employed by a co-ethnic

[3] English language skills are not evenly distributed amongst Britain's ethnic populations. The Bangladeshis have the lowest levels of fluency, followed by Pakistanis (Modood et al., 1997). Migration is an important determinant of English language ability, with proficiency positively correlated with the length of residence in Britain and negatively related to age on arrival.

entrepreneur. Using Australian data, Evans finds that the larger the percentage of the group who are not fluent in English, the more likely that members of that group are to be business owners. However, evidence from the US suggests that the opposite is true — those with English language difficulties are less likely to be self-employed (Portes and Zhou, 1996; Fairlie and Meyer, 1996).

2.3. Religion

Rafiq (1992) argues that some religions view self-employment in a positive light. For example, in the Muslim and Sikh communities, entrepreneurship is looked upon favourably because prominent figures in both of these religions were businessmen and in Hinduism, there are special castes which specialise in business activities. Adherents to such religions may have a stronger preference for entrepreneurship and the degree to which the religion is observed, as well as denomination, may be important.

2.4. Immigrant status

Ethnic minorities are also more likely to consist of immigrants.[4] Due to arguments of self-selection and hence higher levels of unobservable motivation, it might be expected that immigrants would be more inclined towards entrepreneurial activities than natives. Borjas (1986) finds that not only is immigrant status important but so too is the number of years that have elapsed since immigration. Self-employment rates are expected to increase along with the length of time that immigrants have been resident in the host country because the cost of entry into self-employment is likely to deter more recent cohorts of immigrants. Given that post-war immigration into Britain has taken place in distinct waves,[5] it might be expected that differences in the self-employment rates of the immigrant's home country would be important. Yuengert (1995) explored this possibility and found a positive and significant coefficient on the ratio of the home country self-employment rate to the overall US rate. However, in an extension to this analysis, Fairlie and Meyer (1996) found that this effect was not statistically significant.

It is also possible that family concerns play an important role in the decision whether to become self-employed as family members can be a source of cheap, informal and reliable labour. This is considered separately as it is true of all potential entrepreneurs, not just those from ethnic minorities. It may, however, be

[4] Around 70% of Britain's working age ethnic minorities were born abroad.

[5] Of the ethnic groups under consideration in this study, Caribbeans were the first group of immigrants to arrive in large numbers. Indians and Pakistanis mainly arrived in the 1960s and 1970s, while Bangladeshis and Chinese are the most recent arrivals. For more details, see Leslie (1998).

the case that certain minorities have closer-knit families and larger extended families who provide a pool of potential workers.

Within the context of the model, these pull factors can be incorporated in one of two ways:

(i) Non-white entrepreneurs face lower production costs relative to their white competitors. If this results in higher non-white profits for given levels of x and θ then through Eq. (2) this reduces θ_N^* relative to θ_W^* and the proportion of non-whites in self-employment will increase.

(ii) Non-whites have a "better" distribution of entrepreneurial ability. Suppose that for non-whites the distribution of θ is $G(\theta)$ where $G(\theta) \leq F(\theta) \forall \theta$. For any level of θ^*, the proportion of non-whites entering self-employment cannot be lower than that for whites.

3. Data

The data used in this paper are taken from the *Fourth National Survey of Ethnic Minorities* (*Fourth Survey*) — the latest in a series of studies undertaken by the Policy Studies Institute investigating the social and economic conditions of Britain's ethnic minorities.[6] The interviews were conducted between November 1993 and December 1994 and covered a wide range of topics including family structures, employment, income, education, housing, racial harassment, health and cultural identities. The main advantage of this survey, in comparison with the much larger and more regular government surveys, is that it over-samples the ethnic minorities.[7] A total of 5196 individuals of Asian and Caribbean origin, aged 16 and over, were interviewed, as well as 2867 whites.

The definition of ethnic group used in the *Fourth Survey* is slightly different to that used in the Census. For example, the Caribbean group in the *Fourth Survey* not only refers to those born in the Caribbean but also to others whose parents originated from the Caribbean, who are mainly described as Black Other (British) in the Census. An African Asian group can also be separately identified in the survey, as opposed to the Census where they tend to be grouped with Indians. The six different minority groups which can be identified are Caribbeans, Indians, African Asians, Pakistanis, Bangladeshis and Chinese. This implies that the largest omitted group, compared to the Census, is Black Africans.

Table 1 shows that there is a substantial variation in self-employment rates across the individual ethnic groups, which justifies treating the minority groups separately and not collectively. For males, the Pakistanis exhibit the highest

[6] The previous surveys took place in 1966–1967, 1974 and 1982.

[7] For precise details of the sampling procedures used see Smith and Prior (1996) and Modood et al. (1997). The survey covers England and Wales only; no interviews were scheduled for Scotland or Northern Ireland where there are very few minority individuals.

Table 1
Self-employment rates as a percentage of those in employment

	White	Caribbean	Indian	African Asian	Pakistani	Bangladeshi	Chinese	All ethnic minorities
Male								
Rate	20.4	13.4	30.8	30.0	35.3	17.5	29.7	25.9
Weighted *N*	771	363	348	295	182	61	127	1377
Unweighted *N*	692	255	354	263	258	112	71	1313
Female								
Rate	8.4	2.9	13.7	8.0	14.1	11.0	26.2	9.7
Weighted *N*	708	444	269	193	60	7	120	1093
Unweighted *N*	668	327	252	162	64	13	63	881

(1) The self-employment rates are based on weighted data. A discussion of the sample weights used in the Fourth Survey is given in Smith and Prior (1996).
(2) Sample consists of working age population (males aged 16–64 and females aged 16–59), who are in paid work.

propensity to be in self-employment, with a self-employment rate of over 35%, followed by Indians, African Asians and Chinese, who each had around 30% in self-employment. 20% of white males were self-employed, with only Bangladeshis and Caribbeans having lower rates. Table 1 also shows that self-employment rates for females tend to be much lower. This is true for all ethnic groups with the possible exception of the Chinese, who have a self-employment rate of 26% amongst females. African Asian and Caribbean females both had lower self-employment rates compared with whites, particularly Caribbeans, whose rate was less than 3%.

Such wide variations in ethnic minority self-employment rates are also observed in the US. For example, Fairlie and Meyer (1996), using data from the 1990 Census, find that amongst Asians, Koreans had male (female) self-employment rates of 27.9 (18.9)% compared to 13.5 (9.1)% for Chinese and 11.7 (7.4)% for Indians. In Britain, while there is no significant Korean population, the Chinese and Indian groups had higher self-employment rates than their counterparts in the US. Further comparisons between the two countries are complicated by differential patterns of immigration, which have resulted in a quite different ethnic composition of the population. For example, Hispanic groups are important in the US but not in Britain, while the opposite is true for Pakistanis and Bangladeshis. In both countries blacks tend to be under-represented in the self-employment sector.

The income questions which appear in the *Fourth Survey* were asked to both paid and self-employed workers and required the respondent to indicate which of 16 income bands best represented their income.[8] For employees, the income

[8] The income card used is shown in Table 2.

definition refers to usual gross pay from their main job, including overtime and bonuses but before any deductions. The self-employed were asked to estimate their average net takings. This amount consists of their income after the costs of materials, stock, running expenses and other costs but before tax.

