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Ethnic disparities in Intergenerational Occupational Mobility: the role of integration in the context of the late 20th Century United Kingdom

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Ethnic Disparities in Intergenerational Occupational Mobility: the role of integration in the context of the late-20th Century United Kingdom

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Abstract

The study of intergenerational mobility has often touched on differences between ethnic minorities within a nation, with little attempt at ascertaining a causal explanation. This paper investigates possible causal mechanisms, putting forth a hypothesis around the role of integration as a key determinant in these differing rates. We theorise that lower levels of integration allow for a greater impact of 'ethnic capital', resulting in the observed immobility in occupational status between generations. Analysis on the Labour Force Survey (LFS) between 1979 and 1991, utilising logit regressions allowed this to be assessed. Significant ethnic disparities in intergenerational occupational mobility were found, in particular with Bangladeshi, Indian and Pakistani migrant groups in the United Kingdom. Approximating for integration levels through the use of indicative gender disparities, we found significant evidence for the impact of integration on upwards intergenerational mobility, serving as an explanation for the apparent ethnic disparity.

1. Introduction

This study aims to determine the cause for differing rates of intergenerational mobility between ethnic groups, in the context of the United Kingdom in the late 20th Century. Definitions of intergenerational mobility can include a range of correlations between generations (parents and their children) in income, wealth, and occupation. Using the Labour Force Surveys (LFS) as a primary data source, our focus is on occupation as a measure. Further, we attempt to consider the role of integration as a cause for disparity. With a focus on integration, therefore, the question this paper seeks to answer is: '*To what extent are differences in intergenerational mobility rates between ethnicities determined by differing levels of integration?'* Here, integration refers to the social assimilation of migrants into wider society.

The motivation for this research is to contribute to the study of social mobility in the recent history of the United Kingdom. Outcomes are observed to vary for different migrant groups; determining the extent to which this is caused by unequal opportunities is thus key. For this study 'outcomes' refers to occupational status. In the UK, ethnic groups appear to show differing rates of intergenerational mobility. This implies an unequal level by which the socio-economic 'outcomes' of a person's life may be predicted by observation of the socio-economic standing of their father. The cause of this, and its relationship with ability, discrimination, investments in human capital, or 'ethnic capital' is undetermined. Therefore, this outcome may be inefficient, and represent 'unfairness' in the economy. Research will thus help to determine the potential utility of policy aiming to equalise social mobility, from the perspective of maximising labour market efficiency.

In investigating the effect of ethnicity on intergenerational mobility it is crucial to understand the context of the respective ethnic groups and their history in the United Kingdom. Historically, different migrant groups entering the UK had different endowments and levels of social mobility upon arrival. This can be speculated to play a role in the differing outcomes. These characteristics of migrant groups are best learned from the *Policy Studies Institute* study on *Ethnic Minorities in Britain.* This interviewed respondents in their first languages, accurately capturing the conditions of those with poor English language ability, subsequently reporting data on this, alongside education.

Examples of differing endowments include levels of English language proficiency, education, and female labour force participation. In particular, there appeared to be ethnic disparities in relation to women and their endowments in these regards. Some ethnic groups displayed greater levels of inequality between men and women, and these groups can be taken as retaining their 'home nations' culture, and this can be seen as evidence of them being less well integrated into wider society.

For example, with language proficiency: 78% of Pakistani men speak English 'fairly well' compared to 54% of Pakistani women[1]. Similarly, 75% of Bangladeshi men spoke English 'fairly well' compared to 40% of Bangladeshi women[2]. This can be contrasted with Chinese respondents; 76% of both genders speaking English 'fairly well'[3]. Those without English fluency would be limited in the labour market and have a high barrier to entering education[4]. Further, without English language ability, barriers to cultural integration are significantly higher, preventing these women from acquiring the cultural capital which could impact the outcomes of further generations[5]. With education there is again a disparity. Chinese and Indian men and women enjoy the highest levels of degree-level education, 26% and 24% respectively for men, 19% and 17% for women[6]. Caribbean and Bangladeshi women are at the lowest, at 3%[7].

The implication of this, therefore, is a dramatically varying endowment of education among different migrant groups. This difference in educational attainment is likely to impact the distribution of the migrant groups into differing social classes, and impact inter-generational social mobility. Well-educated parents may prioritise this in their children, and thus their children will be in higher occupational groupings. Further, wealthier parents more generally may be able to afford a higher quality of education, and thus improve prospects for their children. This may serve as a way to prevent downward intergenerational mobility.

[1] Modood, Tariq. Ethnic Minorities in Britain: Diversity and Disadvantage. London: Policy Studies Institute, 1997 P.60
[2] Ibid.
[3] Ibid.
[4] Bleakley, Hoyt, and Aimee Chin. "What Holds Back the Second Generation? The Intergenerational Transmission of Language Human Capital among Immigrants." The Journal of Human Resources 43, no. 2 (2008): P.285
[5] Bleakley, Hoyt, and Aimee Chin. "Age at Arrival, English Proficiency, and Social Assimilation Among US Immigrants." American Economic Journal: Applied Economics 2, no. 1 (2010): P.188
[6] Ibid.
[7] Modood, Tariq. Ethnic Minorities in Britain: Diversity and Disadvantage. London: Policy Studies Institute, 1997 P.65-6

Similarly, parents who are less well-off may be able to afford less high-quality education, and this may work to hinder efforts at upward mobility. The labour force participation of women again observably differs with ethnicity, with differing rates of housewifery. This can be taken as an example of differing cultural proclivities, and therefore a lack of integration, however it could also be interpreted as a response to discrimination in the labour market. Difficulty to obtain employment, compared to equally qualified candidates, may contribute to a lack of will to participate.

This can potentially have an effect on subsequent generations raised. In the literature, this has largely been neglected, with a focus on primarily the relationship between father and son, and correlations between them. This neglect of the role of the mother has been justified through the assumption of assortative mating, whereby parental pairs tend to be similar in characteristics (be they wealth quotient, social class, or education)[8]. This assumption, however, is unlikely to hold in the context of migrant households in the UK. In particular, with gender inequalities observed with labour force participation, education and age, the inclusion of mothers into the study appears increasingly relevant.

This theory of a lack of integration is supported by the PSI study's observations; noting 'language acquisition' rates were lower where there is a high density of members of the same ethnic minority[9]. One can extrapolate from this that they are able to segregate in these settings rather than integrate, explaining the lack of English language proficiency alongside a hinderance to the accumulation of other forms of cultural capital, such as education. It could therefore be assumed that children raised in households with this English-language gender-disparity (therefore in unintegrated households) could thus be disadvantaged in the labour market later on.

[8] Clark, Gregory, Neil Cummins, Yu Hao, Daniel Diaz Vidal, Tatsuya Ishii, Zach Landes, Daniel Marcin, et al. The Son Also Rises: Surnames and the History of Social Mobility. Princeton, New Jersey: Princeton University Press, 2014. P.16

[9] Zimmermann, Klaus F. European Migration: What Do We Know?. Oxford: Oxford University Press, 2005. P.134

Differences in levels of integration to some extents are to be expected from the timing of migrant entry: the earliest large groups of Migrants were the Black Caribbeans in the 1950s, Pakistanis and Indians in the 1960s, with Bangladeshi and Chinese communities more recently[10]. This recency is likely exacerbated by insularity and the ability to form ethnic communities within the UK, as observed by the PSI study[11]. With this segregation, a lack of integration is thus assumed.

These determinants are, however, individually independent of the ethnic background of the households. If ethnicity once isolated is thus found to have a significant effect on social mobility, this could suggest a level of discrimination in the labour market. This would be inefficient; selecting for candidates outside of their ability to do the job well.

2. Historiographical Context

Research focussing on intergenerational mobility for ethnic minorities has been limited, but there has been a wealth of research on mobility more generally. In particular, research on intergenerational mobility has focussed on a variety of measures, from wealth to income to occupation and education. Gary Solon's 1999 summary of the contemporary research in intergenerational mobility of labour earnings found significant evidence for the existence of these elasticities themselves and noted them to be 'larger than we used to think'[12]. He notes, however, that the mechanism through which this intergenerational transmission occurs is yet unknown, and an area warranting future research[13]. This research on causes is important from the perspective of intergenerational mobility, and its differing rates between ethnic groups; this is likely to represent a different distribution of causes.

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[10] Georgiadis, Andreas, and Alan Manning, 'Cultural Integration in the United Kingdom', in Yann Algan and others (eds), Cultural Integration of Immigrants in Europe (Oxford, 2012; online edn, Oxford Academic, 24 Jan. 2013),
[11] Zimmermann, Klaus F. European Migration: What Do We Know?. Oxford: Oxford University Press, 2005. P.133
[12] Solon, Gary. "Chapter 29 Intergenerational Mobility in the Labor Market." In Handbook of Labor Economics, 3: P.1789 Elsevier B.V, 1999.
[13] Ibid P.1795

3. Determinants of intergenerational mobility

Attempts at ascertaining this causal explanation have been made; Susan Mayer in 1997, for example, attempts to investigate the role of parental spending on the outcomes achieved by the child[14]. This is achieved through a comparison of the respective predictive powers of income received by the parents at two points of time: the income received by the parents when the child was between ages 13 and 17, and the parental income received once the child is fully grown. This was, however, viewed as an unconvincing study, due to parental investment (and their consumption patterns more generally) to be likely to be influenced by anticipation of their future income.

In 2004, Gary Solon investigated the role of investment in human capital through building a model of investment; the results from which suggest the role of two forces in action: that of progressive public investment, and that of private investment from parents. With the latter, an increase in the earnings return to human capital leads to a decrease in mobility, while the former increases it[15]. This research is compounded by that of Jo Blanden, Alissa Goodman, Paul Gregg and Stephen Machin, with regard to Britain. Their findings show a negative relationship between an expansion of the university system in the late 1980s and early 1990s, and the intergenerational mobility, comparing birth cohorts from 1958 to 1970[16]. They found that the educational expansion mainly benefitted those with wealthier parents. This finding is particularly interesting in its observation of an increase in the intergenerational elasticities over time, alongside establishing a causal relationship with education.

Greg Clark, in 'The Son Also Rises', conducts a surname study into intergenerational elasticities, with a focus on the idea of the determinants to the

[14] Mayer, Susan E. What Money Can't Buy: Family Income and Children's Life Chances. Cambridge, Mass: Harvard University Press, (1997) P.125
[15] Solon, G. (2004). A model of intergenerational mobility variation over time and place. In M. Corak (Ed.), Generational Income Mobility in North America and Europe P.39
[16] Blanden, J., Goodman, A., Gregg, P., & Machin, S. (2004). Changes in intergenerational mobility in Britain. In M. Corak (Ed.), Generational Income Mobility in North America and Europe P.143

differing rates observed in different countries. With extensive research in a number of different settings, and throughout time, there is the overall implication that the cause of the disparity is due to ability. This innate ability is thus passed on by 'high ability' gene-carrying parents to their children, and the children displaying this phenotype will thus achieve higher earnings[17]. Another key conclusion of this, however, is a regression to the mean, which is seen as inevitable over a long enough time span[18]. The idea of assortative mating is used, whereby the low-ability offspring of wealthier families will marry the high-ability offspring of poorer families, eventually and inevitably leading to convergence. The implications are interesting when applied to the context of persistently low levels of social mobility amongst some ethnic minority groups in the UK, in particular when taken in conjunction with their varying levels of integration into the wider British society. This may, in fact, be the direct cause behind their failure to 'regress to the mean' at the same rate as the general population, and their slower intergenerational mobility as a whole.

With working women, the idea of assortative mating prioritising social status can, and often has, been taken as an assumption. Fathers and sons-in-law, for example, observe similarly high levels of correlation as fathers and sons[19]. With regard to ethnic minorities in the United Kingdom, however this correlation may differ with low levels of female labour force participation there may be less room for 'high ability' women to distinguish themselves from women of 'low ability'. This is compounded in more endogamous groups, where mating patterns are likely to be skewed, with 'assortative mating' perhaps placing less emphasis on social status.

Research on this notion of cultural persistence, and resistance to integration, is also present. Almond, Edlund and Milligan in 2009 research into

[17] Clark, Gregory, Neil Cummins, Yu Hao, Daniel Diaz Vidal, Tatsuya Ishii, Zach Landes, Daniel Marcin, et al. The Son Also Rises: Surnames and the History of Social Mobility. Princeton, New Jersey: Princeton University Press, 2014. P.11
[18] Ibid P.5
[19] Ibid P.5

intergenerational persistence of culture; with the subject of Asian immigrants to Canada. Their research shows a persistence of son preferences between generations, in spite of living in a society that does not tolerate sex-selection[20]. This persistence of culture establishes migrant culture as a heritable factor, which may contribute to disparities in intergenerational elasticity in outcome. Cultures which may be conducive to positive or negative outcomes may respectively advantage or disadvantage the children who inherit it. Further, some cultural practices may be at odds with wider society, and thus lead to discrimination in the labour market.

