
WWW.DAGLIANO.UNIMI.IT

CENTRO STUDI LUCA D'AGLIANO
DEVELOPMENT STUDIES WORKING PAPERS

N. 253

June 2008

# Social Determinants of Labor Market Status of Ethnic Minorities in Britain

*Martin Kahanec* *
*Mariapia Mendola* **

* IZA
** University of Milan Bicocca and Centro Studi Luca d'Agliano

# Social Determinants of Labor Market Status of Ethnic Minorities in Britain*

Martin Kahanec§

IZA

Mariapia Mendola#

University of Milan Bicocca and Centro Studi Luca d'Agliano

**Abstract**

The labor market behavior of ethnic communities in advanced societies and the social determinants of their labor market outcomes are important empirical issues with significant policy consequences. We use direct information on social interactions within multiple-origin ethnic minorities in England and Wales to investigate the ways different network-based social ties influence individual employment outcomes. We find that (i) 'strong ties', measured by contacts with parents and children away, increase the probability of self-employment, while 'weak social ties', measured by engagement in voluntary organizations, are more likely to channel members of ethnic minorities into paid employment; (ii) 'ethnic networks', measured by interactions between individuals of the same ethnicity, are positively associated with the likelihood to be self-employed, while engagement in mixed or non-ethnic social networks facilitates paid employment among minority individuals. These findings hint at a positive role of social integration in the host society on labor market outcomes of ethnic minority groups.

**Keywords:** labor market, self-employment, ethnic minorities, social ties, ethnic networks
**JEL Codes:** J7, J15, J21

---

* We thank participants to the 4th IZA Prize Conference and two anonymous referees for helpful comments. Martin Kahanec acknowledges financial support from the Volkswagen Foundation for the IZA project on "The Economics and Persistence of Migrant Ethnicity". Mariapia Mendola acknowledges financial support from Centro Studi Luca d'Agliano and the SUS.DIV Project.

§ IZA, Schaumburg-Lippe-Str. 5-9, 53113 Bonn. E-mail: kahanec@iza.org.

# Department of Economics, University of Milan Bicocca, P.za dell'Ateneo Nuovo 1, 20126 Milan. E-mail: mariapia.mendola@unimib.it

## 1. Introduction

Culturally diverse ethnic communities are a growing feature of advanced economies. Ongoing research is paying more and more attention to understanding the labor market behavior of ethnic minority and immigrant groups and their over-representation in self-employment or certain employment sectors in developed countries (e.g. Clark and Drinkwater, 2000, 2006). Among the most intriguing issues in this debate is the role of social networks in shaping the employment opportunities of immigrant and ethnic minorities (Munshi, 2003). From a policy perspective, understanding how social and work activities interact is a prerequisite for explaining the processes behind the potential integration (or marginalization) of ethnic minority groups in the host labor market and society as a whole.

Several explanations have been provided to account for labor market choices and outcomes of immigrant and ethnic minority groups in host economies. Local economic conditions (e.g. deprivation), host language fluency and education qualifications have been shown to affect labor outcomes, with variable importance across different ethnic groups (Clark and Drinkwater, 2000, 2006). Discriminatory earnings differentials faced by specific sub-groups of population have been proposed to explain the prospects of ethnic minorities as workers and entrepreneurs (e.g. Clark and Drinkwater, 1998, 2002; Topa, 2001).

Some aspect of ethnic minority culture, religion in particular, have been acknowledged to enhance entrepreneurial ambitions (Clark and Drinkwater, 2006). At the same time, much attention has been paid to the proximity, neighborhood or ‘enclave effect’ (based on shared residence, language or background) in driving labor market

outcomes (e.g. Bayer, Ross and Topa, 2005; Topa, 2001; Clark and Drinkwater, 1998, 2002). The strength and quality of social relationships, however, cannot be captured by the one-dimensional and aggregated enclave effects. This paper contributes to this debate by shedding light on the role of social relationships, such as engagement in familiar, ethnic or non-ethnic social relationships, on labor market outcomes of members of ethnic minority groups.

Social networks have long been acknowledged to play a major role in solving information problems and other frictions in the labor market (e.g. Granovetter 1995; Topa, 2001). This role may be especially pronounced for immigrant minority group members of the same origin in the receiving countries. Indeed, social ties typically build up and develop among 'similar' people (i.e. structural variables[2]) across 'different' dimensions, e.g. age, gender, education, ethnicity, religious affiliation and also economic status (i.e. compositional variables). Networks organized around the origin community have been documented for e.g. Mexican migrants and, more generally, Hispanics in the U.S. (e.g. Munshi, 2003; Holzer 1987).[3]

Yet, much of the existing economic research on social contacts among ethnic minorities has treated social interactions or networks as a static group characteristic, measured in terms of the size of the sub-population group with the same country of origin, nationality, citizenship or race[4]. The division of labor force into ethnic groups with a number of blanket assumptions on the intra and inter-ethnic social structure has led

[2] Structural variables of social networks are essentially ties between actors such as friendship relations, co-workers, same family membership, social club membership and co-ethnics and immigrants of the same origin.

[3] Holzer (1987) found that Hispanic use informal job-search ties through friends or relatives more extensively than other ethnic groups, even though there are only small racial differences in such methods across all age groups.

[4] Another way to proxy social networks is through 'geographical proximity' (i.e. people living close each other) to which the same arguments discussed in the text apply.

some scholars to conclude that the effectiveness of informal job contacts is group-specific or driven by cultural factors.[5] However, the perception of social-networks as membership in an ethnic group (based on citizenship, nationality, or neighborhood) ignores crucial information on individuals' *choice* (or chance) of belonging to a specific group of people and, more in general, on the actually exercised commitments and relationships to ethnic and social groups within the larger society (Constant, Gataullina and Zimmermann, 2006). Assessing labor market behavior in a way which rules out the diversity of social interactions amongst ethnic groups and the host society may entail misleading explanations of the labor market integration of ethnic minorities. Moreover, from a methodological point of view, the socio-economic characteristics of minorities as a group are not orthogonal to the group's social capital and individual access to various forms of capital through informal non-market interactions (e.g. Metcalf, Modood and Virdee, 1996; Alesina and La Ferrara, 2000; Cox and Fafchamps 2007*)*. The exclusion of such networks-related variables from the analysis of ethnicity and labor market may lead to a spurious correlation between ethnic minority environment and employment prospects.

This paper adds to the literature on the differences in labor market prospects amongst ethnic minorities by analyzing the (structure of the) *social process* behind their engagement (or exclusion) in the 'host' labor market. Based on the Fourth National Survey of Ethnic Minorities, a detailed micro-data on ethnic minorities in England and Wales, our analysis provides new empirical evidence on the way network-based social capital influence labor market outcomes of ethnic minority individuals. Specifically, we

5 Battu, McDonald and Zenou (2003) for example, find that job referrals are detrimental for the Pakistanis and Bangladeshis communities. From the latter they infer that Pakistanis and Bangladeshis friendship ties display greater ethnic homophily so that their connections are with their own. If their own exhibit higher unemployment on average individuals in this group may have fewer friends and relative who are employed and can help them attain steady jobs.

investigate the extent to which the structure and composition of social interactions[6] affect employment prospects of ethnic minorities in Britain. Our main contribution is in accounting for the effects of heterogeneous social ties, i.e. family, ethnic and non-ethnic social networks, on labor market outcomes of ethnic minority individuals, i.e. paid-employment, self-employment or unemployment, by using direct information on social interactions between individuals. Our hypothesis is that static and aggregate characteristics, such as those related to ethnicity or neighborhoods, disguise a purposive pattern of social ties that is important in determining labor market outcomes, even more in ethnically and culturally diverse economies (Montgomery, 1991).

To develop the argument, we proceed as follows. In the next section we discuss the theoretical underpinnings of the role of social relationships for labor market outcomes. We then describe the data and provide statistics for the key variables of interest. In the next section we develop the empirical strategy to identify relationships between social and labor market variables. Finally, we discuss the results and conclude.

## 2. Background literature

There is a wide variety of explanations for why networks are important in the job market, e.g. assortative matching, information asymmetries and insurance motives, and why they develop along dimensions such as race, ethnicity, religious affiliations, and education (Lin 2001; Granovetter, 1995). A number of studies for a range of countries and sub-group population have emphasized the popularity of using friends and family as sources of employment information (Granovetter, 1974, 1995; Blau and Robins, 1990;

[6] We use the term social interaction and network interchangeably, even though the latter is abused as we do have information on social interactions with other people but we do not have detailed information on the network nodes.

Topa, 2001; Bentolila, Michelacci and Suarez, 2004; Wahba and Zenou, 2005).[7] The empirical evidence reveals that around 50% of individuals obtain or hear about jobs through social networks (Montgomery, 1991; Gregg and Wadsworth, 1996; Addison and Portugal, 2003). This is true even in advanced economies such as the U.S., where Ioannides and Loury (2004) find that informal search methods are a key determinant of labor prospects.