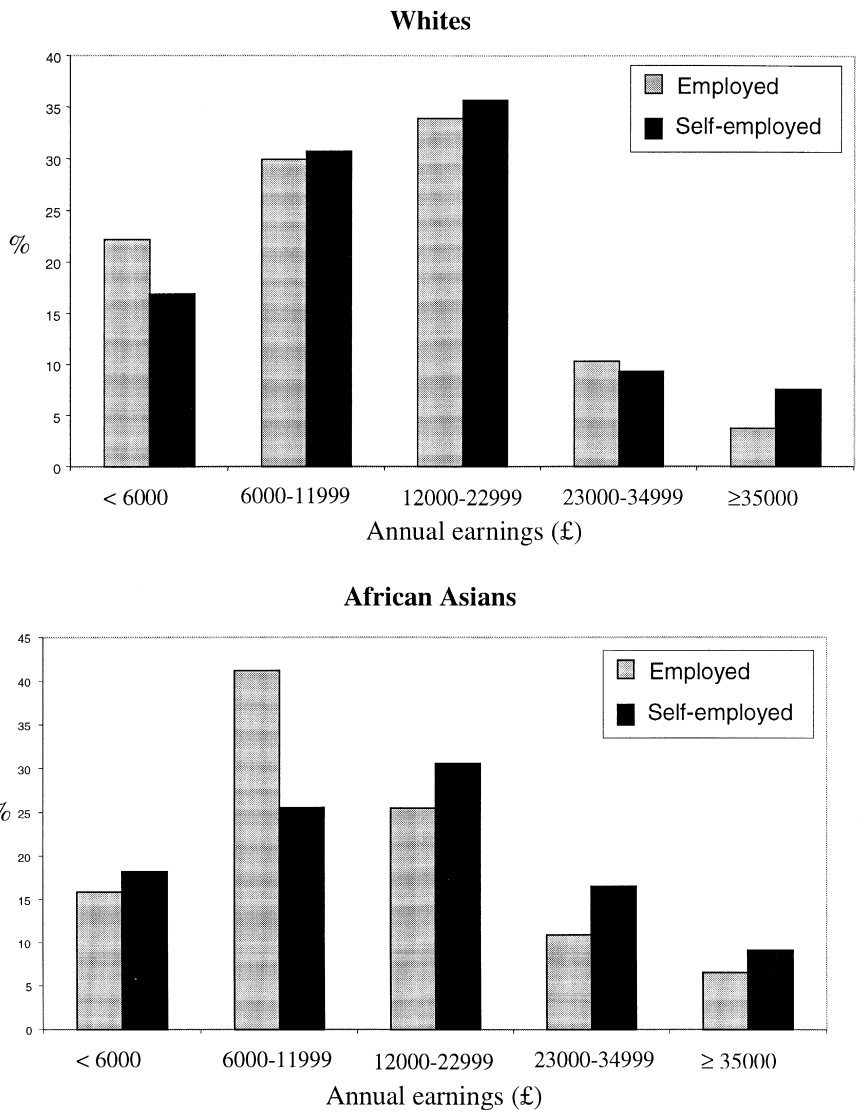

Fig. 1. Distribution of earnings for employees and self-employed.

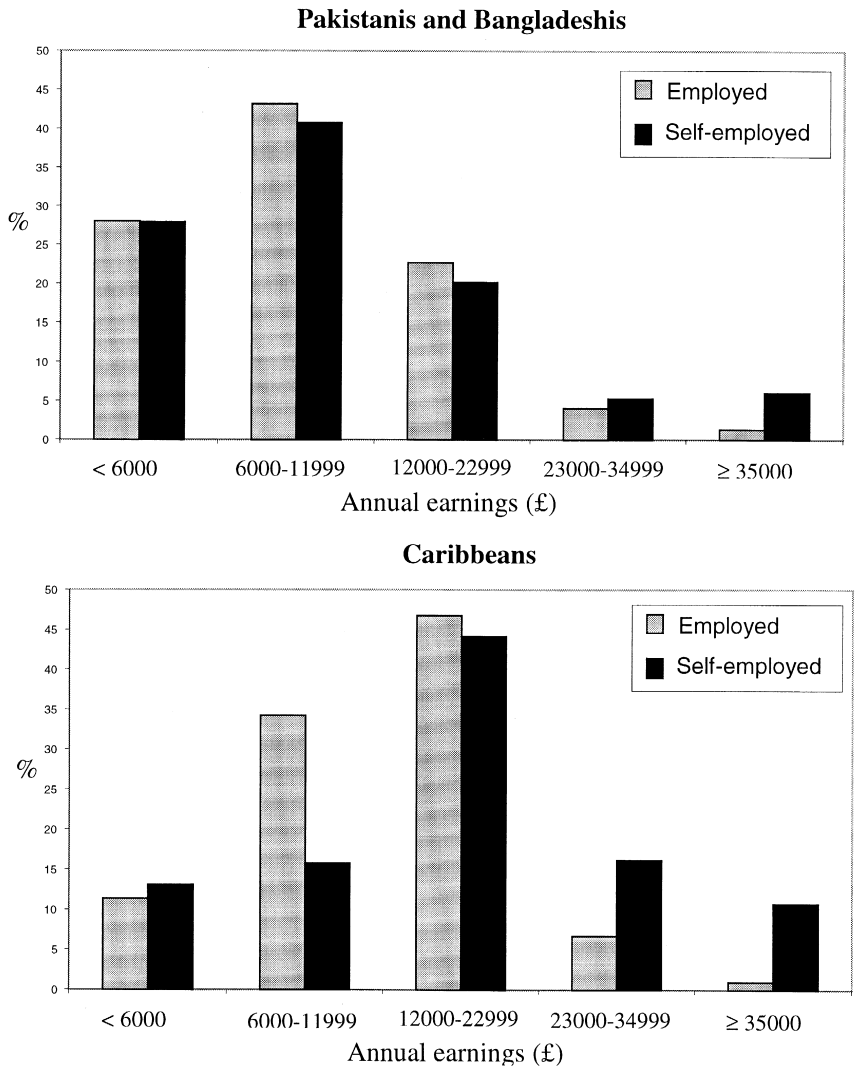

Fig. 1 (*continued*).