4. Effect of ethnicity

In spite of this wealth of research, there has been little by way of explanation to the causal relationship to differing rates between ethnicities in their intergenerational mobility.

The difference between ethnic groups itself has been noted in the 2005 study by Thomas Hertz. Using a 32-year family income panel (from the Panel Study of Income Dynamics), they found 'much of the measurable intergenerational persistence of poverty' was due to the 'significantly higher rate of persistence among poor African American as opposed to poor white households'- the finding was that it was the transmission of race between generations that led to the intergenerational correlations to be seen as so high in the US[21]. By his own admission, however, the findings are 'purely descriptive' and so a causal mechanism is thus yet to be determined. Applying this to the UK's context will thus likely yield different results and require its own explanations.

[20] Almond, Douglas, Kevin S Milligan, and Lena Edlund. "O Sister, Where Art Thou? The Role of Son Preference and Sex Choice: Evidence from Immigrants to Canada." NBER Working Paper Series (2009): 15391–. P.27

[21] Hertz, Tom. "Chapter Five. Rags, Riches, and Race: The Intergenerational Economic Mobility of Black and White Families in the United States" In Unequal Chances: Family Background and Economic Success edited by Samuel Bowles, Herbert Gintis and Melissa Osborne Groves, P.187

Further research into explanations of this difference in the persistence of intergenerational immobility leads us to the work of George Borjas on 'ethnic capital'. While he affirms many studies to have shown 'ethnicity… to have an independent effect', he attributes the causal mechanism behind this to the existence of ethnicities in ethnic communities. As a result, children will be inclined to regress to the mean of their respective community, irrespective of the status of their parents[22]. These ethnic communities mean that children will thus be affected by their communities respective 'ethnic capital'- while their parents may have higher levels of education, existing in a community with lower average levels of education will thus 'pull' the child toward this norm. Likewise, a child in an ethnic community with higher average levels of education will be 'pulled' towards higher education through this norm they witness.

While Borjas acknowledges persistence in ethnic variations in earnings between generations, he attributes 'about half' of this to his idea of ethnic capital[23]. Further, and perhaps of increasing relevance to our study of the UK, he notes that immigrants are thus more likely to see an increase in immobility when living in an ethnic enclave. 'Integration' perhaps, more generally can be seen as the vehicle through which ethnic variations in intergenerational mobility can be derived.

Clark responds to this notion of ethnic capital with an alternate explanation. While the ethnic capital model might explain observed intergenerational downward mobility in income for an African American household through the lens of 'pull factors' from their community and negative ethnic capital, Clark's model sees this differently. He argues that the income level itself may disguise their 'true underlying social status' and that this higher income level enjoyed by

[22] Borjas, George J. "Making It in America: Social Mobility in the Immigrant Population." The Future of Children 16, no. 2 (2006): P.66
[23] Borjas, George J. "Making It in America: Social Mobility in the Immigrant Population." The Future of Children 16, no. 2 (2006): P.55

parents may be from a positive random shock to their income[24]. This random shock is not inheritable, and so their children's outcome is likelier to be closer to their true underlying social status.

With this in mind, it is therefore important to note that income in particular is an imperfect measure of intergenerational mobility. It is especially susceptible to shocks, and thus can obfuscate meaningful conclusions on social mobility. The relatively weak association between ability, education, occupational status, and earnings compounds this. With the context of migrants especially, and the observed prevalence of self-employment in the UK for particular minority groups (namely Pakistanis and Bangladeshis), this can certainly skew the findings when focussed on income, rather than occupation as a measure of social mobility[25].

By making use of the Labour Force Surveys to focus on the mobility of occupation, rather than on income, this study aims to further explore the idea of integration in its role in differences between ethnicities in intergenerational mobility. The focus on occupational grouping, as opposed to income, should be more 'robust' in light of temporary shocks to income and thus observed differences between ethnicities should be more meaningful with regard to investigating the existence of an effect of Borjas' idea of ethnic capital, or integration more generally. The association of occupations with social class is more rigid than using income, as profitability of sectors and wages do change with market conditions, and so the prospect of 'shocks' is thus likely to be significant.

[24] Clark, Gregory, Neil Cummins, Yu Hao, Daniel Diaz Vidal, Tatsuya Ishii, Zach Landes, Daniel Marcin, et al. The Son Also Rises: Surnames and the History of Social Mobility. Princeton, New Jersey: Princeton University Press, 2014. P.125

[25] Clark, Ken & Drinkwater, Stephen. "Changing Patterns of Ethnic Minority Self-Employment in Britain: Evidence from Census Microdata," IZA Discussion Papers 2495, Institute of Labor Economics (IZA) (2006): P.20

5. Role of women

Another limitation on the existing wealth of literature on the topic, is the use of surname studies. As a result of this there is a neglect of the role of mothers, and the impact of their 'social status' and characteristics in the outcomes of their children. In the context of ethnic minority groups, this has potential to have a significant impact in explaining differences in mobility rates.

This is as women from different ethnic minorities are evidenced to have differed in their interaction with the labour market, and even socially. Factors such as attitudes to employment are both inheritable, and potentially impactful on the outcomes faced by their children. Neglecting their study is thus problematic in investigating ethnic minorities, where the roles played by mothers is likely to vary.

Variation between ethnic minorities is corroborated by the literature, with two different models of female economic activity observed. Dividing the life of a woman into 'life-stages', they find that for the majority of ethnicities women are economically active in the 'first two life-stages', and then report a sharp fall in economic from childbirth, to later rise again when the child is of school age. Within those in this pattern, the extent to which female labour force participation persists varies by ethnicity. Pakistani and Bangladeshi women are distinct from this, with economic activity falling earlier, at marriage, regardless of the timing of childbirth[26]. This prevalence of housewifery therefore threatens to exclude a significant portion of the interest group, and potentially an important contributor to social mobility rates.

When the concept of inheritable cultural attitudes is applied to housewifery, this threatens a knock-on effect between generations. A 2004 study found the behaviour of the mother to have a causal influence on the choices of the son in the marriage market, with mothers as housewives leading to sons being more

[26] Holdsworth, C., & Dale, A. (1997). Ethnic Differences in Women's Employment. Work, Employment and Society, 11(3), P.439

likely to select a wife who does not participate in the labour market[27]. As a result, any impact on children's outcomes from the labour force participation of their mother (or lack of) will likely be pervasive, throughout multiple generations, and may contribute to intergenerational mobility patterns. Assuming attitudes to female working to be in part cultural, this may again correlate with levels of cultural integration, and thus play a part in the mechanism behind said mobility rate differences.

This study, therefore, aims to include mothers, and assess the relationship of their attributes with their children's outcomes. This will allow us to further explore possible determinants of differences in intergenerational mobility rates between groups.

6. Source Discussion

The primary data we will use to run regressions will be from a constructed dataset. This dataset will be an amalgamation of multiple Labour Force Surveys (LFS), between the years 1979 and 1991. The LFS is a survey by the Office for National Statistics, carried out biannually in the years 1979 to 1983, and annually from 1984 to 1991. It is the largest household study in the UK, formed with the purpose of providing accurate information regarding the nation's employment status and circumstances, to be used to inform policy-creation.

Initially, the LFS began due to a regulation from the Treaty of Rome, with the Office for National Statistics reporting the UK Data to the Statistical Office of the European Union.

From 1973 to 1983, the survey was carried out biannually, with interviews undertaken in the spring quarter. From 1984 to 1991 the methodology changed.

[27] Fernández, Raquel, Alessandra Fogli, and Claudia Olivetti. "Mothers and Sons: Preference Formation and Female Labor Force Dynamics." The Quarterly Journal of Economics 119, no. 4 (2004): P.1276

The annual survey was created from a combination of a quarterly survey (surveying 15,000 households) and a 'boost survey'- interviewing over 44,000 private households in Great Britain[28].

The LFS set out to obtain information regarding the composition of households, detailing the characteristics of individual members of households in relation to the household head, their race, sex or ethnicity. Further, the survey enquired about their economic activity and the way in which they interacted with the labour market, be it their pursuit of employment, the type of employment they were engaged in, or their reasoning for abstaining from the labour market.

Aiming to represent the entirety of the United Kingdom, the sample was stratified by geography, aiming to ensure a fair representation of the country regionally.

Unlike the PSI, the Labour Force Survey is limited by the fact it is conducted in the English language; as a result, there is the possibility of inaccuracy with regards to the results from respondents, particularly those from demographics with low rates of English language proficiency, such as Bangladeshi and Pakistani women. As a result, there is the possibility of selection bias; those fluent in English more likely to complete the survey, and so the real employment rates for these households may be under-represented.

The source is fully anonymised, and so this does carry its own implications for its utility. Namely, when combining multiple datasets, across many years, while this increases sample size, it introduces a form or error. The same respondents may appear in different datasets as a result. This could lead to a slight exaggeration in the results found, as the respondent will be over-represented in the sample. This is, however, unlikely to be a significant problem due to the size

[28] Office for National Statistics. Socio-Economic Division and Northern Ireland Statistics and Research Agency. Central Survey Unit, Quarterly Labour Force Survey, September - November 2000: Local Area Data [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], May 2002. SN: 4317, http://dx.doi.org/10.5255/UKDA-SN-4317-1

of the dataset, and the random selection process of the households to be interviewed.

Further, there is the frequent issue of missing data- due to the survey's voluntary nature, not all respondents adequately respond. Many variables thus feature a popular 'No reply' or 'Not stated' response. While this decreases sample size, this also introduces a possible selection bias in the survey itself as respondents themselves are those who have the choice of replying. As a result, there may be certain characteristics common amongst the non-responders, which make them hesitant to fully inform the interviewers. The effect of this bias is therefore dependent on this characteristic. If, for example, there was a stigma towards unemployment, one might expect the unemployment rate to be under-reported. It could be that the 'lower' occupational groups may be less likely to respond, while those working higher-status jobs may be more eager. As a result, this would result in positive selection. Given the context, this may be likely.

The surveys, individually, collect data on approximately 400 different variables. The exact names of these variables differ year on year, with slight variations. Their contents, however, remains overwhelmingly uniform, in particular from 1983 onwards. This is likely reflecting the maturity of the survey from its early years, whereby its methodology was being developed and so the variables used were more fluid.

Similar issues stem from the evolution of the LFS over the years; in particular the years 1979 to 1983. An example of this is the variable for the 'terminal education age' - the age at which people finish education. In 1979 to 1981, the variable reported the exact age for those aged between 14 and 21; those less were reported as 'Under 14' while those above were reported as 'Over 21'. From 1983, however, the exact age is listed for all numbers in the range 5 – 29. While this does provide fuller information, it makes it difficult to use in a direct comparison. In situations like this, the approach has been to reformat the data so that it fits

the 1979/81 standard. At the cost of lost information, comparability is ensured between the data and so analysis is possible.

In the surveys from the years following 1983, the surveys were more consistent in their questioning and format, and so less discrepancies appear. This more standardised approach allows for more seamless use of multiple datasets.

Unfortunately, due to the nature of the Labour Force Surveys and the anonymity afforded to respondents, it is impossible to connect individuals to their parents and previous generations if they are not in the same household. Further, it is not possible to view the previous occupations of individuals once retired, and so this serves to exclude those with elderly parents from the sample used. While the large size of the dataset prevents this from threatening statistical validity**,** this may cause some level of selection bias. Children who continue to live with their parents, while economically active, may have a lower income than those children who move out to form their own household. As a result, they may be in a higher occupational group. As a result, we can expect the dataset to perhaps under-state the level of social mobility enjoyed in the economy. With regard to migrant groups in particular, there may be differences in their propensity to form their own households once mobile, due to differing cultural proclivities, furthering the potential problem of selection bias.

7. Research Design

The secondary literature displays a stark difference between migrant groups and the way in which they interact with the labour market. While some groups appear to integrate with greater ease, and thus enjoy greater social mobility, other groups appear to fare less well. In general, different migrant groups appear to differ in characteristics and so it would be erroneous to evaluate them as all the same.

This paper aims to explain this difference in intergenerational mobility (and thus in outcomes) between groups by evaluating the impact of differences in their characteristics, attempting to ascertain a causal relationship through regression analysis. These characteristics include their levels of integration, which would be gauged by measures of inherited culture, through attitudes to women and marriage.

As a result, this paper first identifies differences in intergenerational mobility between migrant groups, testing if trends observed in the literature are present in the LFS itself. Following this, descriptive data on the characteristics of Households and members will be used to identify differences between migrant groups, before going on to use regression analysis to estimate the causal relationship between these differing characteristics and eventual social mobility outcomes. In all, these measures will allow us to discern possible determinants of differences in intergenerational occupational mobility.