On the empirical ground, the group size is often being used as a relevant measure to capture network influences on the economic outcomes of its members. Yet, social networks may influence the labor market differently depending on their structure and there might be non-linearities, capturing either the solidarity or the competition effect amongst members. Wahba and Zenou (2005) for example show that among the employed, the probability of finding a job through a social network is concave with respect to population density that is a proxy for the size of the social network.[8] Moreover, using social contacts is far from being a homogeneous method of searching for jobs (Granovetter, 1995). Social contacts of different composition, including those based on familial, ethnic, and friendship linkages, have different structural and operational characteristics, which lead to different effects on labor market outcomes.

Overall, analyzing network effects by using the stock of co-ethnics as the relevant network measure is likely to miss important heterogeneity in the way network-based social capital and information flows influence economic outcomes. This is even more

[7] According to the literature (e.g. Datcher, 1982, 1983), using friends and relatives is productive not only in finding jobs but also in improving the quality of the match between firms and workers (e.g. longer tenure).

[8] In small groups and close knit, where members are connected with strong ties, evolutionary models (Ellison, 1993) argue that cooperative outcomes and coordination are more likely. On the other hand, Granovetter (1995) argues that it is the weak ties that are crucial in job search. If the small group is made of immigrants just arrived in a new country, they will lack information and will compete to get jobs rather than cooperate.

significant if ethnic groups are relatively well established in the country of residence as it the case for some ethnic minorities in the Britain (where they mostly started arriving after the Second World War).

Moreover, in some cases the effect of an increase in the total size of the network (i.e. the whole ethnic group) may include both network and 'ethnic identity' effects. The degree of assimilation varies considerably across ethnic groups and individuals (there may be typical jobs for certain ethnic groups, for example). Certain individuals or ethnic groups may be seen as being more economically (in terms of the probability of working, expected earnings and occupational attainment), socially and spatially isolated with respect to the white majority and compared to other ethnic groups (Akerlof, 1997; Akerlof and Kranton, 2000 Battu, McDonald and Zenou, 2003). In essence, their labor market outcomes may 'reflect' their identity or assimilation status, which is determined by a social process and not a static characteristic given by ethnicity.[9] The underlying idea is that labor market behavior and, more in general, work values and identity of ethnic minorities are the result not only of their social environment (neighborhood) and their attachment to their culture of origin (ethnicity, religion, language), but also of a social interaction with the host society.

## 3. Data and descriptive statistics

The *Fourth National Survey of Ethnic Minorities* used in this paper was carried out between 1993 and 1994 by the Policy Studies Institute to investigate the social and economic conditions of Britain's ethnic minorities. This unique survey over-samples the

[9] As pointed out by Manski (2000), the evidence based on aggregate group characteristics (such as ethnicity or population density in our case) may *reflect* the average behavior of the group as a whole instead of explain it.

ethnic minorities in England and Wales and covers a wide range of topics including family structures and social relationships, employment, education, housing, racial harassment, community participation and cultural identities.[10] With respect to labor market status, the dataset provides information on whether individuals have a job and whether they are engaged in either paid employment or self-employment.[11] A total of 5196 individuals of foreign origin, aged 16 and over as well as 2867 Whites were interviewed. Six minority groups of different family origin are identified by the survey, i.e. Caribbeans, Indians, African Asians, Pakistanis, Bangladeshis and Chinese. [12] Due to their small numbers, we merge the African Asian and Indians minority groups, which leaves us with five ethnic minority groups. Since the dataset oversamples ethnic minorities, we apply survey weights in the analysis.

Sample means of a variety of key socio-economic characteristics by ethnic group are reported in Table 1. The household size and structure significantly differ across ethnic groups. Most of minority individuals are foreign born (e.g. half of Caribbean and 90% of Bangladeshis) arriving as migrants on average 15 years prior to the survey. Overall, about 20% of each ethnic group (one third of Caribbean) have children over 16 years old living away from home. About one to two fifths of members of ethnic minorities have parents living abroad (43% in the Chinese community). The incidence of having parents living in Britain varies across ethnic groups significantly, with the Caribbeans trailing the Whites at the top and the Bangladeshis at the bottom. The incidence of living with one or both

[10] Due to the presence of very few minorities, interviews were not conducted in Scotland and Northern Ireland. See Smith and Prior (1996) for details on sampling procedures. This is a unique dataset containing the information on ethnic minorities and their embeddedness in social relationships necessary for our analysis.

[11] For those engaged in other activities, it is possible to distinguish between unemployment and out-of-labor-force states (or inactivity). The latter category, which includes people who are retired, housewives, students, on temporary or permanent sickness leave, will be excluded from the working age sample.

[12] There is a large omitted group in the dataset – Black Africans.

parents is the highest among the Pakistanis. There is a wide variation across groups as to whether their education was acquired abroad or domestically. While around 80% of the Pakistanis and Indians own their houses, less than half of the Bangladeshis do so.

We also observe the relative variability of neighborhood (ward) characteristics across ethnic groups. The Pakistanis, for example, live in areas where the density of own ethnicity is between 5 and 10% on average, the unemployment rate is in between 15 and 20% and more than a half of the ward population own their house. The Chinese, on the other hand, typically live in wards with less than 2% of coethnics, unemployment rate between 10 and 15%, and the prevalence of house ownership between 60 and 70%.

[Table 1 about here.]

Table 2 presents average labor outcomes of persons belonging to different ethnic groups. There is a relative variation in the employment outcomes across individual ethnic groups. In particular unemployment rate is very low amongst Chinese, followed by Indians, Caribbeans, Pakistanis and Bangladeshis. Conversely, the self-employment rate is highest for Chinese and Pakistanis, followed by Indians, Bangladeshis and Caribbeans.

[Table 2 about here]

Also white majority individuals report a significant self-employment rate (15%), which is higher than in case of Caribbeans (8%), for example. Thus, the common wisdom that in many developed countries ethnic minorities are disproportionately represented in self-employment disguises significant variation between different ethnic groups. Not

surprisingly, we observe ethnic gaps in labor market outcomes of females, with employment rates (the combination of paid-employment and self-employment) much higher for Chinese, Caribbeans, Indians and Whites and lower for Bangladeshis and Pakistanis.

Table 3 reports mean individual and neighborhood variables across employment status of ethnic minority individual in working age (i.e. males aged 16-64 years, and females aged 16-59). We observe a significant variation of many socio-economic characteristics. In particular, most of self-employed individuals are married, have larger households, arrived from abroad more than 19 years prior to the survey, 30% of them having parents abroad, overall less educated than employees but with a higher percentage of house ownership. Moreover, self-employed appear to be settled in less ethnically concentrated ethnic neighborhood than paid-employed or unemployed, which goes against the 'enclave effect' argument proposing positive effects of ethnic concentration (as already argued by Clark and Drinkwater, 2002). As expected, in contrast, unemployed seem to live in areas where the ward unemployment rate is higher (between 15 and 20%), household ownership is lower and social housing density higher. There is no significant difference between paid-employees and self-employees with respect to the latter variables, though.

[Table 3 about here.]

Table 4 reports the distribution of structural characteristics of individual social networks across ethnic groups, i.e. 'group membership' and 'family contacts'.[13] We also distinguish some compositional characteristics of social ties, that is the ethnic or non ethnic composition and contacts with relatives abroad rather than in Britain.[14]

[Table 4 about here.]

The Caribbeans show the highest propensity to belong to a formal group or organization (which can be either community work or club membership) with an average group membership rate of over 36% followed by the Chinese, Indians, Pakistanis and Bangladeshis. On average, almost 10 % of organizations are set up specifically for the same ethnic group of the individual member, while 11% have a mixed composition and less than 7% are non-ethnic.

Overall, the incidence of family contact, including seeing, speaking on the phone, and corresponding with them in past four weeks, is substantial across all ethnic groups in that, on average, more than one third of each ethnic population has contacts with parents and relatives living away. Chinese and Pakistanis have the highest rate of contacts with relatives living abroad (35% and 25% respectively) while the remaining ethnic groups report an incidence around or below 20%.

[13] Specifically, interviewees are asked if, in the last year, they have you done any unpaid voluntary community work in some organizations or clubs; how often they are in contact (via visits. phone calls, mails) with parents and relatives living far away (in Britain or abroad). In case of positive answers they are also asked f these social contacts occur specifically with people of same ethnic origin or not.

[14] We distinguish 2 types of group membership but the 3 categories are not mutually exclusive at individual level (i.e. individual can belong to more than one at the same time); this will be considered in the inferential analysis.

[Table 5 about here.]

Table 5 presents the incidence of social ties and their characteristics by individual employment status in working age ethnic minority population. Membership in social networks is significantly higher amongst employees, followed by self-employed and unemployed. Most of social network membership has an ethnic or mixed focus. In particular, almost 12% of paid employed take part in organizations specifically set up for people of the same ethnicity, while more than 15% of them belong to ethnically mixed organizations. It is also worth noting that almost 10% of unemployed take part in ethnic organizations, while only 4% belong to non-ethnic ones. Family contacts seem to be important for all groups, especially for employed persons, but about one forth of both paid-employed and self employed maintain contact with relatives abroad, while less than 15% of unemployed do so.