The reliability of self-reported, self-employment earnings is a potential problem with this data set as with others. Recent work on self-employment in Britain (Parker, 1997, 1999; Robson, 1997) suggests that the problems of using such earnings data are not insurmountable. Robson argues that the tax cuts introduced in the 1980s are likely to have lessened the degree of under-reporting of self-employment income. In addition, the banded format of the income question in

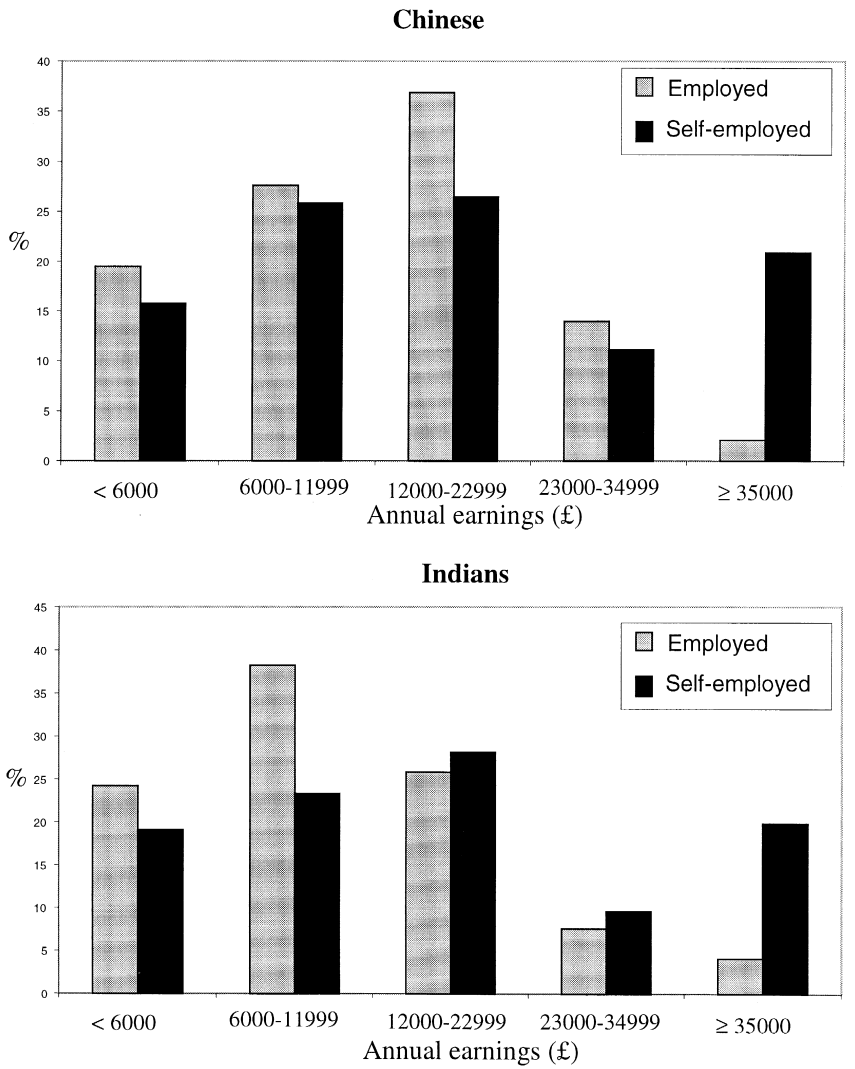

Fig. 1 (*continued*).

the *Fourth Survey* may be an advantage: respondents may make fewer errors choosing the band in which their earnings fall than when asked to declare a precise amount.

Fig. 1 shows the distribution of paid and self-employed earnings of six ethnic groups (Pakistanis and Bangladeshis were combined to achieve an adequate sample size). Each panel compares, for each ethnic group, the percentage of paid

Table 2
Income card

Band	Weekly income before tax (£)	Annual income before tax (£)
1	Less than 77	Less than 3999
2	78–115	4000–5999
3	116–154	6000–7999
4	155–192	8000–9999
5	193–230	10,000–11,999
6	231–289	12,000–14,999
7	290–346	15,000–17,999
8	347–385	18,000–19,999
9	386–442	20,000–22,999
10	443–500	23,000–25,999
11	501–558	26,000–28,999
12	559–615	29,000–31,999
13	616–673	32,000–34,999
14	674–730	35,000–37,999
15	731–788	38,000–40,999
16	789 or more	41,000 or more

and self-employees distributed amongst five income categories (condensed from the 16 shown in Table 2), ranging from those who earn less than £6000 per annum to those whose earnings are in excess of £35,000 per annum. The sample sizes used to construct Fig. 1 are smaller than those reported in Table 1 due to the fact that some workers refused to answer the income question. Refusal rates were lowest for Whites and Chinese and highest for Indians. A greater proportion of paid-employees answered the income question compared to self-employees for each of the ethnic groups.

A feature that is common to each of the panels in Fig. 1 is that a far larger percentage of self-employees are in the top income bracket compared to those in paid-employment. The earnings of Chinese and Indian entrepreneurs are particularly high, with around 20% of their samples earning more than £35,000 a year. It can also be seen that Pakistanis and Bangladeshis have the lowest earnings, with a similar distribution of earnings for both paid and self-employees. Caribbeans are mainly concentrated in the middle income category (£12,000–£23,999), with relatively low proportions found in the lowest and highest categories. Self-employed Caribbeans are also more highly concentrated in the low income category than their paid-employed counterparts, a feature shared by African Asians.

4. Estimation and results

The decision to enter self-employment is modelled using the equation:

$$Z_i^* = \alpha_0 + \alpha_1\left(Y_i^{\mathrm{S}} - Y_i^{\mathrm{P}}\right) + \boldsymbol{\alpha}_2 \boldsymbol{W}_i + \eta_i \qquad i = 1, \ldots, n. \tag{3}$$

Here Z^* is an index of self-employment propensity, Y^S and Y^P are log earnings in self and paid-employment, respectively, $\boldsymbol{W}$ is a vector of characteristics which influence choice of sector and η is a normally distributed random error. The α terms are parameters to be estimated. The parameter α_1 measures the importance of the log earnings differential between self and paid-employment. The expectation is that this parameter will be positive; those with higher potential earnings in self-employment should, other things equal, choose that sector. The vector $\boldsymbol{W}$ will contain human capital characteristics of the individual and controls included to proxy pull factors.

Since sample members are observed in only one sector, predictions of Y^S and Y^P are required in order to estimate Eq. (3). These predictions are based on standard Mincer earnings functions of the kind:

$$Y_i^j = \boldsymbol{\beta}^j \boldsymbol{X}_i^j + \varepsilon_i^j \qquad i = 1,\ldots,n; j = \mathrm{S,P} \tag{4}$$

where log earnings depend on the vector $\boldsymbol{X}_i$ which includes an individual's accumulated human capital and other controls. ε is a random error term which captures the unsystematic component of earnings. Consistent estimation of the $\boldsymbol{\beta}$ vectors and hence prediction of the Y's implies accounting for the possibility of sample selection bias. Since the data lack a continuous measure of earnings, the maximum likelihood estimator developed by Bhat (1994) is used to obtain consistent estimates of the parameter vectors. These can be used to predict continuous values of log earnings for all observations. The predicted differential $\hat{Y}^S - \hat{Y}^P$ is substituted into Eq. (3) enabling estimation of the α parameters using a probit.

It should be stressed that the econometric framework outlined here does not allow an entirely clean separation of the push and pull factors. The reason is that there are many complex interactions between the explanatory variables and both earnings and sectoral choice. The aims of the paper are, rather, to demonstrate that there is a potential role for a push effect through the rational response of minority individuals to sectoral earnings differentials and to investigate which particular pull variables are significant determinants of choice.