8. Social Class classification system

The initial analysis of intergenerational occupations correlations, will be conducted using a modified form of the Registrar General's Classification of Social Class:

i. Professional, etc.
ii. Intermediate
iii. Skilled
    a. (N) non-manual
    b. (M) manual
iv. Partly skilled
v. Unskilled

The modified Social Class classification system used in the following analysis will be as follows:

1. Unskilled
2. Partly Skilled

3. Skilled Manual
4. Skilled non-manual
5. Intermediate
6. Professional

These are the occupation classifications used in the original Labour Force Surveys, and by design serve as an ordinal categorisation; 'naturally correlated with… other factors such as education and economic environment'[29]. While an imperfect measure of social standing, it allows for easy comparison between a wide variety of occupations and is employed uniformly throughout the range of years in which the survey has been used in this study.

Thus, the Social Class classification system will be used for different ethnicities to gauge the correlation between the class of the parent to that of the child. A strong correlation would therefore suggest a degree of immobility, while a weak correlation would suggest social class to be quite mobile between generations, with the social class of the parent thus acting as a weak predictor in the social class of the child. Further, differences between ethnicities in this mobility would point to inequalities.

9. Dataset Construction

In investigating these inequalities, data from the LFS will be used to extract descriptive information of individual households. Given the coded nature of the source, the initial LFS dataset is decoded, creating dummies or standardized variables. As a result, although each survey differs to varying extents in their structure and included variables, analysis remains possible. Data on the following is therefore extracted: the Relationship of Individuals to the Head of Household, the Region they reside in, Individual Marital Status, Age, Ethnicity, Nationality, Labour force Measures, Education and Occupational Groupings.

[29] Bland, Richard. "Measuring 'Social Class': A Discussion Of The Registrar-General's Classification." Sociology 13, No. 2 (1979): P.284

Combined, these allow us to gain an idea of the make-up of households and can be used as control variables.

A combination of LFS datasets is used. Namely, the years: 1979, 1981, 1983, 1985, 1986, 1987, 1988, 1990 and 1991. This is the entirety of the available data in the years 1979-1991, with the exclusion of datasets from years 1984 and 1989. The exclusion of these two Labour Force Surveys was on the basis of a missing variable: the 'eserial' variable. This is used to identify households, and without this it is impossible to tie the children in a household to their parent's. This method of tying children to their parents will be used to directly approximate inter-generational social mobility, and so the inclusion of this variable is crucial. This range of sources has allowed a large sample size to be created, with 787,089 pairings of children and husbands to their mothers / wives found.

A single 'profile' is created for each child in the surveys. In creating the profiles, each child is matched with their mother and father, with the characteristics of each family member made available. From this, regression analysis is able to be conducted.

The aforementioned 'modified Social Class classification system' will be used to derive a 'Household Social Class variable. This variable will display the highest-level occupation held in the Household, between the 'Head'[of the Household] and 'Wife' where applicable.

This variable will be used to calculate mobility, using the highest social class between the parents of the Child to determine the Social Class 'ceiling' of the household the Child grew up in, and account for situations in which the mother may be in a higher social class than the father.

10. Logit Regression Model

Mobility in this study is investigated in the inter-generational, occupational sense. For the purpose of the regression analysis, Mobility is divided into Upward and Downward Mobility.

Children are considered exemplary of Upward Mobility if they are in a 'Professional Occupation' or an 'Intermediate Occupation' while the Household Social Class variable displays their parents to be in a Skilled, Partly Skilled or Unskilled Occupation. These are taken to approximate working-class occupations. An 'Upwardly Mobile' dummy variable will therefore be created, to be used in a regression analysis, as the dependent variable.

Further, a 'Downwardly Mobile' dummy variable will be defined as a Child from a Household Social Class of group 5 and 6; 'Intermediate and Professional', while they themselves personally have an occupational Social Class in Groups 1 to 4; 'Unskilled / Partly Skilled or Skilled'. This will be used in a separate regression analysis.

Utilising logit regressions allows us to discern determinants of Social Mobility. A logit model was chosen as the outcome is binary. There has been a separation of Upward and Downward mobility; while both measuring intergenerational mobility, it is expected there may be nuances particular to the direction of mobility.

In the case of Upward Mobility either the child in the Household pairing is Upwardly Mobile (Y = 1) or is not, (Y = 0).
In the case of Downward Mobility either the child in the Household pairing is Downwardly Mobile (Y = 1) or is not, (Y = 0).

The first logit regression's base is as follows:

$$Y_i = \beta 0 + \beta 1\ \text{Housewife}i + \beta 2\ Agei + \beta 3\text{Fem}alei + \beta 3\text{Education}i\ +\ \Sigma^{9}_{i=1}\gamma\text{Ethnicity}_i\ + \varepsilon$$

Y_i = Upward Mobility; (Immobile = 0, Mobile = 1)

$\beta 0$ = Intercept

Housewife$_i$ = Binary (Non-Housewife = 0)

Age_i = Age of Child

Female_i = Binary (Male = 0)

Education$_i$ = Years of Education of the Child

Ethnicity$_i$ = Dummy for the ethnicity of the Child

ε = Error term

Similarly, the second logit regression's base is as follows:

$$Y_i = \beta 0 + \beta 1 \text{ Housewife}_i + \beta 2\ Age_i + \beta 3 \text{Fem}ale_i + \beta 3 \text{Education}_i + \Sigma^{9}_{i=1} \gamma \text{Ethnicity}_i + \varepsilon$$

Y_i = Downward Mobility; (Immobile = 0, Mobile = 1)

$\beta 0$ = Intercept

Housewife$_i$ = Binary (Non-Housewife = 0)

Age_i = Age of Child

Female_i = Binary (Male = 0)

Education$_i$ = Years of Education of the Child

Ethnicity$_i$ = Dummy for the ethnicity of the Child

ε = Error term

These base regressions will be adjusted to allow for the impact of additional factors, such as integration, to be approximated, and for the addition of interaction terms. Thus, these regressions aim to determine the relationship between the treatment (the ethnicity of the family) and the outcome (Upward or Downward Mobility). With a relationship established, potential confounders are to be added, to eliminate omitted variable bias, and work out the causal mechanism behind the link. With our hypothesis of integration as a factor towards social immobility, we aim to add regressors approximating integration, namely the Spousal Age Gap and Spousal Education Gap. The Spousal Age Gap is equal to the Husband's Age minus the Wife's Age. The Spousal Education Gap

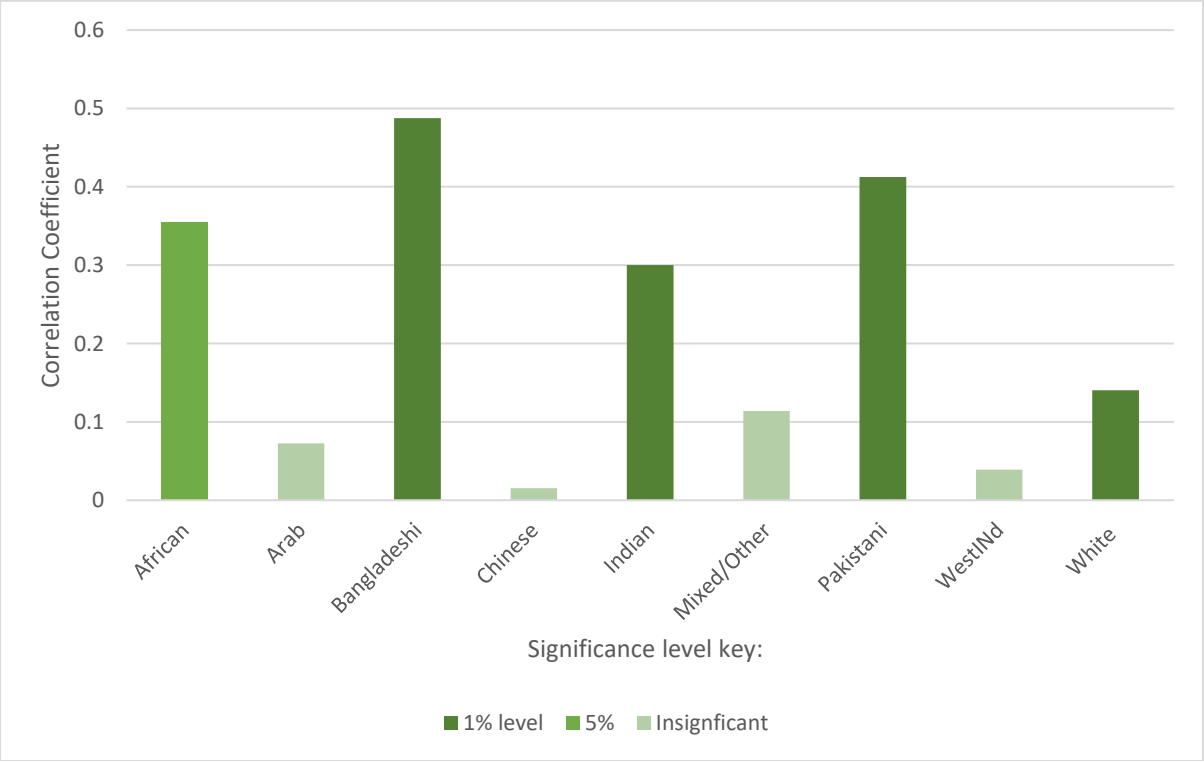
is a dummy, equal to 1 if the husband is more educated than the wife, and equal to 0 if not.

11. Findings and analysis

In investigating mobility, we hypothesise that:

1. Ethnic groups differ in their respective levels of intergenerational mobility.
2. The cause for these differences is due to differences in their characteristics.
3. Once differing characteristics are controlled for, remaining differences in mobility caused by ethnicity are explainable by variation in levels of integration.

Figure 1: Intergenerational correlation (Father / Child) in occupation



11.1 Ethnic disparities in intergenerational mobility

Figure 1 displays the intergenerational occupational correlations between father and child. While for many ethnicities results were statistically insignificant, it is

interesting to note the strong elasticities for the African, Bangladeshi, Indian, Pakistani and White ethnic groups. Bangladeshi (0.49), Pakistani (0.41) and Indian (0.30) groups in particular featuring statistically strong correlation coefficients, indicative of relatively high levels of immobility between generations, in comparison to the White ethnic groups with much lower levels of correlation between generations, at 0.14. The difference between the two groups represents a stark disparity. The implication of this is that for White children, their eventual occupational outcome is likely to be much more independent of the occupational status of their parents, while for African, Bangladeshi, Indian and Pakistani households, their occupational status appears much more elastic to that of their parents. This evidence appears to mirror observations made by Thomas Hertz in the context of the US regarding ethnic disparities in intergenerational mobility; the UK appears to also have this disparity, with ethnic immobility appearing to be the case[30]. While some correlation coefficients are inconclusively statistically insignificant; looking at the statistically significant evidence alone, Ethnicities differ in levels of intergenerational rigidity in occupational status.

The implications of this intergenerational occupational mobility disparity alone are limited regarding inefficiency and normative conclusions, however. This disparity could be caused by differing levels of investment by parents into the human capital of the child, for example. Were this the case, this would not necessarily reflect inefficiency, but would reflect the efficient outcome of positive returns to private investments into human capital. Controlling for this characteristic of education, and others like it, will thus enable us to isolate the relationship between ethnicity and mobility.

[30] Hertz, Tom. "Chapter Five. Rags, Riches, and Race: The Intergenerational Economic Mobility of Black and White Families in the United States" In Unequal Chances: Family Background and Economic Success edited by Samuel Bowles, Herbert Gintis and Melissa Osborne Groves, P.187

12. Characteristic differences

Of the 789,727 Households in the constructed dataset, 5.19% are foreign nationals. Of the women in the dataset, excluding children of the household head, 43% report as currently working, be they self-employed or employed. 7.5% are retired, while 8% Unemployed and seeking work. There is a significant cohort of housewives, present in 39.5% of households.

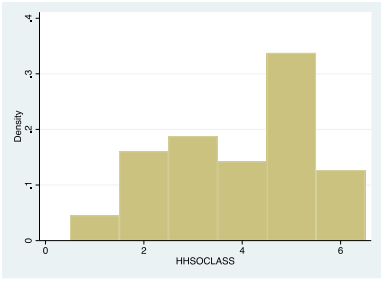
A range of ethnicities are represented in the data; 11.89% of the household's non-white. Of these migrant groups, differences in outcome are apparent, and consistent patterns are observable.

Figure 2 displays the Household Social Class by Ethnicity. Various patterns can be observed: for most ethnicities, the median is group 4 (skilled non-manual workers).

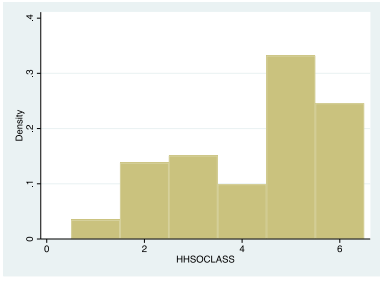
Bangladeshi and Pakistani groups have a lower median at group 3 (skilled manual workers). The distribution for these groups in general is spread lower, with 75% of both groups in the lowest 3 occupation groups.