Eventually, Table 6 shows the distribution of social ties across different ethnically concentrated neighborhoods. Interestingly, the incidence of formal group membership decreases as the ward density of ethnic minorities increases. In particular, participation in organizations or clubs not devoted to a specific ethnic group is much higher (21% of the population) in less ethnically concentrated (segregated) neighborhoods than in more concentrated ones. Conversely, there is relatively low heterogeneity in having family contacts across different neighborhood, supporting the idea that family ties are driven by other factors other than neighborhood characteristics.

[Table 6 about here.]

As a rule, we observe considerable variation of labor market outcomes and involvements in social relationships of different nature across ethnic groups. The empirical analysis presented below aims at disentangling the roles of different forms of social networks for labor market outcomes of ethnic minorities in Britain.

**4. The empirical strategy**

Given our key dependent variable measuring three possible labor market outcomes, i.e. paid employment, self-employment, and, as a benchmark, unemployment, our baseline regression analysis is based on the multinomial probabilistic dependent variable regression model of the Logit type

$$P\left(Y = j\middle|\overline{X}\right) = \frac{\exp\left(\beta_j'\overline{X}\right)}{\sum_{j=0}^{J}\exp\left(\beta_j'\overline{X}\right)}$$

where $P\left(Y = j\middle|\overline{X}\right)$ is the probability of observing $j \in \{0, J\}$ outcome of the dependent variable $Y$ conditional on the vector $\overline{X}$ of individual characteristics and the socioeconomic context variables described in the previous section. $\beta_j$ is the vector of regression coefficients to be estimated by the Maximum Likelihood method, and we impose the standard normalization $\beta_0 = 0$.

The dependent variable $Y$ captures the labor market status of the individual: paid employment, unemployment and self-employment. Besides the key variables of interest, the measures of family contacts, social networks, religion, ethnicity, and migration history, the vector of independent variables $\overline{X}$ includes indicators of the household and

family structure, individual demographics, education, ward ethnic densities, unemployment, and regional controls.

The dataset used in our analysis contains very detailed information on ethnic minority members with respect to both their family structure in Britain and abroad as well as their extra-familiar social ties. We measure strong social ties through information about family members cohabiting (i.e. parents or children) in the respondent's household, contacts (through telephone, email or postal mail) with family members living away in Britain and with relatives living in the country of origin. As for extra-family or weak social ties, we use available information on individual voluntary membership in club or organizations, distinguishing those devoted to the own ethnic group and non-ethnically characterized.[15]

For the regression analysis, we select non-White working age individuals, that is, older than 16 and younger than 64 (males) and 59 (females), participating in the labor market. Additionally, we drop the observations with missing observations on the regressors. This leaves us with 1321 observations.[16]

Endogenous network formation and the ensuing problem of reverse causality are important empirical issues that need to be tackled in the analysis of the link between social relationships and labor market outcomes. Social networks may be affected by labor market outcomes, in that labor choices and labor market status may influence social interaction and social relationships by creating some and limiting the time available for

[15] The dataset we use includes questions such as: "Is this club/organization set up specifically for people of a specific ethnicity?", "In your work with this organization, are you mainly in contact with people of a specific ethnic origin?". It should be also noted that we exclude trade unions from these associations or organizations, as they apply for paid employees only.

[16] There are 4,378 observations on non-Whites fulfilling the age and labor force participation criteria and with information on labor status. Dropping the observations with missing variables appears to be random, as supported by the fact that the distribution of employment status and mean age, household size, marital status, social capital and gender do not statistically differ in the full and restricted sample.

the maintenance of other interaction opportunities. Yet, we can consider that the family structure and family relationships, especially the *existence* of such contacts between children and parents (as measured by our family contact variables), are largely exogenous with respect to individual labor market outcomes. Conversely, involvement in social clubs and voluntary organizations may be more dependent on the type of labor market activity of the individual. Thus, we apply the instrumental variable method to mitigate the potential endogeneity bias and identify how work and social activities interact among ethnic minorities in the British labor market.

Another methodological issue, discussed by e.g. McFadden (1973), is that the standard multinomial-logit choice model is based on the restrictive assumption of homogenous error variances assuming the independence of irrelevant alternatives (IIA). Thus, we further test the robustness of our results using the multinomial probit model that relaxes the IIA requirement.

## 5. The results

We summarize the estimation results in Table 7, where we report the marginal effect of an infinitesimal change (or discrete change in the case of dummy variables) in each independent variable on the outcome probability. Columns 1 and 2 report regression results using the baseline model with standard demographic controls including household and family structure as well as individual characteristics, educational variables, regional

controls and neighborhood characteristics such as own ethnic group density and unemployment rate at ward level.[17]

Overall, the structure of the core family importantly affects the likelihood of being in paid employment and self-employed. The number of household members is positively associated with the likelihood of being self-employed, suggesting that the latter may be a way to create or control family labor.[18] Yet, having minor children (especially aged 0 to 4) living in the household reduces the likelihood of being in paid employment or self-employed. Being married increases the likelihood of being in paid employment and even more so of being self-employed. This effect is not significantly different for men and women.

Of the individual characteristics, age and age squared play the usual role. While being a female has a positive effect on paid employment, this effect weakens if the women is married, as evidenced by the negative sign of the married female interaction term. These gender effects are most probably driven by the selection of women out of participation, rather than going into unemployment. Home ownership, as a main control for household wealth position,[19] is positively related to both paid employment and self-employment likelihood. This may be related to larger capacity of home owners to overcome credit imperfections when becoming self-employed, but it may also be due to the reverse channel through which the more affluent (employed) individuals are more

[17] Final specification have been adopted after performing several robustness checks. Among other variables initially included in the analysis there are self-reported episodes of discrimination and harassment, which turned out not to significantly affect labor market choices.

[18] The gender differences concerning the slopes of these effects are by and large insignificant, excepting marginally significant result that the negative effect of children aged 0 to 4 is smaller on mothers' than fathers' self-employment likelihood. Not reported.

[19] See Clark and Drinkwater (2002). More detailed information on the socioeconomic position of the individual, such as the value of the owned property or non-labor income, would augment the analysis, if the inherent endogeneity issues could be controlled for. The dataset at hand does not include information that could be used for this purpose, however.

likely to own their houses. Secondary education and especially being in possession of a higher university degree significantly increase the chances of being in paid employment. We find a significant penalty for achieving given educational levels abroad. It loses significance when we control for religion, ethnicity, and migration history, however.

One of the traditional variables measuring (potential) ethnic and social capital of ethnic minorities is the share of ethnic minorities in the region. Results are in line with existing evidence (Clark and Drinkwater, 2000) that the share of one's own ethnic group in the ward has a significant negative effect on his or her self-employment likelihood. We find similar negative effects on paid employment, albeit insignificant. As expected, ward unemployment rates are negatively associated with individual employment probabilities, in particular significantly decreasing the propensity to be self-employed.

[Table 7 about here.]

In columns 3 and 4 we amend the baseline model with our key variables of interest – the measures of family ties and social networks. Estimation results show that having contacts with parents or children living in Britain by outside the household (family contacts) is positively and significantly associated with the probability of being self-employed - while has a weak negative relation with paid employment status. This result is in line with the hypothesis that 'strong social ties' (to family members) do not significantly intermediate opportunities in paid employment, but they may be important for making the way to self-employment.

On the other hand, our networks membership variable, measuring whether the respondent has been engaged in voluntary work in any organization or is a member of a club, is strongly positively related to the probability of paid employment, whilst the effect on self-employment proves negative and non-significant. This result is in line with the existing evidence of the importance of 'weak social ties' in intermediating opportunities in paid employment. From our estimates on ethnic minorities members, having 'strong social networks' increases the likelihood of being self-employed by 6 percentage points, while having 'weak social ties' increases the probability to be paid-employed by 10 percentage points on average.

Since ethnicity and migration background may interfere with the links between social relationships and labor market outcomes and may affect employment opportunities on their own, columns 5 and 6 report the results of the regression model amended with a range of indicators of ethnicity and migration history. Clearly, these variables significantly improve the explanatory power of the regression model and many of them are significant. Taking Indian ethnic origin as the benchmark, being of Pakistanis ethnic origin decreases and of Chinese ethnic origin increases the probability of paid employment and self-employment. Caribbeans face such penalty in self-employment but not paid employment. On the other hand, being religious does not seem to affect employment opportunities significantly. Concerning years since migration, we find generally insignificant effects of experience in the host country as measured vis-à-vis the benchmark individual born in the UK. However, having at least 30 years of experience in the host country exhibits positive effects (even for paid employment significant at 5.1%

significance level). In line with previous evidence, weak command of English has significant negative effects on the probability of paid employment and self-employment.

While the significance of contacts with parents and children away for self-employment likelihood slightly decreases with inclusion of ethnicity and migration history variables, the evidence for the significant role of social networks membership on paid employment probability even strengthens. An important observation is that the significance of ward density of own ethnic minority becomes entirely insignificant for paid employment and less significant for self-employment with inclusion of ethnicity and migration history variables. In particular, the role on self-employment of ward density of own ethnic minority significantly weakens in the range between 15 and 33 percent, but remains significantly negative in the range between 2 and 15 percent and above 33 percent. This non-linearity is probably the result of the interaction between the (negative) competition effect and the (positive) ethnic enclave effects.