The estimates are based on a sample of non-whites from six ethnic groups in paid and self-employment for whom data on earnings and other relevant characteristics were available. Whites were excluded from the study as the focus is on investigating minority self-employment rates. Male workers aged 16–64 and females aged 16–59 were included and all regression results reported in the paper use unweighted data. Sample means of some key variables are reported in Table 3.

Table 4 presents the results of estimating the selectivity corrected earnings equations. Three specifications of the model were estimated. In the first, (Model A) the independent variables included the usual human capital variables (age, qualifications and marital status) as well as controls for region, industry and a set of ethnic group dummies. In Model B, variables reflecting the ethnic composition of the respondent's local authority ward, immigrant status, English language

Table 3
Means of selected variables

Variable	Self-employed	Paid-employed
Age	38.09	35.73
High qualifications	0.324	0.332
Married	0.870	0.730
North	0.222	0.145
Female	0.193	0.440
Indian	0.213	0.232
African Asian	0.232	0.188
Pakistani	0.227	0.115
Bangladeshi	0.063	0.069
Chinese	0.111	0.066
UK Born	0.135	0.277
Arrived pre 1960	0.019	0.027
Arrived 1970–1979	0.319	0.270
Arrived 1980–1989	0.092	0.112
Arrived 1990–1994	0.014	0.035
2–10% Own group in area	0.296	0.336
10–25% Own group in area	0.214	0.276
over 25% Own group in area	0.121	0.146
English fairly good	0.188	0.153
English poor	0.101	0.096
2–5% Unemployment	0.053	0.045
5–10% Unemployment	0.309	0.243
10–15% Unemployment	0.295	0.277
15–20% Unemployment	0.169	0.154
No religion	0.159	0.137
Hindu	0.227	0.204
Sikh	0.126	0.118
Christian	0.101	0.289
Other religion	0.034	0.015
Sample size	207	1369

Means were calculated using the sample on which the earnings equations were estimated.

ability and religion were also included. Model C augmented Model B with local unemployment conditions to capture the effect of a potential "wage curve" (see, Blanchflower and Oswald, 1990 and the subsequent literature). The broad pattern of the estimated coefficients on the human capital variables was reassuringly similar across specifications of the earnings function.

Each model was estimated simultaneously with a selection equation, an example of which is shown in Table 5. The issue of identification was addressed using an approach similar to Rees and Shah (1986) and Taylor (1996).[9] Compared to the specification of Model C, the selection equation contained additional variables

[9] See Taylor (1996) in particular for justification of the imposed exclusion restrictions.

Table 4
Estimated earnings functions

Variable	Model A		Model B		Model C	
	Self employment	Paid employment	Self employment	Paid employment	Self employment	Paid employment
Constant	1.847 (0.200)	4.58 (0.000)	2.131 (0.256)	4.246 (0.000)	2.395 (0.248)	4.109 (0.000)
Age/100	13.221 (0.020)	4.238 (0.000)	13.498 (0.072)	5.950 (0.000)	13.712 (0.086)	6.114 (0.000)
Agesq/10,000	−15.219 (0.022)	−5.082 (0.000)	−15.546 (0.069)	−7.025 (0.000)	−15.840 (0.086)	−7.224 (0.000)
Higher Qualifications	0.430 (0.006)	0.487 (0.000)	0.352 (0.052)	0.402 (0.000)	0.350 (0.065)	0.381 (0.000)
Married	0.507 (0.041)	0.054 (0.217)	0.481 (0.072)	0.097 (0.020)	0.464 (0.091)	0.083 (0.045)
Female	−0.268 (0.175)	−0.312 (0.000)	−0.347 (0.118)	−0.342 (0.000)	−0.318 (0.202)	−0.353 (0.000)
North	−0.187 (0.260)	−0.116 (0.017)	−0.157 (0.390)	−0.104 (0.024)	−0.253 (0.254)	−0.079 (0.097)
Production	−0.472 (0.195)	0.049 (0.291)	−0.616 (0.211)	0.030 (0.614)	−0.559 (0.323)	0.030 (0.600)
Construction	0.508 (0.140)	0.171 (0.285)	0.688 (0.072)	0.288 (0.056)	0.672 (0.099)	0.277 (0.070)
Indian	−0.285 (0.296)	−0.318 (0.000)	−0.500 (0.260)	−0.114 (0.186)	−0.480 (0.271)	−0.129 (0.128)
African Asian	−0.278 (0.292)	−0.222 (0.000)	−0.609 (0.177)	−0.088 (0.329)	−0.545 (0.220)	−0.126 (0.162)
Pakistani	−0.112 (0.701)	−0.377 (0.000)	−0.489 (0.308)	−0.068 (0.531)	−0.402 (0.412)	−0.096 (0.373)
Bangladeshi	−0.340 (0.329)	−0.606 (0.000)	−0.800 (0.147)	−0.249 (0.036)	−0.748 (0.165)	−0.260 (0.026)
Chinese	0.351 (0.248)	−0.221 (0.002)	0.529 (0.195)	−0.062 (0.427)	0.493 (0.250)	−0.047 (0.544)
2–10% Own group in area			0.038 (0.178)	0.017 (0.699)	0.025 (0.918)	0.060 (0.188)
10–25% Own group in area			0.025 (0.098)	0.014 (0.777)	−0.085 (0.748)	0.091 (0.089)
Over 25% own group in area			0.018 (0.064)	−0.036 (0.557)	−0.113 (0.737)	0.073 (0.268)
UK born			−0.144 (0.671)	−0.007 (0.907)	−0.174 (0.625)	−0.004 (0.947)
Arrived pre 1960			−0.290 (0.643)	−0.088 (0.419)	−0.392 (0.511)	−0.077 (0.488)
Arrived 1970–1979			0.009 (0.958)	−0.069 (0.150)	0.036 (0.840)	−0.062 (0.198)
Arrived 1980–1989			−0.553 (0.156)	−0.215 (0.000)	−0.509 (0.210)	−0.208 (0.001)
Arrived 1990–1994			−0.666 (0.466)	−0.325 (0.000)	−0.638 (0.459)	−0.315 (0.000)

English fairly good			−0.240 (0.217)	−0.280 (0.000)	−0.232 (0.206)	−0.274 (0.000)
English poor			−0.130 (0.617)	−0.396 (0.000)	−0.182 (0.501)	−0.384 (0.000)
No religion			−0.536 (0.250)	0.130 (0.196)	−0.403 (0.383)	0.083 (0.412)
Hindu			−0.001 (0.996)	0.146 (0.023)	0.114 (0.646)	0.095 (0.142)
Sikh			−0.254 (0.395)	−0.008 (0.917)	−0.139 (0.639)	−0.072 (0.365)
Christian			−0.540 (0.327)	0.038 (0.703)	−0.385 (0.484)	−0.014 (0.885)
Other religion			−0.049 (0.923)	0.243 (0.129)	0.084 (0.881)	0.190 (0.238)
< 5% Unemployment					−0.230 (0.610)	0.228 (0.005)
5–10% Unemployment					−0.350 (0.198)	0.196 (0.000)
10–15% Unemployment					−0.338 (0.232)	0.176 (0.000)
15–20% Unemployment					−0.071 (0.818)	0.124 (0.014)
σ	0.848 (0.000)	0.565 (0.000)	0.901 (0.000)	0.530 (0.000)	0.849 (0.000)	0.528 (0.000)
ρ	0.506 (0.046)	0.393 (0.010)	0.672 (0.007)	−0.168 (0.600)	0.602 (0.093)	−0.247 (0.399)
Sample size	207	1369	207	1369	207	1369

(1) The table reports estimated coefficients and p-values.
(2) The excluded categories for the groups of dummy variables are Caribbeans, immigrant who arrived in the 1960s, less than 2% of own group in ward, speaks English fluently, greater than 20% unemployment in ward, Muslim and works in services.
(3) ρ refers to the correlation between the error in the wage equation for sector j and the error in a selection equation where an individual is observed in sector j when the dependent variable takes the value 1.
(4) σ is the standard deviation of the error in the wage equation.