Indian and West Indian / Guyanese groups also have a lower median, at group 3 (skilled manual workers), however the distribution differs, with a higher proportion in category 5 (Intermediate workers).

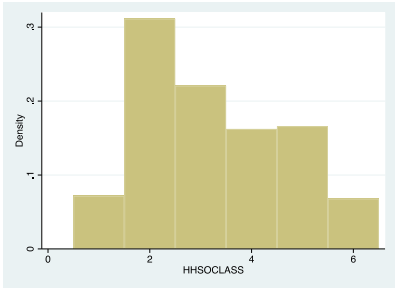
Figure 2: Household Social Class (HHSOCLASS) by Ethnicity



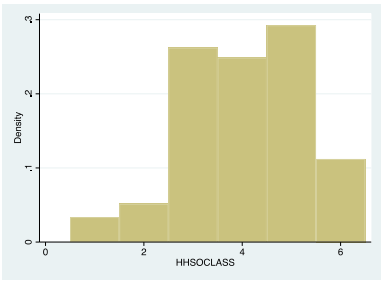
African



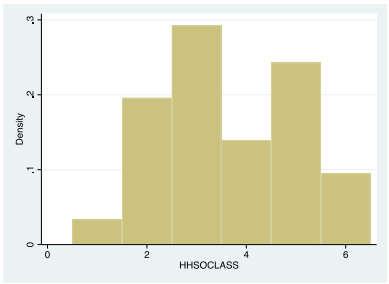
Arab



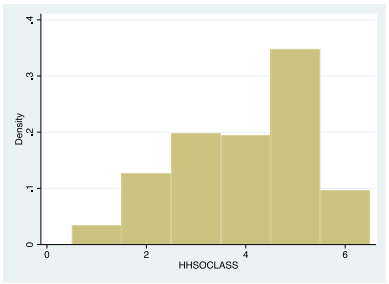
Bangladeshi



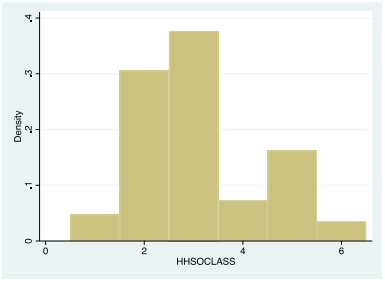
Chinese



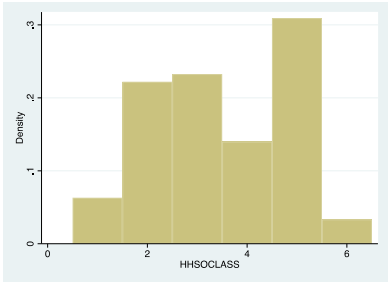
Indian



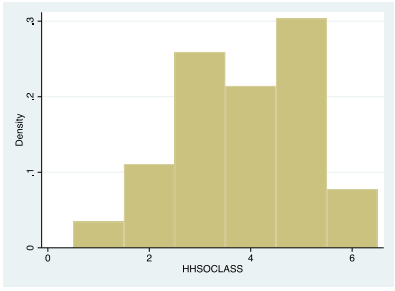
Mixed / Other



Pakistani



West Indian / Guyanese



White

The right-skew evident in the Pakistani and Bangladeshi groups appear unique with respect to other groups, which appear to have a more left-skew. African, Arab, and Chinese groups in particular appear to have the strongest left-skew, with significant penetration into the Professional and Intermediate Occupational Groups, 5 and 6.

Figure 3: Upward Mobility by Ethnicity

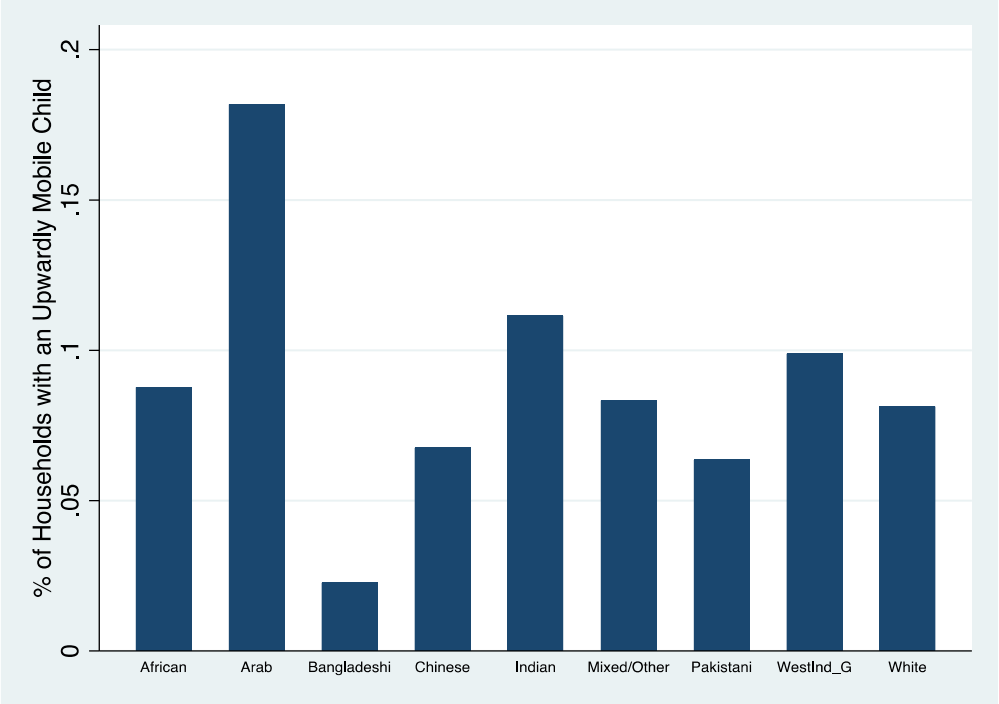
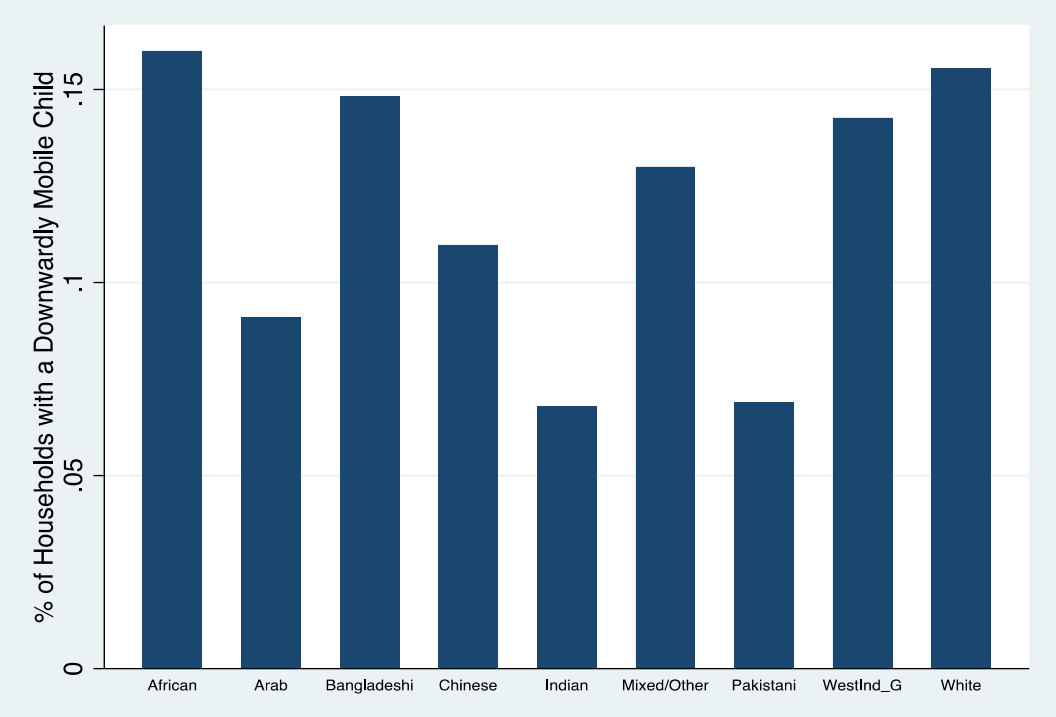


Figure 4: Downward Mobility by Ethnicity



While one might expect the right-skewed groups to have a higher proportion of upwardly mobile children, this is observably not the case (Figure 3). Groups with

low levels of representation in the highest two occupation groups remain so, with low levels of upward mobility.

Different trends can be seen with downward mobility; with the least downwardly mobile groups being that of Indians and Pakistanis (Figure 4). This appears to break the pattern of Pakistani and Bangladeshi trends moving in the same direction; Pakistani Intermediate and Professional households appear to retain their high status at higher rates than their Bangladeshi equivalents; this may perhaps represent Clark's concept of a 'positive shock above their underlying social status' for these Bangladeshis, who thus quickly regress to the mean, while this may be less-so the case for these Pakistanis[31].

The cause of this may be discerned through observation of trends in the differing characteristics of migrant groups (Figures 5 to 8). With education, for example, Bangladeshis again feature the highest rate of all Ethnicities for the proportion with less than 14 years of Education: 23.88% of Bangladeshi Women and 9.64% of Bangladeshi Men. The African and Arab groups, who successfully penetrated the Professional and Intermediate Occupational Groups, are amongst the lowest in the proportion of their population with under 14 years of Education.

[31] Clark, Gregory, Neil Cummins, Yu Hao, Daniel Diaz Vidal, Tatsuya Ishii, Zach Landes, Daniel Marcin, et al. The Son Also Rises: Surnames and the History of Social Mobility. Princeton, New Jersey: Princeton University Press, 2014 P.125