While we provide evidence for strong associations between social relationships and labor market outcomes, their causal interpretation requires further investigation. The structure of and contacts with the family are largely determined outside the labor market and thus these variables are not particularly problematic in this respect. However, in light of the arguments in section 4, the significant link between social capital and the probability of paid employment does require further analysis to permit its causal interpretation.

We tackle this issue in the Probit binary choice model with endogenous regressors using contacts with parents and children abroad as the instrumental variable.[20] The key to

[20] The choice variable in the binary regression takes the value "1" if the individual is employed (in paid employment only) and "0" if he or she is unemployed. The slightly lower number of observations in the IV

such approach is a well-behaved instrumental variable. We use the measure of contact with parents and children over 16 who live abroad, including seeing, speaking on the phone, and corresponding with them in past four weeks, as the instrument for networks membership. The underlying assumption that we make is that such contacts intermediate social relationships in the host country and thereby increase the likelihood of one's engagement on (weak) social networks such as clubs and voluntary organizations, while not being directly related to labor market outcomes. Indeed ethnic communities are increasingly transnational in their nature and people abroad may constitute social nodes that intermediate social relationships to other relatives, co-ethnics, and natives in the host country. In contrast to having active linkages with relatives in Britain, though, cross-border social contacts are unlikely to directly create paid employment opportunities - unless via local social networks.[21] Finally, the contact between parents and children is one of the strongest social relationships whose existence is typically exogenous to labor market outcomes.

Column 7 reports marginal effects of a simple probit model for the paid employment status; most of the results mimic those obtained for paid employment in the multinomial analysis. In column 8 the potential endogeneity of social capital is accounted for. The results confirm that social capital increases the likelihood to channel ethnic

probit model is due to some missing values on contacts with children and parents abroad. Results of social capital effect on self-employment remain insignificant also in the binary choice model and therefore are not reported.

[21] It may be argued that such cross-border contacts are able to alleviate credit constraints and therefore foster employment outcomes. Yet, while this is very unlikely in case of paid-employment outcomes, it should be noted that in general most of immigrants or ethnic minority individuals with contacts with family abroad are likely to remit money to their countries of origin instead of receiving them. The desire to remit may itself be conjectured to affect individual employment choices. This could be the case if, for example, individuals that have relatives abroad and want to remit seek more stable employment opportunities (i.e. in paid employment). While the dataset does not permit distinguishing this channel from the one whereby contacts abroad facilitate social relationships and thus employment in the host country, auxiliary analysis (available upon request) shows that inclusion of the variable measuring whether individual remits regularly, sometimes or not at all in the regression does not affect our results on the role of social capital.

minority individuals into paid employment. The coefficient on networks membership even increases and, although its standard deviation increases as well, it remains strongly significant. The first stage regressions show that our instruments are significant predictors of social ties.[22]

Overall, our results on the strong family and (weak) social network effects one paid employment and self-employment probabilities are robust to a number of alternative specifications and are informative on the social determinants of labor market outcomes amongst ethnic minority groups in a developed labor market. In particular, we show that employment opportunities of ethnic minorities in Britain are related to social capital variables beyond what can be captured by ethnic density variables.

In order to further explore the role of qualitative characteristics of social relationships on employment, we replicate columns 3 to 6 of Table 7, distinguishing social capital as involving ethnic, non-ethnic, and mixed social networks and English and non-English friendship ties. Table 8 reports the family contact, social ties and its ethnic nature, religion, ethnicity, and migration history variables.[23] Given the importance of networks membership (i.e. formal associations or clubs) in increasing the probability to be in paid employment and the potential role of such relationships with co-ethnics and the native population, we investigate whether the ethnic composition of this form of social capital matter in shaping labor market status. Distinguishing ethnic, mixed, and non-ethnic network membership (weak social ties), we find that it is mixed and non ethnic social networks that facilitates opportunities in paid employment. Engaging in ethnically mixed social networks increases the probability of being paid-employed by about 9

[22] Contact with parents abroad is positive and significant at 1% significance level; contact with children over 16 abroad is positive but nonsignificant.
[23] The results for the remaining variables remained robust to this modification (not reported).

percentage points, while being a member of a formal organization with no ethnic focus at all increase the paid-employment likelihood by about 12 percentage points. These findings hint at a positive role of social integration on opportunities in paid employment.[24]

Finally, we explore the effects of whether individuals speak to friends in English or some other language to measure the effects on paid employment and self-employment probabilities of the degree of integration as measured by this variable. While we find a negative non-significant effect of speaking non-English on the likelihood of paid employment, the effect on self-employment is positive and strongly significant. Assuming that non-English friendships indicate embeddedness in ethnic social relationships, this finding suggests that ethnic social capital importantly facilitates opportunities and success in self-employment.

[Table 8 about here.]

As we mentioned above, the multinomial logit model relies on the restrictive assumption of IIA, which supposes that the relative probability of two existing outcomes is unaffected by the addition of a third outcome. This is particularly relevant in cases where two alternative are close substitutes to each other, as it may be the case when estimating labor market choices. Even though, in most specifications, the IIA assumption

[24] It should be noted here, however, that a comprehensive assessment of the overall effect of integration on labor market success would have to account for the wage effects and weigh the benefits of self- and paid-employment. We interpret the role of integration under the (any) employment - unemployment paradigm. The result on the role of ethnic, non-ethnic, and mixed social networks suggests that the endogeneity issue is not affecting our results, since the networking-working tradeoff should be invariant with the ethnic characteristics of social networks.

is not rejected by an Hausman-type test (Hausman and McFadden, 1984), we further test the robustness of our results by using the multinomial probit model, which relaxes the assumption that the error terms are independent across choices and so is robust to IIA violation. Results from the multinomial probit reported in Table 9 are consistent with our main findings.

[Table 9 about here.]

## 6. Conclusions

That social ties are some of the key determinants of economic success is a widely accepted notion. To measure how different types of social networks affect the labor market status of immigrants participating in the labor market is the key objective of this paper. Considering the structure of the core family, (strong) social contacts with the extended family and friends as well as their qualitative measures, and (weak) social networks measured by involvement with clubs and voluntary organizations, several conclusions can be drawn.

First, social relationships do matter. In accord with the previous literature, we find that the structure of the core family, including children, spouses, and parents living with the respondent, significantly affect the likelihood of being in paid employment or self-employed. Contacts with parents or children away significantly affect one's probability of being self-employed, but only if these contacts are in Britain. No such effects are found for paid employment.

Remarkably, engagement in voluntary work in any organization or membership in a club, as captured by our measure of social networks, significantly affects the likelihood of respondent's being in paid employment but not self employment. This result is robust to different estimation strategies and to potential endogeneity of social networks.

Our results thus indicate that 'weak social ties', measured by engagement in voluntary organizations or clubs, facilitate opportunities in paid employment. On the other hand, 'strong social ties', measured by contacts with parents and children outside the household, intermediate self-employment opportunities.

Second, the qualitative characteristics of social contacts do matter. Given the heated debate about social integration of immigrants, it is informative to investigate how the ethnic character of social networks matters for immigrants' economic success. Three measures of ethnic character of social ties are investigated in this paper: language spoken to friends, the ethnic character of voluntary work and club membership, and, measuring potential ethnic capital, the share of minority population in the ward. We find evidence that having ethnic friends (spoken to in a language other than English) is positively associated with the likelihood of self-employment. On the other hand, it is integration in mixed or non-ethnic networks (clubs and voluntary organizations) that facilitates opportunities in paid employment. This finding suggests having contacts with majority population may be an important way for ethnic communities to be informed about paid-employment opportunities. However, the support of local ethnic communities may facilitate self-employment. As concerns minority shares, we find that the share of own minority is negatively correlated with the probability of self-employment, probably signifying the prevalence of the competition effect.

Our results indicate that mixed and non-ethnic social networks are likely to actively channel their members into paid employment. Thus, policy measures that aim at social integration of ethnic minorities can be expected to yield better opportunities in paid employment for ethnic minorities. On the other hand, family capital and ethnic networks seem to breed opportunities in self employment. Thus, immigration policies facilitating family reunification, thereby increasing the number of strong ties in Britain, may facilitate ethnic entrepreneurship and self-employment.

Further investigation into the observed interactions is necessary. It would be most informative to investigate the studied relationships in a longitudinal dataset, permitting a more precise identification of causal effects. Even in a cross section, though, we disentangle the various ways social ties, and their characteristics, significantly affect the labor market success of ethnic minorities in the UK, hinting at a positive role of social integration on employment outcomes.

## References


Addison, J. T. and P. Portugal (2003), "Unemployment Duration: Competing and Defective Risks," Journal of Human Resources, 38 (1):156-191.

Akerlof, G.A. (1997), "Social distance and social decisions," Econometrica, 65:1005-1027.

Akerlof, G.A. and R.E. Kranton (2000), "Economics and identity," *Quarterly Journal of Economics*, 115:715-753.