Table 5
Selection equation estimates

Variable	Coefficient	*p*-value
Constant	−3.220	0.001
Age/100	14.699	0.002
Age squared/10,000	−17.546	0.002
High qualifications	−0.237	0.054
Married	0.246	0.127
Female	−0.557	0.000
Renting house	−0.051	0.744
North	0.216	0.159
Illness	0.345	0.042
Children	−0.281	0.039
Production	−1.297	0.000
Construction	0.828	0.000
Indian	0.136	0.633
African Asian	0.197	0.521
Pakistani	0.436	0.231
Bangladeshi	−0.260	0.518
Chinese	0.362	0.198
< 5% Unemployment	0.010	0.973
5–10% Unemployment	0.043	0.821
10–15% Unemployment	0.260	0.123
15–20% Unemployment	0.291	0.120
2–10% Own group in area	−0.273	0.069
10–25% Own group in area	−0.388	0.036
Over 25% Own group in area	−0.540	0.019
English fairly good	0.005	0.972
English poor	−0.076	0.731
No religion	−0.218	0.536
Hindu	−0.140	0.546
Sikh	−0.140	0.573
Christian	−0.824	0.013
Other religion	0.221	0.601
UK born	−0.344	0.078
Arrived pre 1960	−0.057	0.859
Arrived 1970–1979	−0.269	0.062
Arrived 1980–1989	−0.295	0.141
Arrived 1990–1994	−0.750	0.122
Sample size	1576	

Estimates were obtained by maximum likelihood estimation of the selection equation and an earnings function. The results presented above were associated with Model B and the self-employed earnings. A full set of results is available on request.

reflecting housing tenure, the presence of dependent children and whether the individual suffers from a long-term illness. Variables relating to industrial sector appeared in the earnings equation but were excluded from the structural probit.

The results using Model A are standard for work of this kind. Earnings are generally related to age, marital status, gender, qualifications, region and industry in the expected manner. Ethnicity remains an important determinant of earnings after controlling for human capital. In each earnings equation the excluded ethnic dummy is the Caribbean group and, on the whole, earnings are lower for the other groups in comparison. The only exception are the Chinese self-employed who have higher earnings than the other Asian groups. Amongst the paid-employed, the Pakistanis and Bangladeshis are the least well rewarded groups after controlling for human capital. These are substantial differences too-much greater than those between male and female employees.

One advantage of using the *Fourth Survey* is, as the results from Model B illustrate, that it allows investigation of the impact of a much wider range of variables on economic outcomes. English language ability, in particular, has a significant impact on paid-employment earnings with those who have difficulties speaking English earning less. For the paid-employed there is also some evidence that more recent cohorts of immigrants earn less than those who arrived in the 1960s. In the self-employed earnings equations, the additional variables are not particularly significant, probably reflecting the relatively small sample of self-employed.

In Model C the local unemployment rates were significant determinants of earnings for the paid-employed. Bearing in mind that the excluded category is a local unemployment rate of over 20%, the results support the existence of a negatively sloped "wage curve" in wage-unemployment space.

Estimates of the error correlation between selection equation and earnings equation are positive and highly significant for workers from each sector. The implication is that failure to account properly for sample selectivity bias would lead to an over-prediction of earnings as those in a particular sector with high earnings relative to their observable characteristics are also more likely to be observed in that sector. Fig. 2 plots a kernel density estimate of the predicted earnings distributions for paid and self-employment. Density estimates of the predictions obtained from estimation of the earnings functions without accounting for sample selectivity are also plotted for comparison. It is clear that the potential effects of selectivity bias are substantial, especially for the self-employed.

To evaluate the robustness of the probit estimates of the parameters of Eq. (3) to alternative earnings function specifications, results are reported using predicted values of the earnings differential from each of the three models of earnings. In addition estimates of Eq. (3) are reported with and without dummy variables for ethnic group. The reasoning is that there is likely to be substantial collinearity between the ethnic dummies and the variables relating to enclaves, religion, immigrant status and language ability. This yields the six separate specifications for which marginal effects and *p*-values are shown in Table 6.

Self-employment propensity is increasing in age but is lower for those with formal educational qualifications and females. Renters are less likely to be

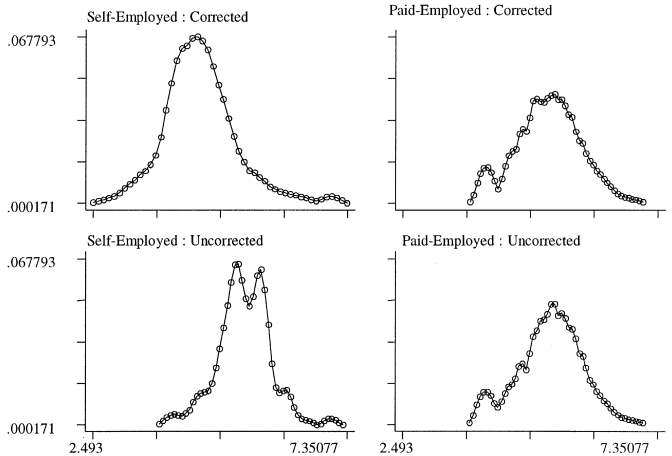

Fig. 2. Kernel density estimates of predicted earnings distributions. (1) The kernels density estimates were obtained using an Epanechnikov kernel. (2) The estimates came from a Model A specification. Other specifications gave a similar picture.

self-employed.[10] Region and local unemployment rates are found to be important, with the lowest self-employment probabilities seen in areas with an unemployment rate of over 20%. Most of these results are robust across the alternative specifications. Interestingly, the presence of a spouse or dependent children reduces the probability of self-employment. The argument that family members provide a convenient source of labour is not well supported by the data. In the raw data less than 35% of ethnic minority entrepreneurs reported that family members worked regularly in the business, just over half of whom were paid, and 23% said that a family member was a partner in the business. The Chinese were most likely to employ family members and to have business partners who were family members.

The predicted earnings differential between self and paid-employment has a positive coefficient (α_1) and is highly significant in each column of Table 6. A unit increase in the log differential is estimated to increase the self-employment rate by between 9 and 13 percentage points when calculated at the sample mean depending on which specification is used. Both push and pull effects will operate through this mechanism as the variables identified as pull factors may also influence sectoral earnings. Other things equal, discrimination in paid-employment will increase the log differential and so increase the probability of self-employment. Equally, a reduction in paid-employment discrimination will reduce the attractiveness of self-employment.