Figure 5: Proportion of Ethnicity's women with Less than 14 years of Education

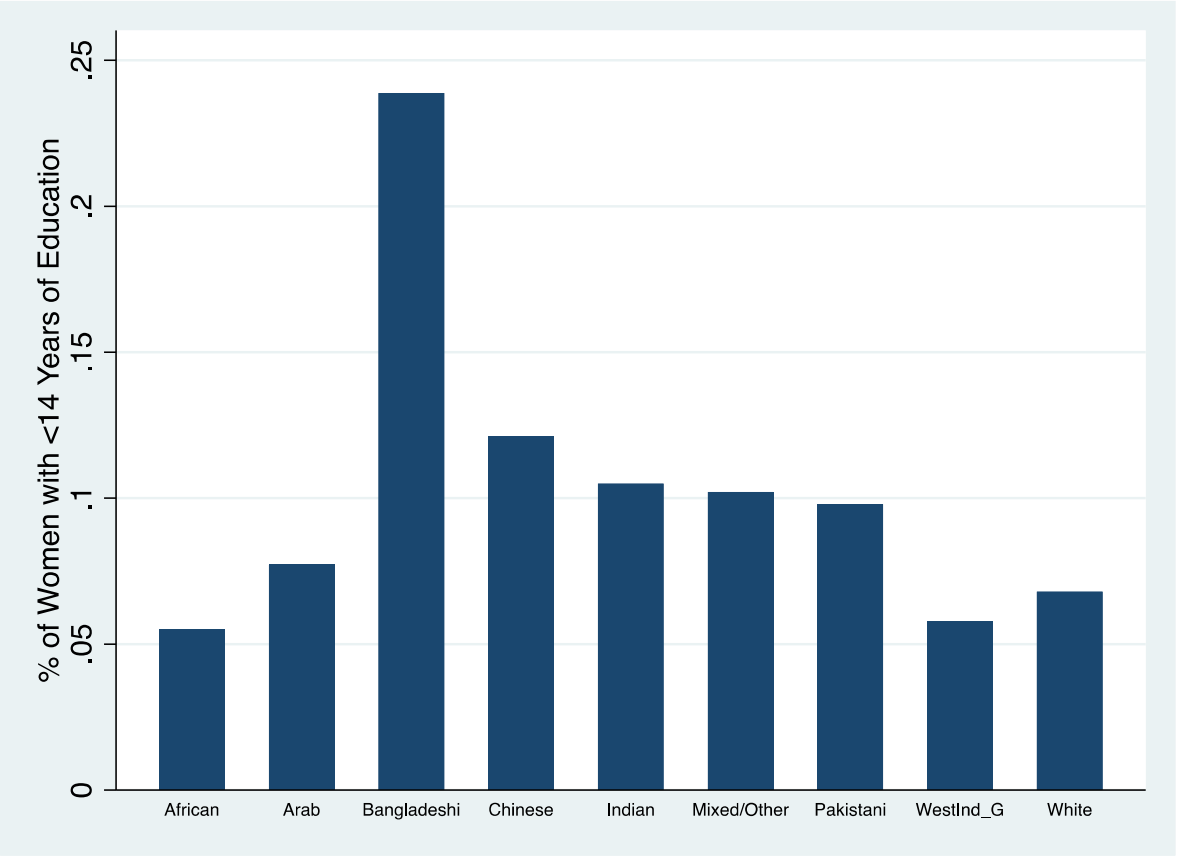
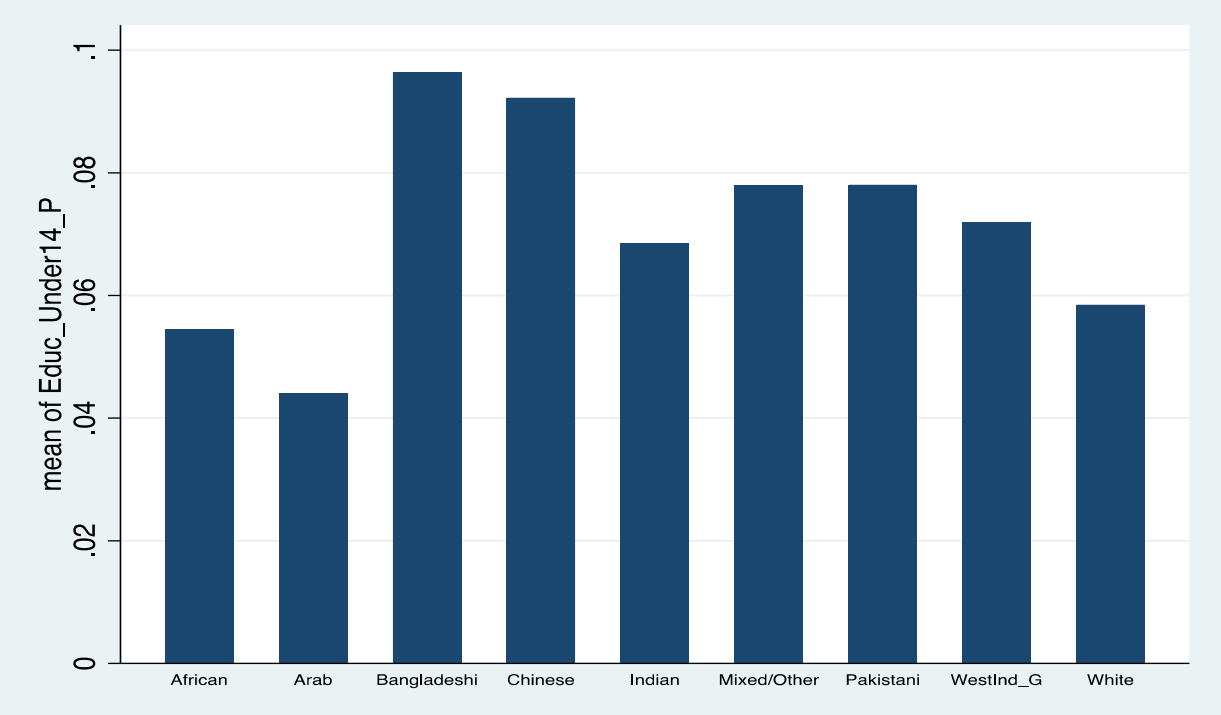


Figure 6: Proportion of Ethnicity's men with Less than 14 years of Education



The trend of higher African and Arab levels of education continues when examining those with over 21 years of Education, as visible in Figures 7 and 8. African and Arab groups see the highest proportion of their population, out of all ethnic groupings, with over 21 years in Education, from both genders.

Figure 7: Proportion of Ethnicity's women with Over 21 years of Education

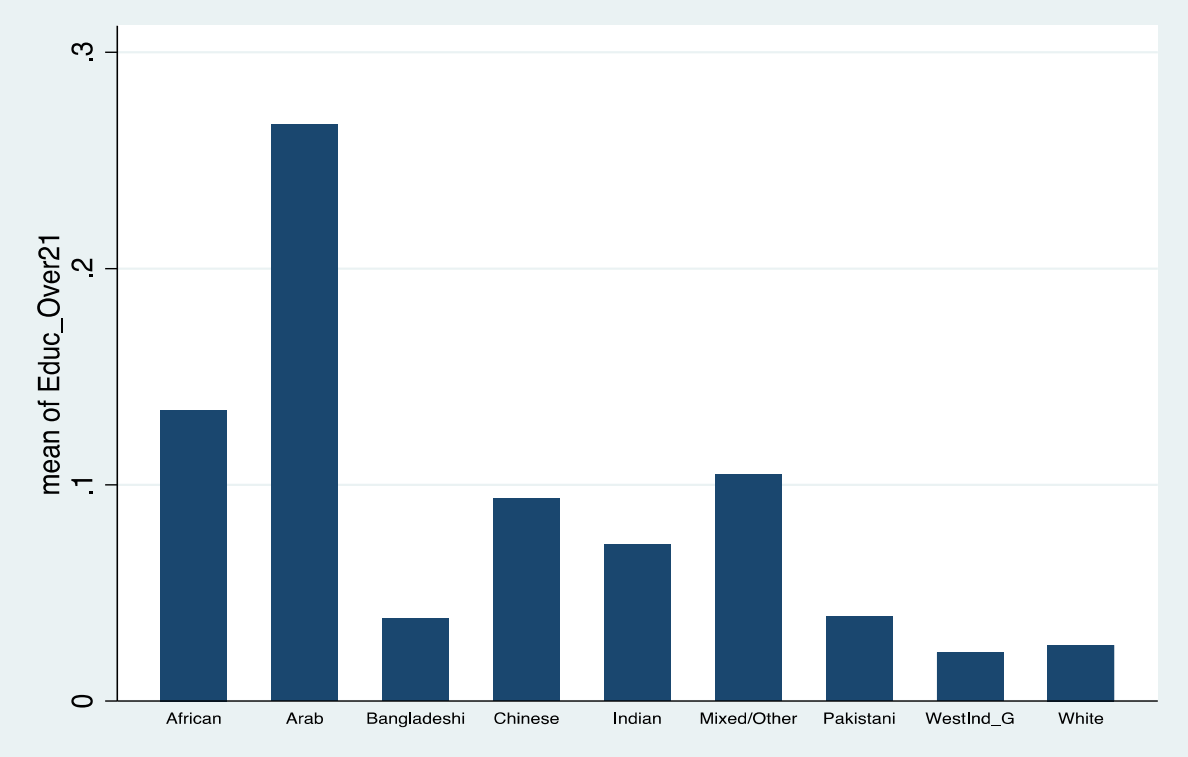
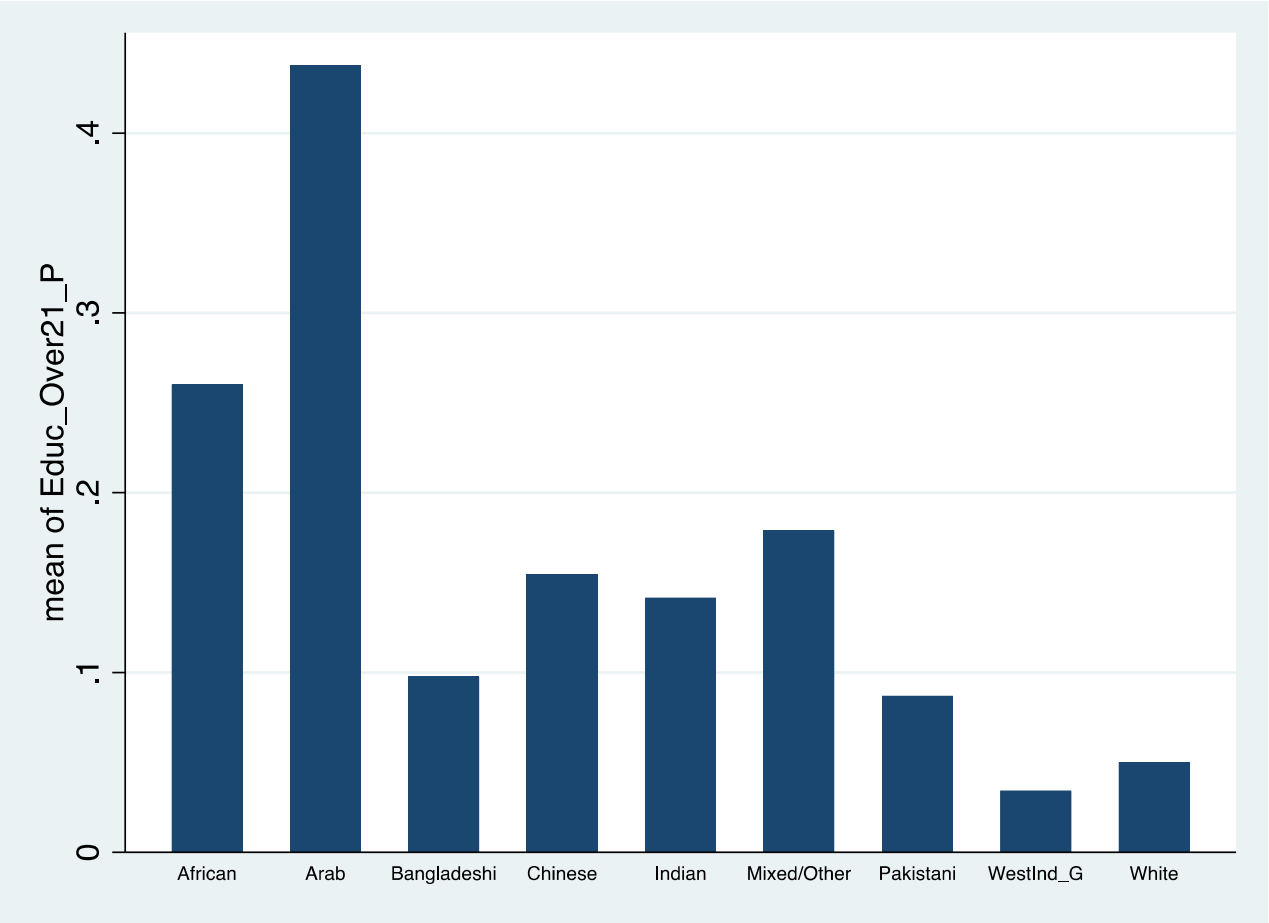


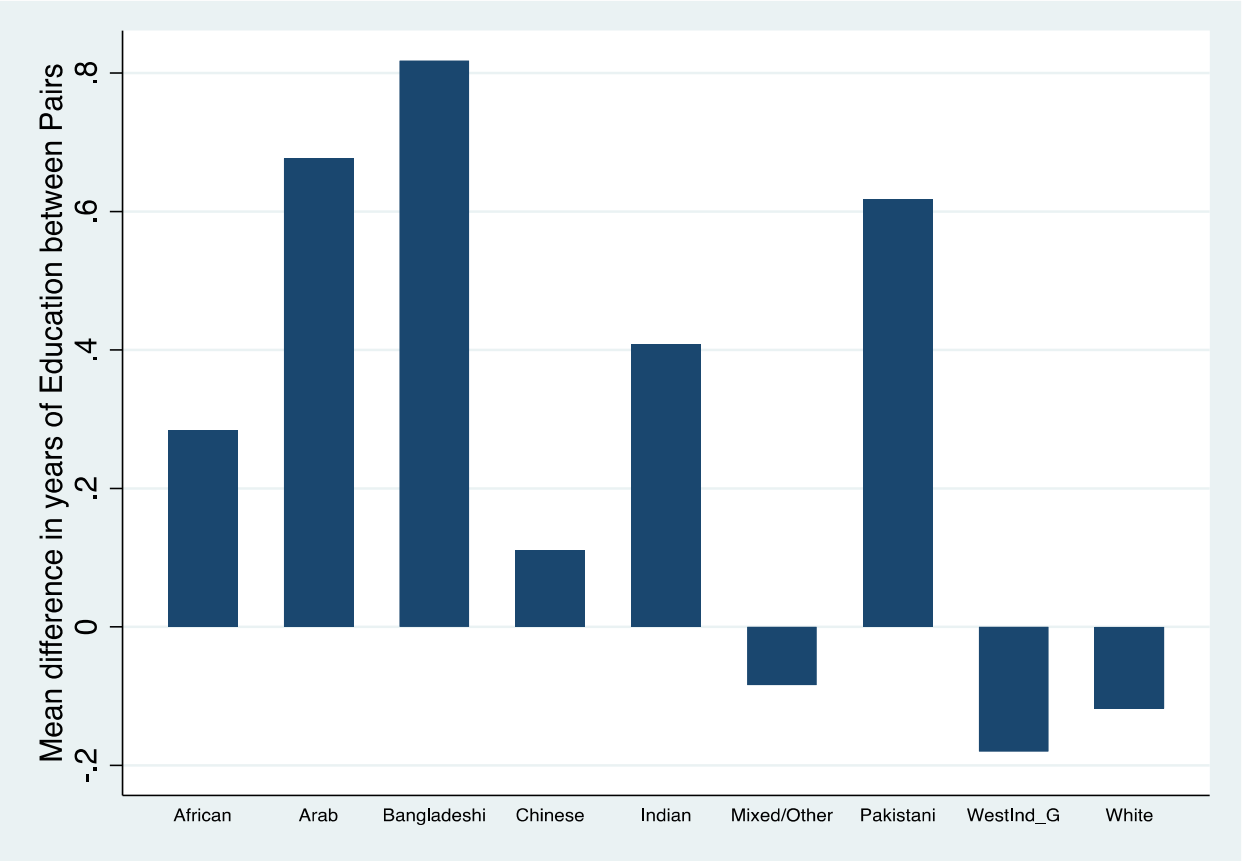
Figure 8: Proportion of Ethnicity's men with Over 21 years of Education



As previously mentioned, poorer-performing groups appear to have in common greater gender disparity; women less likely to speak English fluently or be degree-educated. While the Labour Force Surveys do not display information on language skills, they do inform us about the duration of education. In line with what the literature suggests with the aforementioned PSI studies, there was an observable gender gap in educational tenure with some migrant groups[32]. Again, Pakistanis and Bangladeshis stood out as one of 3 ethnic groupings skewed towards a positive educational gap, with men receiving more years of education than women (Figure 9).