Alesina, A. and E. La Ferrara (2000), "Participation In Heterogeneous Communities," *The Quarterly Journal of Economics*, MIT Press, 115(3):847-904.

Battu, H., M. McDonald and Y. Zenou (2003), "Do oppositional identities reduce employment for ethnic minorities?" IZA Discussion paper No. 721.

Bayer, P., S. Ross and G. Topa (2005), "Place of Work and Place of Residence: Informal Hiring Networks and Labor Market Outcomes," NBER Working Papers 11019.

Bentolila, S., C. Michelacci and J. Suarez (2004), "Social Networks and Occupational Choice," CEPR Discussion Paper 4308.

Blau, D.M. and P.K. Robins (1990), "Job Search Outcomes for Employed and Unemployed," *Journal of Political Economy*, 98(3):637-55.

Clark, K. and S. Drinkwater (1998), "Ethnicity and Self-Employment in Britain," *Oxford Bulletin of Economics and Statistics*, 60(3):383-407.

Clark, K. and Drinkwater, S. (2000), "Pushed out or pulled in? Self-employment among ethnic minorities in England and Wales," *Labour Economics, Elsevier*, 7(5):603-628.

Clark, K. and Drinkwater, S. (2002), "Enclaves, neighbourhood effects and employment outcomes: Ethnic minorities in England and Wales," *Journal of Population Economics*, 15(1):5-29.

Clark, K. and Drinkwater, S. (2006), "Changing Patterns of Ethnic Minority Self-employment in Britain: Evidence from Census Microdata," IZA Discussion Papers 2495.

Constant, A., L. Gataullina and K. F. Zimmermann (2006), "Ethnosizing Immigrants," CEPR Discussion Papers 5636.

Cox, D. and M. Fafchamps (2007), "Extended Family and Kinship Networks: Economic Insights and Evolutionary Directions," in *Handbook of Development Economics*, (*Eds.* T.P. Schultz and R.E. Evenson) Volume 4, Amsterdam: Elsevier Press.

Datcher, L. P. (1982), "Effects of Community and Family Background on Achievement," *The Review of Economics and Statistics*, 64(1):32-41.

Datcher, L. P. (1983), "The Impact of Informal Networks of Quit Behavior," The Review of Economics and Statistics, 65(3):491-495.

Ellison, G. (1993), "Learning, Social Interaction, and Coordination," *Econometrica* 61: 1047-1071.

Granovetter, M. S. (1974), *Getting a Job: A Study of Contacts and Careers*, Cambridge, MA:Harvard University Press.

Granovetter, M. S. (1995), *Getting a Job: A Study of Contacts and Careers*, 2nd edition, The University of Chicago Press, Chicago.

Gregg, P. and J. Wadsworth (1996), "How Effective Are State Employment Agencies? Jobcentre Use and Job Matching in Britain," *Oxford Bulletin of Economics and Statistics,* 58(3):443-67.

Hausman, Jerry and McFadden, Daniel, 1984. "Specification Tests for the Multinomial Logit Model," *Econometrica*, Econometric Society, vol. 52(5), pages 1219-40.

Holzer, H. J. (1987), "Informal Job Search and Black Youth Unemployment," *American Economic Review*, 77(3):446-452.

Ioannides, Y. M. and L. D. Loury (2004), "Job Information Networks, Neighborhood Effects, and Inequality," *Journal of Economic Literature*, 42(4):1056-1093.

Lin, N. (2001), "Building a Network Theory of Social Capital," in *Social Capital: Theory and Research, (Eds.* N. Lin, K. Cook and R. S. Burt), New York: Aldine de Gruyter, 3-30.

Manski, C. (2000), "Economic Analysis of Social Interactions," *Journal of Economic Perspectives* 14(3):115-136.

McFadden, D. (1973), "A Conditional Logit Analysis of Qualitative Choice Behavior," in *Frontiers in Econometrics*, (*Ed*. P. Zarembka). New York: Academic Press, 105-142.

Metcalf, H., T. Modood and S. Virdee (1996), *Asian Self-Employment: The Interaction of Culture and Economics in England*, Policy Studies Institute, London.

Montgomery, J. D. (1991), "Social Networks and Labour-Market Outcomes: Toward an Economic Analysis," *American Economic Review*, 81(5):1408-1418.

Munshi, K. (2003), "Networks in the Modern Economy: Mexican Migrants in the U. S. Labor Market," *The Quarterly Journal of Economics*, 118(2):549-599.

Smith P. and G. Prior (1996), *The Fourth National Survey of Ethnic Minorities: Technical Report*, Social and Community Planning Research, London.

Topa, G. (2001), "Social Interactions, Local Spillovers and Unemployment" *Review of Economic Studies*, 68(2):261-295.

Wahba, J. and Y. Zenou (2005), "Density, Social Networks and Job Search Methods: Theory and Application to Egypt," *Journal of Development Economics*, 78(2): 443-473

## Tables

Table 1: Means of selected socio-economic characteristics by ethnic group

| | Caribbean | Pakistanis | Bangladeshis | Indians | Chinese | Whites |
|---|---|---|---|---|---|---|
| *Household and family structure* | | | | | | |
| Household size | 3.05 | 5.44 | 6.14 | 4.32 | 3.69 | 2.80 |
| Married | 47% | 71% | 66% | 70% | 57% | 66% |
| Having any children | 78% | 77% | 83% | 80% | 74% | 68% |
| Living with children | 50% | 63% | 67% | 62% | 54% | 40% |
| Having children away | 33% | 17% | 15% | 22% | 16% | 40% |
| Parents in Britain | 37% | 19% | 15% | 29% | 24% | 50% |
| Parents abroad | 27% | 33% | 31% | 21% | 43% | 2% |
| Living with one parent | 13% | 7% | 8% | 8% | 4% | 5% |
| Living with both parents | 12% | 27% | 20% | 22% | 16% | 9% |
| House owner | 55% | 81% | 47% | 86% | 55% | 71% |
| *Education* | | | | | | |
| Education in Britain | 60% | 32% | 24% | 41% | 47% | 64% |
| Education overseas | 8% | 20% | 17% | 28% | 27% | 2% |
| No education | 31% | 48% | 59% | 31% | 26% | 34% |
| Secondary school | 27% | 32% | 31% | 33% | 37% | 19% |
| Non-school certificate | 21% | 4% | 1% | 7% | 7% | 23% |
| University degree | 2% | 7% | 4% | 13% | 9% | 4% |
| Master/PhD | 1% | 2% | 2% | 4% | 5% | 1% |
| Other or diploma | 17% | 7% | 3% | 12% | 16% | 19% |
| *Religion, ethnicity and migration.* | | | | | | |
| Foreign born | 52% | 75% | 90% | 77% | 81% | - |
| Years since arrival | 15.50 | 14.80 | 14.80 | 16.32 | 13.40 | - |
| Speaking non-English with friends | 8% | 35% | 44% | 36% | 31% | 0% |
| Ward density of own ethnic group (range) | 5-9.99% | 5-9.99% | 5-9.99% | 5-9.99% | <1.99% | - |
| Ward unemployment rate (range) | 15-20% | 15-20% | >20% | 10-14.99% | 10-14.99% | 10-14.99% |
| Ward owner occupier household density (range) | 50-59.99% | 50-59.99% | 33-49.99% | 60-69.99% | 50-59.99% | 60-69.99% |
| Ward tenure- social housing density (range) | 25-32.99% | 10-19.99% | 25-32.99% | 10-19.99% | 10-19.99% | 10-19.99% |
| Observations (unweighted) | 1,205 | 1,232 | 598 | 1,947 | 214 | 2,748 |
| Frequency distribution | 20% | 11% | 4% | 26% | 5% | 35% |

*Notes:* Survey weights applied.

Table 2: Average labor outcomes of ethnic groups by gender (% of working age pop.)[a]

| | | Caribbean | Pakistanis | Bangladeshis | Indians | Chinese | Whites | Total |
|---|---|---|---|---|---|---|---|---|
| Male | Paid-employed | 49 | 29 | 34 | 46 | 50% | 59 | 48 |
| | Self-employed | 8 | 15 | 7 | 20 | 21 | 15 | 15 |
| | Unemployed | 24 | 26 | 30 | 14 | 7 | 11 | 17 |
| | Self-emp. rate (as % of those employed) | 13 | 34 | 18 | 31 | 30 | 20 | 24 |
| Female | Paid-employed | 56 | 14 | 5 | 44 | 48 | 56 | 46 |
| | Self-employed | 2 | 2 | 1 | 6 | 17 | 5 | 5 |
| | Unemployed | 11 | 9 | 5 | 6 | 1 | 4 | 7 |
| | Self-emp. rate (as % of those employed) | 3 | 13 | 11 | 11 | 26 | 8 | 9 |
| Total | Paid-employed | 53 | 22 | 20 | 45 | 49 | 57 | 47 |
| | Self-employed | 4 | 9 | 4 | 13 | 19 | 10 | 10 |
| | Unemployed | 17 | 18 | 18 | 10 | 4 | 7 | 12 |
| | Self-emp. rate (as % of those employed) | 8 | 28 | 17 | 23 | 28 | 15 | 17 |

*Notes:* [a] Males aged 16 to 64 years, and females aged 16-59. Survey weights applied.