[10] It may be argued that housing tenure is endogenous, however, with no other proxies for access to capital, it was decided to include this variable. Black et al. (1996) and Cowling and Mitchell (1997) emphasize the role that housing wealth has on new firm formation.

Turning to the effects of enclaves, the variables available in the *Fourth Survey* measure the ethnic composition of the area of residence of sample members, more specifically, the proportion of the population of the ward in which a respondent lives that belong to the respondent's own ethnic group.[11] The results in Table 6 suggest that self-employment rates are negatively related to the proportion of co-ethnics in a ward. Compared to the reference category of a ward with less than 2% of the individual's own ethnic group, minorities are far less likely to be self-employed in areas where there are higher concentrations of co-ethnics.[12]

Recall that the usual argument relating to enclaves is that areas with large numbers of co-ethnics provide niche markets for culture-specific or ethnic goods. Presumably, in such areas, consumer discrimination against ethnic entrepreneurs, of the type suggested by Borjas and Bronars (1989), would also be low. Hence, higher self-employment rates are anticipated. Offsetting this are the arguments that, first, enclaves involve more competition in the supply of the services offered by ethnic businesses and, second, that enclaves might offer better opportunities in paid-employment for non-whites if non-white employers in such areas provide non-discriminatory employment opportunities. In England and Wales it is also true that areas of ethnic minority concentration tend to be low income areas. The evidence suggests that this latter set of forces dominates and the overall impact of the existence of clusters of members of minority groups is to reduce entrepreneurial opportunities relative to paid-employment opportunities. A similar result was found by Razin and Langlois (1996) using Canadian data, whereby immigrant self-employees gravitated towards peripheral metropolitan areas where competition is less intense.

The data provide some direct evidence on whether minority owned businesses engage in the production of goods and services which have ethnic significance. 20% of businesses reported that they produced "specialist ethnic" goods or services but there was considerable variation by group with Bangladeshis and Chinese much more likely to produce such goods. Table 7 cross tabulates the responses to this question with the ward level proportion of co-ethnics. While sample sizes are small, the evidence suggests that minority entrepreneurs in areas with large populations of their own group are less likely to supply ethnic goods or services. This is direct evidence against the usual hypothesis concerning enclaves. Furthermore, 75% of the respondents said that whites were the main customers of their business.

It is argued that enclaves sustain economic communities based around shared culture and language. In the data set the English language ability of respondents

[11] Wards are the lowest geographical unit for which most spatial data are available in the UK. There were 9527 wards in England and Wales in 1991, each with an average population of 5327 inhabitants.

[12] Clark and Drinkwater (1998) using data from the 1991 Census and larger areas find the same result for all ethnic minority groups. This effect was strongest for Indians, Pakistanis/Bangladeshis and Chinese.

Table 6
Structural probit estimates of self-employment incidence

	Model A		Model B		Model C	
	Ethnicity controls	No ethnicity controls	Ethnicity controls	No ethnicity controls	Ethnicity controls	No ethnicity controls
Constant	−0.020 (0.722)	−0.037 (0.483)	−0.055 (0.468)	−0.037 (0.590)	−0.140 (0.156)	−0.119 (0.187)
Earnings Differential	0.092 (0.000)	0.094 (0.000)	0.111 (0.000)	0.111 (0.000)	0.127 (0.000)	0.125 (0.000)
Age/100	0.341 (0.214)	0.442 (0.115)	0.489 (0.173)	0.613 (0.091)	0.741 (0.114)	0.847 (0.070)
Agesq/ 10,000	−0.460 (0.170)	−0.568 (0.097)	−0.657 (0.134)	−0.798 (0.072)	−0.979 (0.086)	−1.010 (0.054)
High Quals	−0.017 (0.029)	−0.017 (0.036)	−0.018 (0.061)	−0.017 (0.084)	−0.022 (0.081)	−0.021 (0.103)
Married	−0.026 (0.026)	−0.026 (0.031)	−0.024 (0.097)	−0.021 (0.139)	−0.022 (0.236)	−0.019 (0.305)
Female	−0.061 (0.000)	−0.062 (0.000)	−0.068 (0.000)	−0.071 (0.000)	−0.088 (0.000)	−0.090 (0.000)
Renting House	−0.013 (0.158)	−0.017 (0.078)	−0.012 (0.293)	−0.014 (0.228)	−0.017 (0.262)	−0.020 (0.201)
North	0.024 (0.011)	0.026 (0.006)	0.026 (0.055)	0.033 (0.005)	0.043 (0.004)	0.047 (0.002)
Illness	0.019 (0.066)	0.019 (0.079)	0.018 (0.056)	0.025 (0.061)	0.036 (0.036)	0.036 (0.041)
Children	−0.022 (0.016)	−0.024 (0.014)	−0.026 (0.032)	−0.027 (0.025)	−0.036 (0.019)	−0.037 (0.017)
Indian	0.014 (0.451)		0.042 (0.076)		0.044 (0.153)	
African Asian	0.023 (0.241)		0.060 (0.019)		0.062 (0.056)	
Pakistani	0.015 (0.485)		0.066 (0.023)		0.069 (0.062)	
Bangladeshi	−0.020 (0.418)		0.027 (0.393)		0.022 (0.580)	
Chinese	−0.018 (0.262)		−0.034 (0.110)		−0.028 (0.303)	
< 5% Unemployment	0.008 (0.649)	0.012 (0.546)	0.019 (0.418)	0.027 (0.263)	0.057 (0.062)	0.066 (0.032)
5–10% Unemployment	0.023 (0.043)	0.028 (0.019)	0.028 (0.052)	0.037 (0.013)	0.078 (0.000)	0.086 (0.000)
10–15% Unemployment	0.035 (0.002)	0.040 (0.001)	0.045 (0.001)	0.052 (0.000)	0.095 (0.000)	0.101 (0.000)
15–20% Unemployment	0.032 (0.006)	0.032 (0.008)	0.040 (0.006)	0.041 (0.006)	0.067 (0.000)	0.067 (0.000)
2–10% Own group in ward	−0.022 (0.015)	−0.019 (0.034)	−0.030 (0.011)	−0.022 (0.053)	−0.036 (0.020)	−0.028 (0.056)
10–25% Own group in ward	−0.029 (0.008)	−0.023 (0.028)	−0.036 (0.010)	−0.025 (0.061)	−0.031 (0.083)	−0.021 (0.226)
Over 25% Own group in ward	−0.030 (0.020)	−0.022 (0.079)	−0.044 (0.009)	−0.031 (0.065)	−0.044 (0.042)	−0.030 (0.158)