[32] Zimmermann, Klaus F. European Migration: What Do We Know? Oxford: Oxford University Press, 2005. P.134

Figure 9: Mean Education Gap by Ethnicity

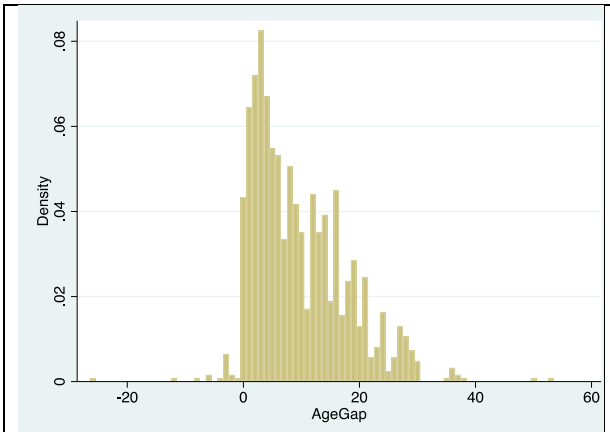


Seeking to verify the statistical significance of these observed differences between different ethnicities, multiple t-tests were carried out (Appendix 1). The results regarding differences in the educational gap between ethnicities are generally highly significant; after performing a t-test, we were able to reject the null hypothesis (of no difference in participation rates between members of an ethnic group, and outsiders) at both $\alpha = 0.05$ and $\alpha = 0.01$ for all groups except the White, West-Indian / Guyanese, and Mixed/Other.

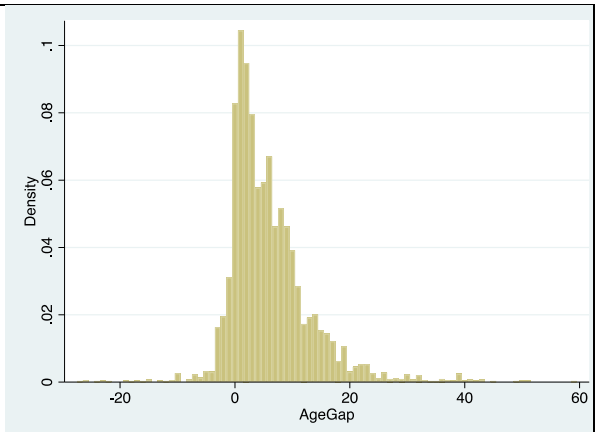
The t-tests displayed male Bangladeshis and Pakistanis to have, on average, 0.818 and 0.618 years respectively more education than their female counterparts. This result is highly significant at the 1% level. This result is in line with the PSI studies own findings and may perhaps be an under-estimate. As the PSI study, conducted in respondents' native languages, displayed lower levels of English fluency amongst Bangladeshis and Pakistanis, the non-

response rate can be assumed to be higher in these groups. In particular, one can expect the less educated and less fluent to be less likely to adequately respond to the LFS: subsequently causing under-reporting. Assuming this, we can therefore conclude with confidence that the difference in education between men and women from these two groups appears significant, both statistically and economically. This education gap can be seen as a sign of a lack of integration, signalling the effects of a lack in cultural emphasis on education for women, and gender equality more generally[33].

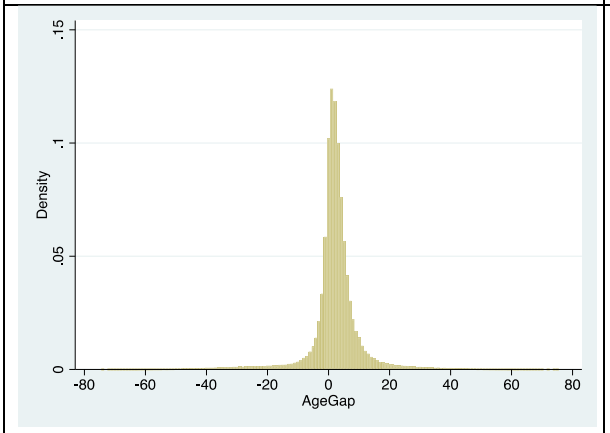
Figure 10: Distribution of Spousal Age Gap, by Ethnicity



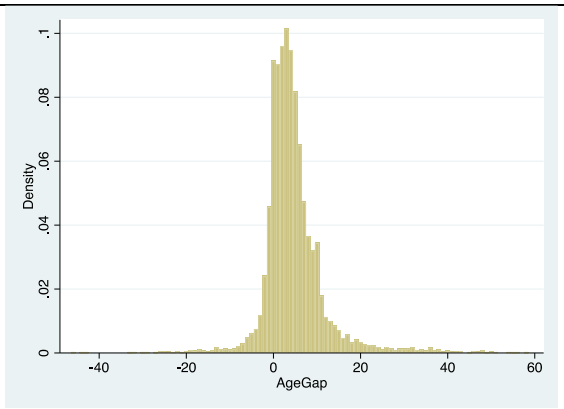
Bangladeshi Spousal Age Gap



Pakistani Spousal Age Gap



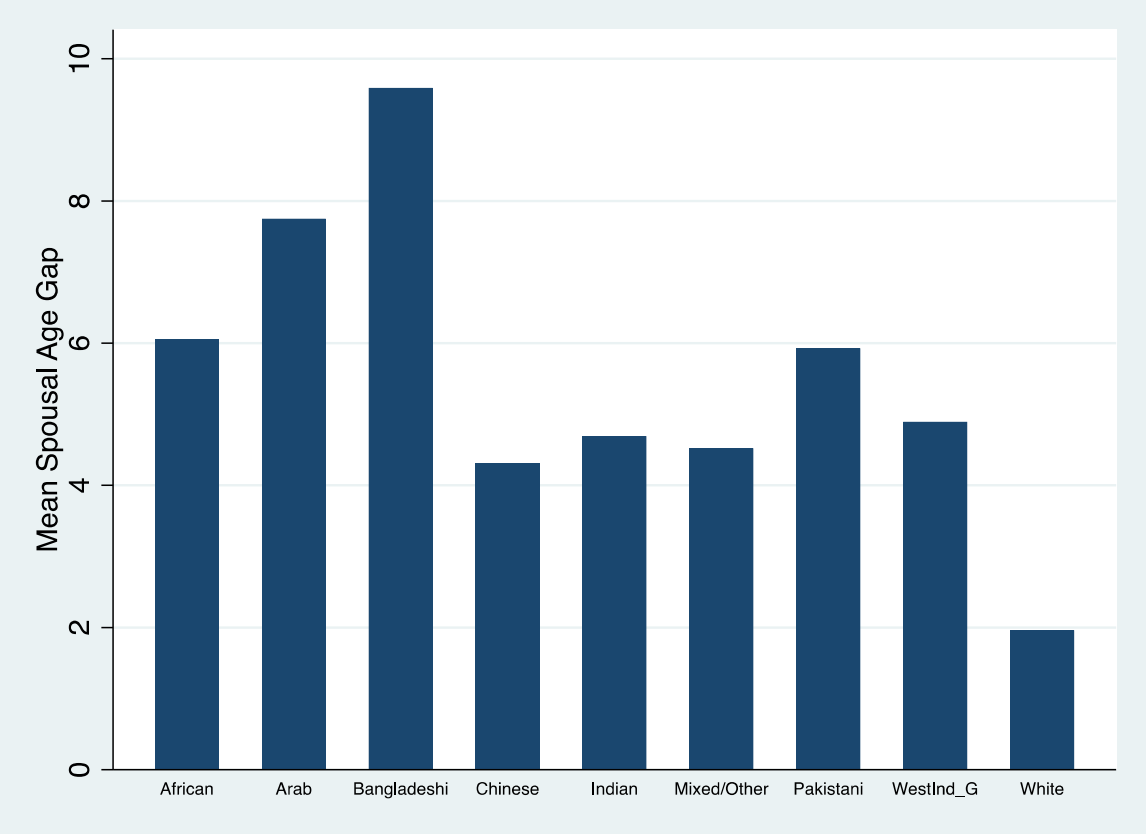
White Spousal Age Gap



Indian Spousal Age Gap

[33] Algan, Yann, and Yann Algan. Cultural Integration of Immigrants in Europe. Edited by Yann Algan. First edition. London, England: Oxford University Press, 2012. P.61

Figure 11: Average Spousal Age Gap by Ethnicity

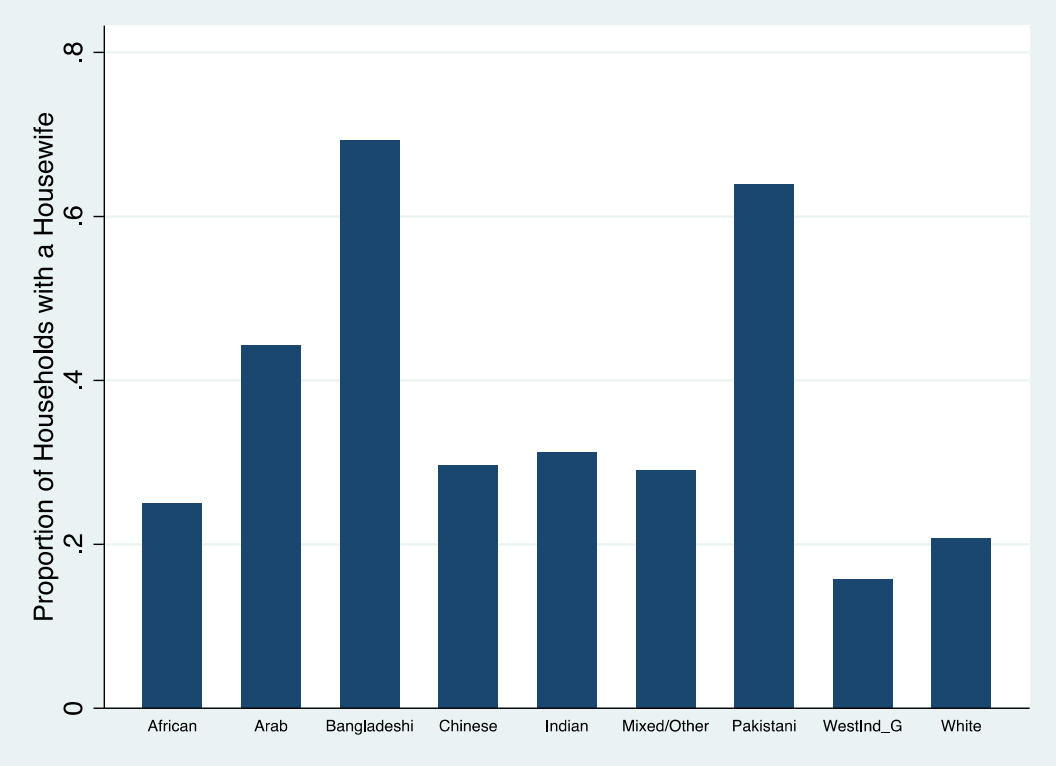


A characteristic observed from the derived dataset, is the Spousal Age Gap. This refers to the difference between the age of the Heads of households, and their wives. This can be observed to differ between different demographics, both in mean (Figure 11) as well as in their patterns of distribution. Interestingly, the most positively skewed populations (See Figure 10) here, Bangladeshi and Pakistanis, are the same migrant's groups which saw the lowest levels of upward social mobility. While there seems no direct link between the two variables, Spousal Age Gaps can be seen as an indicator of integration[34]. When compared to the White Spousal Age Gap in Figure 10**,** groups with a distribution closer to this norm appear to enjoy high levels of mobility, such as the Indian group. This may be because they are more culturally integrated; research demonstrating family

[34] Algan, Yann, and Yann Algan. Cultural Integration of Immigrants in Europe. Edited by Yann Algan. First edition. London, England: Oxford University Press, 2012 P.91

behaviours to adapt to resemble those of the destination population as migrants integrate[35].