Table 3: Individual and neighborhood characteristics by employment status
(means in working age ethnic minority pop.)[a]

| | Paid-employed | Self-employed | Unemployed | Total |
|---|---|---|---|---|
| *Household and family structure* | | | | |
| Household size | 3.80 | 4.43 | 4.3 | 4.0 |
| Married (%) | 68.0 | 87.8 | 49.5 | 67.2 |
| Having any children (%) | 78.1 | 86.8 | 71.4 | 78.1 |
| Living with children (%) | 59.0 | 73 | 53.3 | 59.9 |
| Having children away (%) | 19.1 | 18.6 | 20.2 | 19.20 |
| Parents in Britain (%) | 35.5 | 37.4 | 28.2 | 34.3 |
| Parents abroad (%) | 32.8 | 30.00 | 20.6 | 29.8 |
| Living with one parent | 0.094 | 0.062 | 0.141 | 0.099 |
| Living with both parents | 0.157 | 0.093 | 0.29 | 0.176 |
| House owner (%) | 78.4 | 86.1 | 48.7 | 73.5 |
| *Education* | | | | |
| Education in Britain (%) | 55.7 | 38.9 | 44.2 | 50.9 |
| Education overseas (%) | 22.4 | 30.3 | 13.6 | 21.8 |
| No education (%) | 21.8 | 30.6 | 41.7 | 27.2 |
| Secondary school | 0.3 | 0.304 | 0.262 | 0.293 |
| Non-school certificate | 0.15 | 0.097 | 0.115 | 0.135 |
| University degree | 0.102 | 0.151 | 0.069 | 0.102 |
| Master/PhD | 0.043 | 0.028 | 0.014 | 0.035 |
| Other or diploma | 0.184 | 0.107 | 0.114 | 0.159 |
| *Religion, ethnicity and migration.* | | | | |
| Foreign born (%) | 66.1 | 84.8 | 60.4 | 67.70 |
| Years since arrival | 14.9 | 19.5 | 13.5 | 15.3 |
| Having religion/church (%) | 83.2 | 82.0 | 80.9 | 82.5 |
| Speaking non-English with friends (%) | 22 | 38 | 28 | 26 |
| Ward density of own ethnic group | 5-9.99% | 2-4.99% | 5-9.99% | 5-9.99% |
| Ward unemployment rate | 10-14.99% | 10-14.99% | 15-20% | 10-14.99% |
| Ward owner occupier household density | 60-69.99% | 60-69.99% | 50-59.99% | 60-69.99% |

*Notes:* [a] Males aged 16 to 64 years, and females aged 16-59. Survey weights applied.

Table 4: Incidence of social network variables by ethnic group (% of pop.)

| | Caribbean | Pakistanis | Bangladeshis | Indians | Chinese |
|---|---|---|---|---|---|
| Networks membership (clubs and voluntary organizations) | 36.1 | 20.0 | 16.0 | 23.4 | 25.1 |
| *Compositional characteristics:* | | | | | |
| Non-ethnic network | 10.3 | 3.2 | 3.4 | 4.9 | 14.4 |
| Mixed network | 18.1 | 10.0 | 7.5 | 9.1 | 1.7 |
| Ethnic network | 10.6 | 8.0 | 5.9 | 10.4 | 8.9 |
| Family contact away | 52.6 | 33.6 | 24.9 | 37.2 | 47.8 |

| | | | | | |
|---|---|---|---|---|---|
| *Compositional characteristics:* | | | | | |
| Family contact abroad | 21.0 | 25.4 | 16.8 | 17.8 | 35.4 |
| Family contact domestic (includes living with parents &/or children) | 75.5 | 78.0 | 78.9 | 83.5 | 69.4 |

*Notes:* Survey weights applied.

Table 5: Incidence of social network variables by employment status (% of working age pop. of ethnic minorities) [a]

| | Paid-employed | Self-employed | Unemployed | Total |
|---|---|---|---|---|
| Networks membership (clubs and voluntary organizations) | 34.3 | 25.1 | 21.5 | 30.1 |
| *Compositional characteristics:* | | | | |
| Non-ethnic network | 9.2 | 6.0 | 4.4 | 7.7 |
| Mixed network | 15.5 | 9.9 | 9.2 | 13.3 |
| Ethnic network | 11.7 | 9.6 | 9.9 | 11.0 |
| Family contacts | 49.0 | 51.2 | 34.6 | 46.4 |
| *Compositional characteristics:* | | | | |
| Family contact abroad | 25.0 | 24.9 | 14.2 | 22.7 |
| Family contact domestic (including living with parents &/or children) | 76.4 | 78.4 | 80.1 | 77.5 |

*Notes:* [a] Males aged 16 to 64 years, and females aged 16-59. Survey weights applied.

Table 6: Distribution of social network characteristics by ward ethnic concentration (% of working age pop. of ethnic minorities)[a]

| | Ward density of all ethnic minorities | | | | | | |
|---|---|---|---|---|---|---|---|
| | up to 4.99% | 5-9.99% | 10-24.99% | 25-32.99% | 33-49.99% | 50-74.99% | 75% or more |
| Network membership (clubs and voluntary organizations) | 42.3 | 27.0 | 24.9 | 28.1 | 24.7 | 20.1 | 25.6 |
| *Compositional characteristics:* | | | | | | | |
| Non-ethnic network | 20.9 | 12.6 | 5.4 | 3.2 | 3.2 | 1.6 | 7.6 |
| Mixed network | 14.1 | 7.0 | 11.1 | 11.3 | 13.8 | 10.9 | 18.0 |
| Ethnic network | 9.8 | 9.4 | 9.7 | 13.9 | 10.2 | 8.2 | 0.0 |
| Family contacts | 50.5 | 49.8 | 39.2 | 42.0 | 43.7 | 35.3 | 48.7 |
| *Compositional characteristics:* | | | | | | | |
| Family contact abroad | 24.4 | 25.0 | 22.4 | 21.4 | 19.0 | 16.0 | 43.4 |
| Family contact domestic (incl. living with parents &/or children) | 73.3 | 78.3 | 78.9 | 81.7 | 79.8 | 80.7 | 76.4 |

*Notes:* [a] Males aged 16 to 64 years, and females aged 16-59. Survey weights applied.