UK born	−0.019 (0.115)	−0.015 (0.208)	−0.018 (0.257)	−0.015 (0.343)	−0.021 (0.304)	−0.018 (0.355)
Arrived pre 1960	−0.003 (0.884)	−0.001 (0.967)	0.015 (0.599)	0.018 (0.529)	0.029 (0.423)	0.032 (0.392)
Arrived 1970–1979	−0.024 (0.011)	−0.026 (0.007)	−0.033 (0.005)	−0.035 (0.002)	−0.042 (0.005)	−0.044 (0.002)
Arrived 1980–1989	−0.025 (0.040)	−0.027 (0.034)	0.004 (0.799)	−0.001 (0.942)	−0.002 (0.905)	−0.008 (0.700)
Arrived 1990–1994	−0.057 (0.018)	−0.060 (0.014)	−0.035 (0.305)	−0.039 (0.244)	−0.051 (0.245)	−0.055 (0.206)
English fairly good	−0.005 (0.557)	−0.008 (0.368)	0.001 (0.910)	−0.002 (0.833)	0.002 (0.920)	−0.005 (0.752)
English poor	−0.020 (0.095)	−0.024 (0.046)	−0.032 (0.042)	−0.037 (0.022)	−0.036 (0.078)	−0.040 (0.050)
No religion	−0.004 (0.846)	−0.020 (0.096)	0.043 (0.108)	−0.022 (0.149)	0.029 (0.402)	−0.033 (0.087)
Hindu	−0.000 (1.000)	0.008 (0.390)	−0.003 (0.876)	−0.008 (0.514)	−0.018 (0.440)	−0.022 (0.169)
Sikh	−0.009 (0.566)	−0.004 (0.718)	−0.007 (0.739)	−0.005 (0.713)	−0.007 (0.782)	−0.018 (0.329)
Christian	−0.046 (0.028)	−0.059 (0.000)	−0.021 (0.432)	−0.078 (0.000)	−0.054 (0.115)	−0.110 (0.000)
Other religion	0.026 (0.332)	0.012 (0.591)	0.042 (0.203)	−0.014 (0.613)	0.034 (0.422)	−0.016 (0.653)
Sample size	1576	1576	1576	1576	1576	1576
Percent correct	92.51	92.07	91.69	91.11	90.23	90.10

(1) The table reports marginal effects computed at the sample means of the independent variables. *p*-values are in parentheses.
(2) Excluded categories for groups of dummies are as in the notes to Table 4.

Table 7
Enclaves and ethnic goods

	Produces no ethnic goods	Produces ethnic goods	Total
0–2% Own group in ward	129 (66.83)	64 (33.17)	192 (100)
2–10% Own group in ward	104 (87.20)	15 (12.80)	119 (100)
10–25% Own group in ward	82 (93.63)	6 (6.37)	88 (100)
> 25% Own group in ward	31 (93.82)	2 (6.18)	33 (100)
Total	346 (79.95)	87 (20.05)	432 (100)

The table shows weighted counts and row percentages in parentheses.

was assessed by interviewers and classified as either "fluent", "fair", "slight" or "not at all". For the purposes of estimation, the latter two categories were collapsed into a single dummy variable. The excluded category is fluent. Compared to those fluent in English, respondents who had difficulties with English were less likely to be in self-employment. The effect was greatest for those with the weakest English. In the raw data, those whose English was classified as "fair" had the highest self-employment rates but this does not control for other factors notably age, which is related to both English language ability and self-employment propensity. The language issue is more complicated than this since it is possible to be fluent in more than one language. Many members of the ethnic minorities are bilingual and there is evidence to suggest learning two or more languages at an early age can increase a child's academic achievement and hence affect employment outcomes later in life (Baker, 1995).

The data set gives a great deal of detailed information about religion, which has been collapsed into broad categories. There is substantial collinearity between ethnicity and religion. Focussing, therefore, on the specifications which exclude the ethnic dummies, Christians and those who do not follow a religion are less likely to be found in self-employment, relative to the excluded Muslim group. Hindus, Sikhs and Muslims, devotees of religions in which self-employment is valued, are well-represented in that sector. Other aspects of religion, or indeed other denominations, may also be important. A measure of "devoutness", based on how often respondents attended religious ceremonies and how important they viewed religion in their lives, was constructed but this was not a significant determinant of sector.[13] In a follow-up survey of some of the South Asian self-employed respondents in our sample, Metcalf et al. (1996) found that aspects of religion were a potential influence on what products were sold, attitudes to risk and to usury, and on the perceived determinants of business success.

Finally a set of dummy variables was included in the model to account for immigrant status and arrival cohort. The excluded category is those who arrived in

[13] This finding should be qualified by noting that the questions relating to "devoutness" were asked only of a restricted sample.

the 1960s, the decade when immigration to the UK was at its height. There is some evidence that more recent arrivals have lower self-employment rates. This supports the idea that more recent immigrants find the costs of setting up in

Table 8
Probit estimates of self-employment incidence

	Model A	
	Ethnicity controls	No ethnicity controls
Constant	−0.475 (0.000)	−0.454 (0.000)
Age/100	2.092 (0.001)	2.002 (0.002)
Agesq/10,000	−2.581 (0.001)	−2.484 (0.001)
High Quals	−0.023 (0.184)	−0.022 (0.218)
Married	0.031 (0.201)	0.034 (0.173)
Female	−0.093 (0.000)	−0.092 (0.000)
Renting house	−0.013 (0.557)	−0.015 (0.489)
North	0.024 (0.254)	0.031 (0.128)
Illness	0.055 (0.023)	0.054 (0.025)
Children	−0.049 (0.020)	−0.047 (0.025)
Indian	−0.015 (0.718)	
African Asian	0.002 (0.961)	
Pakistani	0.030 (0.553)	
Bangladeshi	−0.039 (0.481)	
Chinese	0.061 (0.093)	
< 5% Unemployment	0.011 (0.785)	0.021 (0.611)
5–10% Unemployment	0.039 (0.139)	0.042 (0.112)
10–15% Unemployment	0.054 (0.025)	0.059 (0.015)
15–20% Unemployment	0.073 (0.004)	0.074 (0.004)
2–10% Own group in ward	−0.052 (0.014)	−0.062 (0.002)
10–25% Own group in ward	−0.061 (0.015)	−0.068 (0.004)
Over 25% Own group in ward	−0.081 (0.007)	−0.085 (0.004)
UK born	−0.051 (0.067)	−0.057 (0.039)
Arrived pre 1960	−0.008 (0.880)	−0.013 (0.804)
Arrived 1970–1979	−0.035 (0.090)	−0.033 (0.092)
Arrived 1980–1989	−0.046 (0.121)	−0.049 (0.091)
Arrived 1990–1994	−0.116 (0.042)	−0.117 (0.039)
english fairly good	−0.004 (0.863)	−0.002 (0.941)
English poor	−0.037 (0.186)	−0.031 (0.260)
No religion	−0.051 (0.283)	−0.034 (0.196)
Hindu	−0.014 (0.658)	−0.026 (0.235)
Sikh	−0.013 (0.718)	−0.030 (0.245)
Christian	−0.138 (0.003)	−0.137 (0.000)
Other religion	0.014 (0.818)	0.035 (0.480)
Sample size	1576	1576
Percent correct	86.93	87.12

(1) The table reports marginal effects computed at the sample means of the independent variables. *p*-values are in parentheses.
(2) Excluded categories for groups of dummies are as in the notes to Table 4.

business higher than those who have been resident for longer. UK born non-whites have lower self-employment rates than long-established immigrants but are not dissimilar to more recent immigrants.