Figure 12: Proportion of Households featuring a Housewife, by Ethnicity



Another possible indicator of integration is that of Housewifery, differing significantly between different Migrant groups. As visible in Figure 12**,** Bangladeshi and Pakistani households again are prominent, with the highest rates of housewifery. In comparison, groups with lower rates such as the West Indian / Guyanese grouping, enjoy higher levels of social mobility. This may reflect a retention of cultural values, as a sign of low levels of integration. The causal relationship between the two is difficult to discern; Housewives, through their absence from the workplace by nature do not mix with wider society to the same level as workers, and therefore self-segregate. This prevents cultural integration as a result.

[35] Caroline Uggla & Ben Wilson (2021) Parental age gaps among immigrants and their descendants: Adaptation across time and generations? P.3

However, differing cultural sensibilities around gender roles and the place of women, may also prevent women form joining the workforce. This lack of cultural integration would therefore cause increases in Housewifery, allowing Housewifery to be used as a proxy for integration.

This difference in the rate of Housewifery was confirmed to be significant for all Ethnicities through multiple t-tests (see Appendix 2). Results regarding differences in the rate of Housewifery between ethnicities were generally highly significant; and so, we were able to reject the null hypothesis of no difference in rates between members of an ethnic group, at $\alpha = 0.01$.

Having established significant differences between different ethnicities in their characteristics, this provided grounds to investigate the potential impact of these on the intergenerational mobility observed in households. Holding these characteristics fixed, and investigating the impact of Ethnicity once isolated would thus allow us to explore the cause of the differing observed intergenerational occupational correlations.

13. The impact of integration on Upward Mobility

Table 1: Upward Mobility regression output table

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3
Housewife	-0.00786***	0.00285	-2.42e-05
	(0.00272)	(0.00306)	(0.00336)
Age	-0.000427***	0.00147***	0.00126***
	(0.000139)	(0.000200)	(0.000201)
Female	-0.00394*	-0.00185	-0.00204
	(0.00223)	(0.00256)	(0.00255)
Years of Education	0.0241***	0.0236***	0.0242***
	(0.000808)	(0.000924)	(0.000925)
West Indian / Guyanese	0.00890		
	(0.0120)		
Indian	-0.00341		

	(0.0116)		
Pakistani	-0.0413**	-0.0315	-0.0319
	(0.0191)	(0.0218)	(0.0218)
Bangladeshi	-0.0859*	-0.0829	-0.0752
	(0.0459)	(0.0504)	(0.0504)
Chinese	-0.00984		
	(0.0363)		
African	0.0101		
	(0.0384)		
Arab	0.157		
	(0.0959)		
Spousal Age Gap		-0.000984***	-0.00108***
		(0.000118)	(0.000118)
Education Gap			-0.0324***
			(0.00361)
Interaction (Education Gap * Housewife)			0.0140*
			(0.00810)
Constant	-0.300***	-0.332***	-0.330***
	(0.0141)	(0.0161)	(0.0161)
Observations	61,914	50,595	50,595
R-squared	0.015	0.015	0.017

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Regression 1 in Table 1 approximates the impact of Housewifery in a Household on the Mobility of the child, with controls for the impact of ethnicity, and of the age, education, and gender of the child. It shows an association of Housewifery with a ~0.8% decrease in the expected chance of a Socially Mobile child, strongly significant at $\alpha = 0.01$.

Coefficients for Ethnicity can be interpreted as the effect of the Ethnicity on Upward Mobility, assuming that the mother of the child is not a Housewife, holding fixed their Age and Gender. Generally, it showed there to be a statistically insignificant relationship between Ethnicity and Mobility when Housewifery was assumed to be absent. Two exceptions to this, however, existed: namely Pakistani and Bangladeshi groups. The former was significant at $\alpha = 0.05$, while the latter weakly significant at $\alpha = 0.10$. Being from a Pakistani household was associated with a 4.1% decrease in the expected chance of a

Mobile child, while being from a Bangladeshi household was associated with an 8.6% decrease. These are economically significant figures, given the low mobility rates observed.

A causal interpretation of this association of particular ethnicities, and thus migrant groups, with upward immobility would imply an intrinsic disadvantage to children from these households. However, one could view this association as a symptom of confounders, in particular that of integration.

Well-integrated households are able to enjoy greater levels of social mobility, as they are more aware of opportunities, and may also face weaker levels of labour market discrimination due to being adapted to social norms. Given the data, it is difficult to approximate integration levels; limited only to the LFS' variables. Deriving the variable of the Spousal Age Gap, however, can be used in order to approximate levels of integration.

Defining the Spousal Age Gap as the difference between the Head of household and the age of their wife, a high age gap can be associated with low levels of integration[36]. Alongside being statistically significant in its difference, Bangladeshis showcase the highest mean level of spousal age gaps, observed to be an average of 9.6 years for couples in the period, in the dataset. Pakistanis display the third highest mean level of Spousal age gaps, with an average of 5.8 years.

Using the Spousal Age Gap as a control in Regression 2 in Table 1, there is an observed drop in the significance of the coefficients for the Pakistani and Bangladeshi households.

Both coefficients become statistically insignificant in their effect. While the impact of Ethnicity appeared statistically significant when the child's age and

[36] Algan, Yann, and Yann Algan. Cultural Integration of Immigrants in Europe. Edited by Yann Algan. First edition. London, England: Oxford University Press, 2012. P.91

gender were fixed, and the mother was not a housewife, this became insignificant when a zero-Spousal Age Gap between the Child's parents was assumed. In other words, with the assumption of parents of equal age, there is no discernible impact of Ethnicity on Upwards Mobility. Taking this as an approximation for integration, it may be concluded that for culturally integrated Bangladeshi and Pakistani households (with equal ages between couples) there is no significant disadvantage from their ethnicity on their chances of upward mobility.

The Spousal Age Gap, however, is shown to be highly significant (at the 1% level) in its association with mobility. For every year that the Husband is older than their Wife, there is a ~0.1% decrease associated in the predicted rate of Mobility for a household. Given the Bangladeshi and Pakistani household mean Spousal Age Gap of 9.6 years and 5.8 years respectively, and the skew seen in Figure 10 this amounts to an economically significant level of association, with age gaps above 20 not uncommon. Given the newfound statistical insignificance of the Bangladeshi and Pakistani variables it can therefore be assumed that the Spousal Age Gap was indeed a confounder.

Similarly, one can observe the associated impact of a Housewife in the home become statistically insignificant with the inclusion of the Age Gap variable. As a result, this can be taken as an implication that the impact of Housewifery itself was due to its signal of a lack of integration, and the negative association previously seen may have instead been displaying variation caused by this lack of integration.

Taking the Spousal Age Gap to be a good proxy for levels of integration, this is congruent with the hypothesis of levels of cultural integration being a key determinant of Social Mobility.

Regression 3 introduces a further regressor; that of the Educational Gap between Spouses.

Where a Spousal Education Gap is present, this is associated with a 3.2% decrease in the likelihood of children being socially mobile. This is significant at the 1% level.

Interestingly, however, there is a weakly significant positive association between the interaction term at the 10% level. The implication of this is that when a Child is from a Household with a Housewife, and there is a Positive Spousal Education Gap (i.e., the mother is less educated than the father), the child is 1.4% more likely to be socially mobile.

13.1. The impact of integration on Downward Mobility

Table 2: Downward Mobility regression output table

	(1)	(2)	(3)
VARIABLES	Regression 1	Regression 2	Regression 3
Housewife	0.000996	-0.00765**	-0.0125***
	(0.00351)	(0.00362)	(0.00403)
Age	-0.00250***	-0.00240***	-0.00224***
	(0.000280)	(0.000299)	(0.000298)
Female	-0.112***	-0.116***	-0.115***
	(0.00280)	(0.00298)	(0.00297)
Years of Education	-0.0180***	-0.0188***	-0.0198***
	(0.00114)	(0.00121)	(0.00121)
West Indian / Guyanese	0.0137	0.0311*	0.0286*
	(0.0141)	(0.0167)	(0.0167)
Indian	-0.0593***	-0.0549***	-0.0642***
	(0.0160)	(0.0169)	(0.0169)
Pakistani	-0.0849***	-0.0838***	-0.0834***
	(0.0286)	(0.0292)	(0.0291)
Bangladeshi	-0.0485	-0.0423	-0.0582
	(0.0729)	(0.0757)	(0.0755)
Chinese	-0.0309	-0.0312	-0.0334
	(0.0421)	(0.0434)	(0.0433)

African	0.0196	0.0734	0.0542
	(0.0527)	(0.0609)	(0.0607)
Arab	-0.131	-0.136	-0.141
	(0.116)	(0.126)	(0.125)
Spousal Education Gap		-0.000520***	-0.000312**
		(0.000130)	(0.000130)
Education Gap			0.0691***
			(0.00428)
Interaction (Education Gap * Housewife)			0.0184**
			(0.00903)
Constant	0.542***	0.564***	0.563***
	(0.0196)	(0.0208)	(0.0207)
Observations	64,909	59,147	59,147
R-squared	0.030	0.032	0.038

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Table 2, Regression 1, the impact of ethnicity on downward occupational mobility is evaluated, holding fixed the presence of a Housewife as a mother, and the age, gender, and educational duration of the Child. With the exception of Indian and Pakistani households, the impact of ethnicity appears statistically insignificant. Indian and Pakistani Households, however, are highly significant (at the 1% level) in their effect on downward mobility.

The average change in the chances of being downwardly mobile, associated with hailing from an Indian household, is a 5.9% decrease. Similarly, those from Pakistani Households see an 8.5% decrease. These ethnicities thus appear less likely to be downwardly mobile and suggests a higher rate of immobility. This corroborates earlier observations seen with correlation coefficients (see Figure 1), and the higher intergenerational correlation in occupation for Indians and Pakistanis.

Regression 2 introduces the Spousal Age Gap variable.

This variable in itself appears highly significant in its impact on downward mobility. Significant at the 1% level, it purports a 0.05% decrease in chances of being downwardly mobile, for each year the husband is older than the wife. Given the far range of age gaps possible, this outcome is potentially economically significant. Taking this as an indicator of a lack of integration, households with a higher spousal age gap can be assumed to be less integrated, and thus less likely to regress towards the mean as evidenced by their lower rates of downward mobility. This suggests a level of persistence, which may mean they are more likely to regress towards the mean of their community, as per Borjas' previously mentioned idea of ethnic capital.

It can be noted that the Indian and Pakistani ethnicity coefficients decrease slightly. This can imply that the Spousal Age Gap accounts for some level of omitted variable bias previously missed, and so can explain *some,* though not all, of the persistence against downward mobility associated with the ethnicities. The remaining coefficients are thus to be interpreted as the effect of the ethnicities, assuming the spousal age gap is zero years; in Indian and Pakistani households with an age gap there is therefore still a highly significant impact. They are respectively 5.5% and 8.4% less likely to be downwardly mobile. This appears to remain the case even with implied higher levels of integration.

The Housewife variable, when there is no spousal age gap, interestingly now shows significant results, at the 5% level. The implication is thus, in households without age gaps between spouses, there is a slight effect on the chances of being downwardly mobile: 0.8%. This indicates that, in well-integrated households, the presence of a housewife may serve to prevent downward mobility.

Regression 3 introduces the Education Gap variable, and an interaction term for this Education Gap with Housewifery.

The Education Gap variable in itself is highly significant, at the 1% level. It indicates that, at households with a Husband more educated than the Wife, holding fixed ethnicity spousal age gap and the child's characteristics, that: In households where the husband is more educated than the wife, the child is 6.9% more likely to be downwardly mobile.

The coefficient for Indian households interestingly increases in its magnitude, with the inclusion of the Education Gap. This implies that, when the wife is not less educated than their husband, Indian households are 6.4% less likely to be downwardly mobile. This is compared to 5.5% when the Education Gap was not accounted for. This greater magnitude in the impact of ethnicity, without education gaps has implications for interpretation.

While the Education Gap and the Spousal Education Gap had previously been taken as measures of integration, this result thus paints them as acting in opposite directions. The implication may thus be that, if they are representative of integration, they may represent different characteristics of integration[37]. Education gaps in particular may be taken to represent more 'regressive' parts of culture (such as with regards to attitudes towards women) and are thus more conducive to downward mobility. Spousal Age Gaps, however, may represent more 'traditionalist' parts of a lack of integration, which when combined with more 'progressive' integration may allow for the proliferation of ethnic capital[38].

The housewife variable, with the interaction term introduced, shows two findings: Households that do have a positive education gap, are 1.8% more likely to be downwardly mobile if the mother is a housewife. Households that do not have a positive education gap, are 1.25% less likely to be downwardly mobile if the mother is a housewife. The implications of this for our model of integration are thus that Housewifery may be part of a mechanism affecting mobility.