Table 7. Social determinants of labor market outcomes – marginal effects

| | *(1)* | *(2)* | *(3)* | *(4)* | *(5)* | *(6)* | *(7)* | *(8)* |
|---|---|---|---|---|---|---|---|---|
| | Multinomial logit model | | Multinomial logit model | | Multinomial logit model | | Probit | IV Probit |
| | Paid-emp. | Self-emp. | Paid-emp. | Self-emp. | Paid-emp. | Self-emp. | Paid-emp. | Paid-emp |
| *Household and Family Structure* | | | | | | | | |
| Household size | -0.024 | 0.020* | -0.024 | 0.021** | -0.013 | 0.015* | 0.000 | 0.007 |
| | (0.009) | (0.006) | (0.009) | (0.006) | (0.009) | (0.006) | (0.009) | (0.010) |
| Married | 0.111** | 0.093** | 0.125** | 0.086** | 0.124** | 0.070** | 0.232** | 0.263** |
| | (0.052) | (0.025) | (0.052) | (0.025) | (0.052) | (0.023) | (0.052) | (0.053) |
| Married x Female | -0.026 | -0.036 | -0.030 | -0.036 | 0.001 | -0.041 | -0.069 | -0.102 |
| | (0.063) | (0.037) | (0.063) | (0.036) | (0.057) | (0.030) | (0.063) | (0.067) |
| Own child cohabiting 0-4 | -0.054** | -0.069** | -0.045** | -0.071** | -0.045** | -0.060** | -0.125** | -0.114 |
| | (0.040) | (0.014) | (0.039) | (0.014) | (0.038) | (0.013) | (0.043) | (0.061) |
| Own child cohabiting 5-11 | -0.046 | -0.012 | -0.053 | -0.010 | -0.037 | -0.006 | -0.057 | -0.055 |
| | (0.036) | (0.018) | (0.037) | (0.018) | (0.035) | (0.017) | (0.040) | (0.042) |
| Own child cohabiting 12-15 | -0.045 | -0.024 | -0.050 | -0.022* | -0.030 | -0.015 | -0.040 | -0.067 |
| | (0.040) | (0.017) | (0.041) | (0.017) | (0.038) | (0.016) | (0.043) | (0.047) |
| Own child cohabiting >16 | 0.025 | -0.024 | 0.012 | -0.014 | 0.017 | -0.019 | 0.002 | -0.035 |
| | (0.039) | (0.019) | (0.040) | (0.020) | (0.038) | (0.017) | (0.043) | (0.053) |
| One parent cohabiting | 0.012 | -0.029 | 0.003 | -0.015 | -0.005 | -0.014 | -0.032 | -0.025 |
| | (0.042) | (0.023) | (0.043) | (0.026) | (0.041) | (0.023) | (0.047) | (0.048) |
| Two parents cohabiting | -0.071* | -0.036* | -0.104* | -0.004 | -0.119** | -0.008 | -0.141* | -0.160** |
| | (0.055) | (0.026) | (0.059) | (0.032) | (0.060) | (0.029) | (0.062) | (0.063) |
| *Individual Demographics* | | | | | | | | |
| Age | 0.018** | 0.021*** | 0.019** | 0.021** | 0.024** | 0.013** | 0.045** | 0.043** |
| | (0.009) | (0.006) | (0.009) | (0.006) | (0.009) | (0.006) | (0.009) | (0.009) |
| Age squared/100 | -0.024** | -0.026** | -0.025** | -0.025** | -0.034** | -0.016** | -0.062** | -0.213** |
| | (0.011) | (0.008) | (0.011) | (0.007) | (0.011) | (0.007) | (0.011) | (0.059) |
| Female | 0.187** | -0.042 | 0.200** | -0.047 | 0.164** | -0.043 | 0.170** | 0.233** |
| | (0.043) | (0.037) | (0.042) | (0.036) | (0.040) | (0.033) | (0.036) | (0.056) |
| Good subjective health | 0.028 | 0.014 | 0.042 | 0.013 | 0.038 | 0.009 | 0.057 | 0.100* |
| | (0.037) | (0.020) | (0.038) | (0.019) | (0.037) | (0.018) | (0.041) | (0.060) |
| House owner | 0.162** | 0.060** | 0.159** | 0.062** | 0.171** | 0.051** | 0.236** | 0.228** |
| | (0.039) | (0.016) | (0.039) | (0.016) | (0.041) | (0.015) | (0.040) | (0.048) |
| *Education* | | | | | | | | |
| Secondary | 0.130** | -0.022 | 0.134** | -0.035 | 0.067 | -0.017 | 0.048 | 0.005 |
| | (0.033) | (0.022) | (0.033) | (0.021) | (0.035) | (0.022) | (0.038) | (0.059) |
| Non-school certificate | 0.166** | -0.055 | 0.156** | -0.055 | 0.080 | -0.019 | 0.070 | -0.028 |
| | (0.027) | (0.017) | (0.029) | (0.017) | (0.035) | (0.023) | (0.038) | (0.102) |
| First degree | 0.046 | 0.024 | 0.032 | 0.023 | -0.021 | 0.032 | -0.018 | -0.139 |
| | (0.044) | (0.033) | (0.046) | (0.033) | (0.052) | (0.035) | (0.060) | (0.120) |
| Higher university degree | 0.213** | -0.067 | 0.206* | -0.067 | 0.167 | -0.056 | 0.146* | 0.083 |
| | (0.028) | (0.019) | (0.029) | (0.018) | (0.032) | (0.017) | (0.035) | (0.124) |
| Diploma, other, can't say | 0.149** | -0.054 | 0.125* | -0.053 | 0.073 | -0.048 | 0.034 | -0.089 |
| | (0.030) | (0.019) | (0.032) | (0.019) | (0.036) | (0.017) | (0.042) | (0.130) |
| If education overseas | -0.090* | 0.018 | -0.113* | 0.045 | -0.070 | 0.021 | -0.041 | -0.038 |
| | (0.044) | (0.024) | (0.047) | (0.029) | (0.050) | (0.026) | (0.054) | (0.055) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Ward Ethnic Densities* | | | | | | | | |
| 2-5% own group | -0.003 | -0.078** | -0.005 | -0.077** | -0.013 | -0.055** | -0.052 | -0.053 |
| | (0.050) | (0.013) | (0.050) | (0.013) | (0.049) | (0.013) | (0.053) | (0.054) |
| 5-10% own group | 0.000 | -0.082** | 0.003 | -0.082** | 0.025 | -0.053** | -0.018 | -0.005 |
| | (0.046) | (0.015) | (0.046) | (0.014) | (0.043) | (0.015) | (0.048) | (0.049) |
| 10-15% own group | 0.009 | -0.070** | 0.007 | -0.068** | 0.045 | -0.050** | 0.011 | 0.004 |
| | (0.052) | (0.015) | (0.052) | (0.015) | (0.044) | (0.015) | (0.050) | (0.053) |
| 15-25% own group | -0.067* | -0.055** | -0.052* | -0.060** | -0.022 | -0.035* | -0.059 | -0.035 |
| | (0.059) | (0.017) | (0.058) | (0.016) | (0.054) | (0.018) | (0.061) | (0.062) |
| 25-33% own group | 0.042 | -0.079** | 0.059 | -0.079** | 0.092 | -0.065* | 0.062 | 0.098 |
| | (0.059) | (0.014) | (0.055) | (0.014) | (0.044) | (0.013) | (0.049) | (0.057) |
| >33% own group | -0.100 | -0.091** | -0.088 | -0.089** | 0.019 | -0.074** | -0.039 | -0.018 |
| | (0.092) | (0.012) | (0.089) | (0.012) | (0.071) | (0.011) | (0.077) | (0.078) |
| *Ward Controls* | | | | | | | | |
| Unemployment 5-10% | -0.094 | -0.052* | -0.108 | -0.057* | -0.084 | -0.035 | -0.158 | -0.129 |
| | (0.100) | (0.024) | (0.105) | (0.023) | (0.096) | (0.021) | (0.115) | (0.113) |
| Unemployment 10-15% | -0.136* | -0.067** | -0.152* | -0.070** | -0.152* | -0.045* | -0.243* | -0.225 |
| | (0.104) | (0.025) | (0.107) | (0.024) | (0.104) | (0.023) | (0.117) | (0.118) |
| Unemployment 15-20% | -0.122 | -0.003 | -0.134 | -0.006 | -0.086 | -0.003 | -0.145 | -0.116 |
| | (0.110) | (0.037) | (0.114) | (0.035) | (0.104) | (0.032) | (0.130) | (0.125) |
| Unemployment >20% | -0.115 | -0.073* | -0.146 | -0.073** | -0.096 | -0.049* | -0.214 | -0.225 |
| | (0.129) | (0.024) | (0.135) | (0.023) | (0.123) | (0.024) | (0.140) | (0.135) |
| Yorkshire and Humberside | -0.046 | 0.104 | -0.105 | 0.130 | -0.097 | 0.163 | 0.075 | -0.214 |
| | (0.134) | (0.119) | (0.148) | (0.133) | (0.158) | (0.153) | (0.097) | (0.363) |
| East Midlands | 0.200** | -0.044 | 0.184** | -0.033 | 0.140* | -0.023 | 0.158* | 0.134 |
| | (0.039) | (0.031) | (0.044) | (0.035) | (0.048) | (0.035) | (0.032) | (0.081) |
| South East | 0.297 | -0.188 | 0.263 | -0.173 | 0.187 | -0.177* | 0.042 | -0.078 |
| | (0.100) | (0.071) | (0.102) | (0.070) | (0.100) | (0.075) | (0.111) | (0.145) |
| South West | 0.091 | -0.031 | 0.066 | -0.010 | -0.003 | 0.001 | 0.015 | -0.102 |
| | (0.092) | (0.044) | (0.102) | (0.056) | (0.125) | (0.060) | (0.140) | (0.219) |
| West Midlands | -0.015 | 0.087 | -0.039 | 0.101 | -0.007 | 0.080 | 0.084 | -0.071 |
| | (0.118) | (0.095) | (0.123) | (0.101) | (0.111) | (0.092) | (0.098) | (0.226) |
| North West | 0.085 | 0.005 | 0.057 | 0.015 | 0.105 | -0.010 | 0.131 | -0.003 |
| | (0.083) | (0.060) | (0.092) | (0.066) | (0.064) | (0.048) | (0.055) | (0.243) |
| Wales | 0.168 | -0.072 | 0.157 | -0.067 | 0.092 | -0.055 | 0.057 | -0.009 |
| | (0.060) | (0.020) | (0.063) | (0.022) | (0.090) | (0.021) | (0.117) | (0.177) |
| East Anglia | 0.224** | -0.072 | 0.215** | -0.067 | 0.190* | -0.063 | 0.166* | 0.145 |
| | (0.028) | (0.019) | (0.030) | (0.020) | (0.026) | (0.015) | (0.025) | (0.078) |
| Outer London conurbation | 0.029 | -0.025 | 0.033 | -0.025 | 0.041 | -0.032 | 0.013 | 0.028 |
| | (0.045) | (0.029) | (0.045) | (0.028) | (0.042) | (0.025) | (0.044) | (0.045) |
| Conurbation centre | 0.132 | -0.108** | 0.136 | -0.107** | 0.044 | -0.096** | -0.061 | 0.043 |
| | (0.072) | (0.015) | (0.070) | (0.015) | (0.095) | (0.015) | (0.119) | (0.131) |
| Outer conurbation area | 0.142 | -0.130** | 0.160 | -0.129** | 0.079 | -0.118** | -0.040 | 0.088 |
| | (0.074) | (0.021) | (0.069) | (0.020) | (0.088) | (0.020) | (0.110) | (0.140) |
| Not in conurbation | 0.045 | -0.052 | 0.042 | -0.050 | 0.061 | -0.056 | 0.005 | -0.021 |
| | (0.052) | (0.029) | (0.052) | (0.029) | (0.048) | (0.025) | (0.052) | (0.057) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ***Social networks*** | | | | | | | | |
| Family contacts | | | -0.066 | 0.070** | -0.074 | 0.061* | -0.035 | -0.031 |
| | | | (0.032) | (0.022) | (0.031) | (0.021) | (0.034) | (0.035) |
| Network membership | | | 0.107** | -0.034 | 0.090** | -0.017 | 0.103** | 0.340* |
| | | | (0.025) | (0.015) | (0.024) | (0.014) | (0.025) | (0.191) |
| *Religion, Ethnicity and Migration history* | | | | | | | | |
| Religious | | | | | 0.044 | 0.014 | 0.070 | 0.040 |
| | | | | | (0.040) | (0.021) | (0.046) | (0.047) |
| Caribbean | | | | | 0.063 | -0.076** | 0.011 | -0.013 |
| | | | | | (0.037) | (0.019) | (0.040) | (0.046) |
| Pakistanis | | | | | -0.182** | -0.026** | -0.241** | -0.255** |
| | | | | | (0.059) | (0.016) | (0.062) | (0.062) |
| Bangladeshis | | | | | -0.024 | -0.049* | -0.070 | -0.049 |
| | | | | | (0.067) | (0.017) | (0.073) | (0.075) |
| Chinese | | | | | 0.018** | 0.121** | 0.174** | 0.184* |
| | | | | | (0.062) | (0.059) | (0.021) | (0.037) |
| *English language ability* | | | | | | | | |
| Arrived <2 years ago | | | | | 0.042 | -0.063 | 0.003 | 0.035 |
| | | | | | (0.138) | (0.022) | (0.144) | (0.133) |
| Arrived 2-5 years ago | | | | | 0.114 | -0.037 | 0.088 | 0.140* |
| | | | | | (0.045) | (0.029) | (0.054) | (0.049) |
| Arrived 5-10 years ago | | | | | 0.054 | 0.002 | 0.105 | 0.125* |
| | | | | | (0.052) | (0.038) | (0.040) | (0.044) |
| Arrived 10-20 years ago | | | | | -0.026 | 0.024 | -0.001 | 0.018 |
| | | | | | (0.045) | (0.031) | (0.046) | (0.050) |
| Arrived 20-30 years ago | | | | | -0.007 | 0.025 | 0.016 | 0.028 |
| | | | | | (0.040) | (0.028) | (0.041) | (0.042) |
| Arrived >30 years ago | | | | | 0.042 | 0.036* | 0.097 | 0.142* |
| | | | | | (0.048) | (0.038) | (0.042) | (0.051) |
| Fairly well | | | | | -0.162** | 0.056 | -0.139** | -0.133* |
| | | | | | (0.048) | (0.029) | (0.053) | (0.059) |
| Slightly | | | | | -0.151** | -0.025** | -0.197** | -0.180* |
| | | | | | (0.071) | (0.021) | (0.074) | (0.083) |
| Not at all | | | | | -0.722** | -0.029* | -0.731** | -0.701** |
| | | | | | (0.078) | (0.042) | (0.100) | (0.122) |
| Observations | 1321 | 1321 | 1321 | 1321 | 1321 | 1321 | 1139 | 1122 |
| Pseudo $R^2$ | 0.25 | 0.25 | 0.26 | 0.26 | 0.32 | 0.32 | 0.32 | 532.5[a] |
| *Hausman test of IIA assumpt.:* | | | | | | | | |
| $\chi^2$ | 360.24 | -8.73 | -82.35 | -3.76 | -202.22 | 31.03 | - | - |
| P-value | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | - | - |

*Notes:* Standard errors in parentheses. * significant at 5%; ** significant at 1%, based on the significance of the underlying coefficients. [a] Wald $\chi^2$ statistics with 58 degrees of freedom. Survey weights applied. The reduced numbers of observations in columns 7 and 8 are due to elimination of entrepreneurs form the regressions (7, 8) and missing data on the instrumental variables (8). The benchmark individual is a non-married male, without own children or parents cohabiting, not owning a house, with less than secondary education acquired in Britain, non-religious, with no contacts to family (parents or children) outside the household in Britain, not member of a social network, Indian, born in Britain, with a very good knowledge of English, and living in a ward with <5% unemployment and <2% share of own ethnic group.

Table 8: Quality of social ties and labor market outcomes - marginal effects (multinomial logit model)

| | *(3')* | *(4')* | *(5')* | *(6')* |
|---|---|---|---|---|
| | Paid-emp. | Self-emp. | Paid-emp. | Self-emp. |
| Family contacts | -0.063 | 0.066** | -0.072 | 0.058* |
| | (0.032) | (0.021) | (0.031) | (0.020) |
| ***Ethnic networks*** | | | | |
| Ethnic network member | 0.043 | -0.015 | 0.029 | -0.012 |
| | (0.034) | (0.019) | (0.032) | (0.018) |
| Mixed network member | 0.103** | -0.020 | 0.087** | -0.008 |
| | (0.029) | (0.019) | (0.027) | (0.020) |
| Non-ethnic network member | 0.134* | -0.047 | 0.124** | -0.035 |
| | (0.031) | (0.016) | (0.027) | (0.017) |
| Speaking non-English to friends | -0.102 | 0.089** | -0.056 | 0.057** |
| | (0.027) | (0.018) | (0.029) | (0.017) |
| *Religion, ethnicity and migration* | | | | |
| Religious | | | 0.049 | 0.012 |
| | | | (0.040) | (0.021) |
| Caribbean | | | 0.038 | -0.053* |
| | | | (0.038) | (0.021) |
| Pakistanis | | | -0.185** | -0.025** |
| | | | (0.060) | (0.016) |
| Bangladeshis | | | -0.023 | -0.049* |
| | | | (0.067) | (0.016) |
| Chinese | | | 0.032** | 0.107** |
| | | | (0.060) | (0.057) |
| *English language ability* | | | | |
| Fairly well | | | -0.154** | 0.048 |
| | | | (0.048) | (0.027) |
| Slightly | | | -0.145** | -0.030** |
| | | | (0.071) | (0.018) |
| Not at all | | | -0.725** | -0.036* |
| | | | (0.081) | (0.034) |
| Observations | 1321 | 1321 | 1321 | 1321 |
| Pseudo $R^2$ | 0.26 | 0.26 | 0.32 | 0.32 |
| *Hausman test of IIA assumpt.:* | | | | |
| $\chi^2$ | -69.968 | 10.509 | -180.520 | 10.287 |
| P-value | 1.00 | 1.00 | 1.00 | 1.00 |

*Notes:* Standard errors in parenthesis. * significant at 5%; ** significant at 1%, based on the significance of the underlying coefficients. Survey weights applied. Econometric models in columns 3' to 6' correspond to those reported in columns 3 to 6 in Table 7. Marginal effects of *Household and family structure, Individual demographics, Education, Years since arrival, Ward ethnic densities, Unemployment, and Regional controls* are not reported.

Table 9. Social determinants of labor market outcomes - marginal effects (Multinomial probit model)

| | *(3)* Paid-emp. | *(4)* Self-emp. | *(5)* Paid-emp. | *(6)* Self-emp. | *(3')* Paid-emp. | *(4')* Self-emp. | *(5')* Paid-emp. | *(6')* Self-emp. |
|---|---|---|---|---|---|---|---|---|
| Family contacts | -0.070 | 0.076* | -0.080 | 0.065 | -0.071 | 0.076 | -0.080 | 0.064 |
| | (0.033) | (0.024) | (0.033) | (0.024) | (0.033) | (0.024) | (0.033) | (0.024) |
| Network membership | 0.113** | -0.036 | 0.099** | -0.018 | | | | |
| | (0.027) | (0.018) | (0.026) | (0.018) | | | | |
| Ethnic network | | | | | 0.044 | -0.015 | 0.036 | -0.013 |
| member | | | | | (0.037) | (0.023) | (0.035) | (0.022) |
| Mixed network | | | | | 0.112** | -0.022 | 0.097** | -0.007 |
| member | | | | | (0.033) | (0.023) | (0.032) | (0.025) |
| Non-ethnic network | | | | | 0.155** | -0.056 | 0.148** | -0.045 |
| member | | | | | (0.035) | (0.020) | (0.031) | (0.021) |
| Speaking non-English | | | | | -0.114 | 0.099* | -0.064 | 0.065* |
| to friends | | | | | (0.029) | (0.020) | (0.031) | (0.021) |

*Notes:* Standard errors in parentheses. * significant at 5%; ** significant at 1%, based on the significance of the underlying coefficients. Survey weights applied. Econometric models correspond to those reported in the respective columns of Table 7 and Table 8. Marginal effects of *Household and family structure, Individual demographics, Education, Years since arrival, Ward ethnic densities, Unemployment, Regional controls,* and *Religion, ethnicity and migration* are not reported.