To confirm the importance of these four sets of pull variables as influences on choice of sector, two further robustness checks were undertaken. First, the model was re-estimated excluding part-time workers. The results were broadly similar; apart from Pakistanis and Bangladeshis, there were only small differences in hours worked between the ethnic groups. Second, Eq. (3) was re-estimated excluding the predicted earnings differential in order to ensure that conclusions drawn about the effects of the pull variables are not an artefact of the way in which earnings were modelled. As the results in Table 8 show, the signs of the estimated coefficients on the pull variables remained the same and the size of the coefficients was magnified in each case. With the exception of the language variables, observed significance levels were also similar.

5. Concluding comments

The *Fourth National Survey of Ethnic Minorities* was used to identify factors which can account for differences in self-employment rates amongst ethnic minorities in England and Wales. It is found that the difference between an individual's predicted earnings in paid and self-employment exerts a powerful influence, suggesting that the existence of discriminatory wages in the paid-employment sector may push minorities into entrepreneurship.

Of the pull factors analysed, it is found that ethnic minority individuals who live in areas which have a high percentage of their own group (the enclave effect) are less likely to be self-employed, which is contrary to what the protected market hypothesis would predict. Furthermore, those with poor English language skills and more recent immigrants have lower self-employment probabilities. Devotees of religions thought to value entrepreneurship (Hindus, Muslims and Sikhs) had higher self-employment rates.

It would be wrong to claim that the factors explored in this paper, taken together, exhaust the possible influences of ethnicity on self-employment. As always in this kind of work, there are variables which theory and casual empiricism suggest are important but which are unavailable. In the context of self-employment, access to capital is likely to be one such factor (see Evans and Jovanovic, 1989; Blanchflower and Oswald, 1998). The situation for ethnic minorities is further complicated because of the informal loan arrangements which operate within certain groups (Basu, 1998). These lower the barriers to entry faced by group-members. The existence of such arrangements and the results of this paper suggest that there remain interesting, unanswered questions concerning the interaction between ethnicity and self-employment.

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References

Aldrich, H., Cater, J., Jones, T., McEvoy, D., Velleman, P., 1985. Ethnic residential concentration and the protected market hypothesis. Social Forces 63, 996–1009.

Aldrich, H., Waldinger, R., 1990. Ethnicity and entrepreneurship. Annual Review of Sociology 16, 111–135.

Baker, C., 1995. A Parents' and Teachers' Guide to Bilingualism. Multilingual Matters, Clevedon.

Basu, A., 1998. An exploration of entrepreneurial activity among Asian small businesses in Britain. Small Business Economics 10, 313–326.

Bhat, C., 1994. Imputing a continuous income variable from grouped and missing income observations. Economics Letters 46, 311–319.

Black, J., De Meza, D., Jeffreys, D., 1996. House prices, the supply of collateral and the enterprise economy. Economic Journal 106, 60–75.

Blackaby, D., Leslie, D., Murphy, P., O'Leary, N., 1998. The ethnic wage gap and employment differentials in the 1990s: evidence for Britain. Economics Letters 58, 97–103.

Blanchflower, D.G., Oswald, A.J., 1990. The wage curve. Scandinavian Journal of Economics 92, 215–235.

Blanchflower, D.G., Oswald, A.J., 1998. What makes an entrepreneur? Evidence on inheritance and capital constraints. Journal of Labor Economics 16, 26–60.

Borjas, G.J., 1986. The self-employment experience of immigrants. Journal of Human Resources 21, 485–506.

Borjas, G.J., Bronars, S.G., 1989. Consumer discrimination and self-employment. Journal of Political Economy 97, 581–605.

Clark, K., Drinkwater, S., 1998. Ethnicity and self-employment in Britain. Oxford Bulletin of Economics and Statistics 60, 383–407.

Cowling, M., Mitchell, P., 1997. Trends in self-employment: government policy and the role of the macroeconomy. The Manchester School 65, 427–442.

Evans, M.D.R., 1989. Immigrant entrepreneurship: effects of ethnic market size and isolated labor market pool. American Sociological Review 54, 950–962.

Evans, D., Jovanovic, B., 1989. An estimated model of entrepreneurial choice under liquidity constraints. Journal of Political Economy 97, 808–827.

Fairlie, R.W., Meyer, B.D., 1996. Ethnic and racial self-employment differences and possible explanations. Journal of Human Resources 31, 757–793.

Kidd, M., 1993. Immigrant wage differentials and the role of self-employment in Australia. Australian Economic Papers 32, 92–115.

Leslie, D., 1998. An Investigation of Racial Disadvantage. Manchester University Press, Manchester.
Lucas, R.E., 1978. On the size distribution of business firms. Bell Journal of Economics 9, 508–523.
Marie, C.V., 1996, The EC member states and immigration in 1993: Closed borders, stringent attitudes, Synthesis Report of the Information Network on Migration from Third Countries, European Commission.
Maxim, P.S., 1992. Immigrants, visible minorities and self-employment. Demography 29, 181–198.
Metcalf, H., Modood, T., Virdee, S., 1996. Asian Self-Employment: The Interaction of Culture and Economics. Policy Studies Institute, London.
Modood, T., Berthoud, R., Lakey, J., Nazroo, J., Smith, P., Virdee, S., Beishon, S., 1997. Ethnic Minorities in Britain: Diversity and Disadvantage. Policy Studies Institute, London.
Parker, S., 1997. The distribution of self-employment income in the United Kingdom 1976–1991. Economic Journal 107, 455–466.
Parker, S., 1999. The inequality of employment and self-employment incomes: a decomposition analysis for the UK. Review of Income and Wealth 45, 263–274.
Portes, A., Zhou, M., 1996. Self-employment and the earnings of immigrants. American Sociological Review 61, 219–230.
Rafiq, M., 1992. Ethnicity and enterprise: a comparison of Muslim and non-Muslim owned Asian businesses in Britain. New Community 19, 43–60.
Razin, E., Langlois, A., 1996. Metropolitan characteristics and entrepreneurship among immigrants and ethnic groups in Canada. International Migration Review 30, 703–727.
Rees, H., Shah, A., 1986. An empirical analysis of self-employment. Journal of Applied Econometrics 1, 95–108.
Robson, M., 1997. The relative earnings from paid and self employment: a time series analysis for the UK. Scottish Journal of Political Economy 44, 502–518.
Smith, P., Prior, G., 1996. The Fourth National Survey of Ethnic Minorities: Technical Report, Social and Community Planning Research, London.
Taylor, M.P., 1996. Earnings, independence or unemployment: why become self-employed? Oxford Bulletin of Economics and Statistics 58, 253–266.
de Wit, G., 1993. Models of self-employment in a competitive market. Journal of Economic Surveys 7, 367–397.
Yuengert, A.M., 1995. Testing hypotheses of immigrant self-employment. Journal of Human Resources 30, 194–204.