[37] Garha, N. S., & Paparusso, A. Fragmented integration and transnational networks: a case study of Indian immigration to Italy and Spain. Genus, 74(1), 12. (2018) P.6
[38] Borjas, George J. "Ethnic Capital and Intergenerational Mobility." The Quarterly journal of economics 107, no. 1 (1992): P.149

Rather than a simple proxy for integration, an interpretation may be that housewives can play a pivotal role in the preservation of social status, and thus prevent a regression to the mean, *if* the mother is equipped with the relevant cultural capital through education.

14. Limitations

It must be noted that there is the potential of selection bias affecting our findings: this is likely analogous to the effect of 'lifecycle bias'. The dataset relies on the analysis of child-parent groupings. As a result, the respective ages of the child and parent are not controlled for. As the sample draws groupings from households, these are necessarily children who live in the same house as their parents. As a result, there will be a skew in age of children to be younger, while their parents are considerably older. In the dataset, the average age of children included in the study is 22.77 years, while the average age of mothers is 50 and of fathers is 51.

This is traditionally recognised as problematic in the existing literature when measuring income; the intuition being that the earnings of the fathers will be measured later in the lifecycle, while the sons will be younger and so income will vary[39]. High life-time earners typically have faster earnings growth, as a result the early-career earnings gap between low / high lifetime earnings will likely be underestimated in analysis[40]. While the concern in the literature is thus understandable for comparisons of intergenerational income mobility, with occupational mobility this appears to be less of an issue.

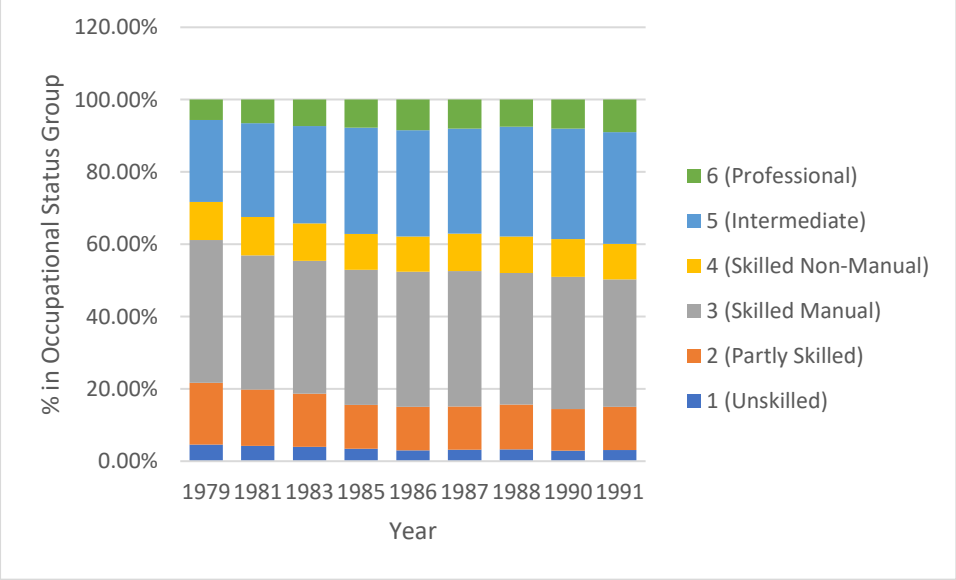
Occupations generally are not as susceptible to this given the occupational groupings used are broad, and account for variations in seniority while remaining within the same field of work. Occupational ranking is therefore a

[39] Nybom, Martin, and Jan Stuhler. "Heterogeneous Income Profiles and Lifecycle Bias in Intergenerational Mobility Estimation." The Journal of Human Resources 51, no. 1 (2016): P.241
[40] Nybom, Martin, and Jan Stuhler. "Heterogeneous Income Profiles and Lifecycle Bias in Intergenerational Mobility Estimation." The Journal of Human Resources 51, no. 1 (2016): P.240

direct consequence of over-arching career choices. Lifecycle is likely to affect this, with older generations more likely to be settled in their career, while younger generations may still be attempting to enter their long-term career path or may in future change their career. Whether the younger generation is yet to enter their desired career, or may in the long-term switch career paths, both imply a chance of 'upward' movement within the occupational status-rankings, and so this implies the effect of the selection bias here is a negative one[41]. Our findings likely underestimate the long-term occupational social class of children.

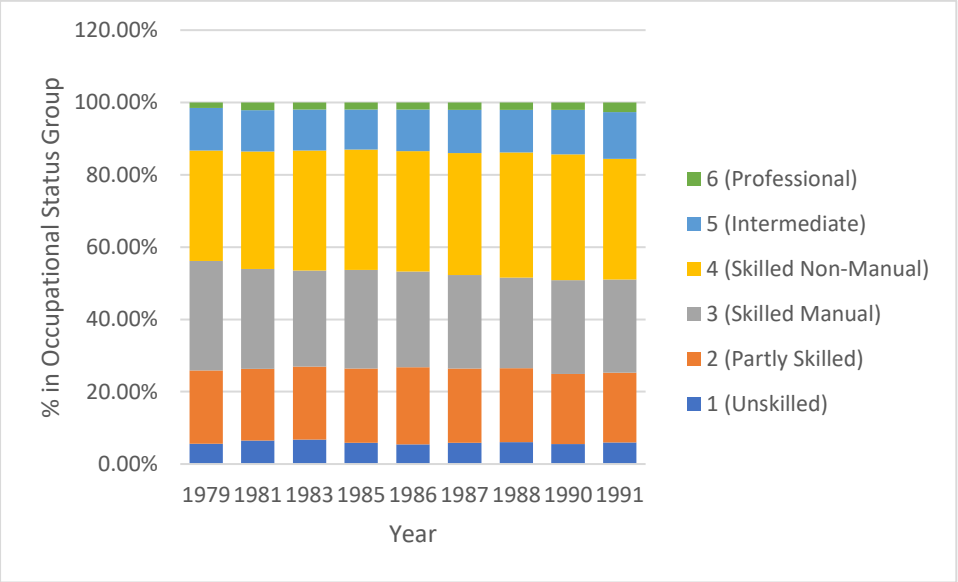
The implication of this is therefore that we may have inflated figures for downward mobility, and that intergenerational downward mobility rates may therefore be lower than appears. Further, upward mobility rate as a whole may be underestimated.

Figure 13: Distribution of the Social Class of the Father, over time (1979-1991)



[41] Ibid. P.261

Figure 14: Distribution of the Social Class of the Child, over time (1979-1991)



Observation of the distribution of social class between the datasets, for children (Figure 14) and for fathers (Figure 13) certainly displays a reason to view over-estimation of downward mobility and under-estimation of upward mobility to be likely. Around 13-16% fit of children fit into the 'Intermediate' and 'Professional' occupations, compared to 28-40% of adults. The effect of lifecycle bias certainly appears pronounced. In light of this, however, it is important to note that while this is likely to affect overall intergenerational mobility figures, implications for the causes of disparity between ethnicities are less obvious. For example, the 0.49 intergenerational occupational correlation between Bangladeshi father-child pairs, compared to 0.14 for White father-child pairs theoretically remains unexplained. An underestimation of mobility should affect both indiscriminately, and yet these differences remain.

15. Conclusion

This paper provides insights into the differences in intergenerational mobility rates for different ethnic groups in the UK, through study of the LFS. The main findings are as follows:

Ethnic groups are found to differ in their respective levels of intergenerational mobility. For African, Bangladeshi, Indian, Pakistani, and White ethnicities, there are widely ranging statistically significant rates of correlation, from the low-correlation (and subsequently mobile) 0.14 coefficient for the White ethnicity, compared to the high-correlation (and immobile) 0.49 at highest for Bangladeshis.

In investigating the causal mechanism behind this, controls for characteristics which differed between ethnicities were introduced. Through investigation of the dataset, these differences between the groups were found to be in education, the pattern of distribution of occupational social class, spousal educational and age gaps. These spousal gap measures were taken as indicators of a lack of integration by the groups into wider society, representing potential cultural attitudes towards the role of women, and societal standards from the home nation of migrants. These were seen to be most significant in Pakistani and Bangladeshi households.

Regression analysis was used, aiming to ascertain the causal relationship between these factors, ethnicity, and intergenerational mobility. Findings differed with respect to downward mobility and upward mobility.

For upward mobility, the results initially suggested an association of the Pakistani and Bangladeshi ethnicities against upward mobility. With the inclusion of the spousal age gap, however, this association disappeared in significance. Our interpretation posits that the initial regression thus captured the impact of the spousal age gap on upward mobility, through its correlation with the Pakistani and Bangladeshi ethnicities. The findings suggested that the smaller the difference between husband and wife's age, the greater the chances of upward mobility. Bengali and Pakistani households with no spousal age gap thus saw no such association against Upward Mobility. Integration thus appeared at the centre of our model, serving as the main determinant of the relationship between ethnicities and (upward) intergenerational Mobility. This

represents a labour market disadvantage to unintegrated migrant families, even controlling for levels of education and implied levels of human capital. As a result, this suggests a source of inefficiency.

With downward mobility, findings corroborated and developed this interpretation further. Pakistani and Indian households were found to be negatively associated with downward mobility. Again, with the introduction of the spousal age gap, there was a significant association against mobility. Interestingly however, the association of the aforementioned ethnicities against downward mobility remained. For Indian and Pakistani households in intermediate and professional occupations, there appeared to be sufficient evidence to suggest that these households were notably associated with a lack of downward mobility. They displayed an advantage in retaining their higher status between generations. The implication of this is therefore that integration does not fully explain the association of the ethnicity. I would theorise that this may in fact corroborate Gregory Clark's notions of the heritability of high-ability- it may be that professional migrants are those of higher ability, and thus pass this on to their children[42]. However, the association with only these two ethnicities as outliers, remains unexplained and is certainly grounds for future research.

In all, this paper hopes to have furthered the study of intergenerational mobility for ethnic minorities in the UK by contributing to an investigation of possible causes behind ethnic disparities. The role of integration appears to be significant in preventing mobility in both directions. With upward mobility, it appears to entirely explain ethnic rigidity against mobility, while this is less-so the case with downward mobility, which appears to have other unknown factors of greater importance. For policymakers aiming to have an inclusive, and thus more efficient labour market, this can imply a need to lessen the disadvantage

[42] Clark, Gregory, Neil Cummins, Yu Hao, Daniel Diaz Vidal, Tatsuya Ishii, Zach Landes, Daniel Marcin, et al. The Son Also Rises: Surnames and the History of Social Mobility. Princeton, New Jersey: Princeton University Press, 2014 P.15

which comes with being an unintegrated migrant and to increase rates of integration by migrants.

Appendix

Appendix 1: T-test output table of Education Gap prevalence by Ethnicity

	obs1	obs2	Mean 1	Mean 2	dif	St Err	t value	p value
Education Gap by White:	47829	358417	-0.135	-.118	-.017	.007	-2.15	.034
Education Gap by West-Indian / Guyanese:	403779	2467	-0.120	-.18	.06	.032	1.9	.06
Education Gap by Indian:	401889	4357	-0.126	.408	-.533	.024	-22.1	0
Education Gap by Pakistani:	404327	1919	-0.123	.618	-.741	.036	-20.45	0
Education Gap by Bangladeshi:	405818	428	-0.121	.818	-.939	.076	-12.25	0
Education Gap by Chinese:	405618	628	-0.120	.11	-.23	.064	-3.65	.001
Education Gap by African:	405890	356	-0.120	.284	-.404	.084	-4.8	0
Education Gap by Arab:	406144	102	-0.120	.676	-.796	.157	-5.1	0
Education Gap by Mixed / Other	397982	1319	-0.118	-.084	-.033	.044	-.75	.447

Appendix 2: T-test output table of Housewife prevalence by Ethnicity

	obs1	obs2	Mean 1	Mean 2	dif	St Err	t value	p value
Housewife by White:	58613	383885	0.521	.376	.146	.002	67.6	0
Housewife by West-Indian / Guyanese	439691	2807	0.396	.365	.03	.009	3.3	.001
Housewife by Indian:	437304	5194	0.393	.553	-.16	.007	-23.4	0
Housewife by Pakistani:	437370	5128	0.392	.706	-.314	.007	-45.85	0
Housewife by Bangladeshi:	441303	1195	0.394	.753	-.358	.014	-25.3	0
Housewife by Chinese:	441763	735	0.395	.583	-.188	.018	-10.4	0
Housewife by African:	441782	716	0.395	.454	-.059	.018	-3.2	.002
Housewife by Arab:	442132	366	0.395	.552	-.157	.026	-6.15	0
Housewife by Mixed/Other:	429670	1831	0.389	.514	-.125	.011	-10.95	0

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