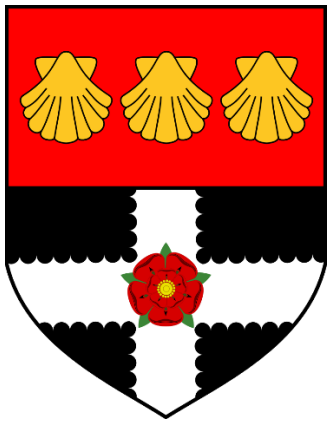
Essays on economic inequalities, gender and ethnicity: White, Indian, Pakistani, and Bangladeshi ethnic groups

Anisa Butt

A thesis presented for the degree of Doctor of Philosophy



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Abstract

This thesis comprises of four empirical chapters which present an exploration of economic inequalities among men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. Most ethnic minority groups on average have lower income than Whites, but there are also large differences in income within groups. The first empirical chapter investigates the extent to which total inequality is a consequence of income differences between and within population subgroups stratified by ethnicity and gender, more specifically whether total income inequality in the UK is explained more by income differences between ethnic groups, or a result of income differences within each ethnic group, taking gender into consideration. Following Shorrocks (1984), generalised entropy measures of income inequality are decomposed - first by ethnic group, second by ethnic group and gender - into two components: inequality between and within subgroup populations. Using UKHLS data from 2009-2010 for the UK, this chapter demonstrates that within-group income inequality, rather than between-group income inequality, is the main contributor to overall income inequality. The between-group inequality component for subgroup population decomposition by both ethnicity and gender accounts only for a very small part of the overall inequality. Income inequality among White, Indian, and Pakistani men are larger than income inequality for women in the same ethnic groups, whilst the opposite is true for the Bangladeshi ethnic group.

In the second empirical chapter we employ regression-based decomposition techniques to explore the factors that contribute to explaining UK inequality among men and women within the Indian, Pakistani, Bangladeshi ethnic groups, alongside the White majority, all of which we found in the previous analysis to be characterised by large income inequality . Following Fields (2003), we measure the relative contributions of a set of factors to inequality in individual incomes using UKHLS data for 2009-2010. The explanatory variables are introduced in an income generating model and factor inequality weights are estimated to quantify the contribution of variables (education, employment status, unemployment, children,

marital status, household size, housing tenure, region) to total income inequality. These variables account for between 34% and 53% of income inequality across our groups. The results suggest that the most relevant factors in explaining the observed inequality are employment status, education, number of dependent children and age; moreover, all factors are found to have an inequality-increasing effect for men and women across all ethnic groups.

The remaining empirical chapters move away from decomposition analysis of income inequality to explore economic inequalities among couples. More specifically, the third empirical chapter considers gender inequalities in the division of housework among White and ethnic minority couples., always using UKHLS data for 2012-2013. We consider three main theoretical approaches: time availability, resource bargaining and gender identity, each theory describing a different mechanism through which the household divides housework. We find that resource bargaining theory is a consistent predictor of female share of housework among ethnic groups. We also find evidence of differences in the way the theories apply to the experiences of White and ethnic minority couples; the magnitude and significance of theories is different across couples in each ethnic group. Using a gender attitude score as a proxy for gender roles theory, we find that gender roles theory reflects the experience of White couples, where male gender attitudes have a larger effect on the division of housework compared to female gender attitudes. Importantly, we also identify differences in the significance of theories: whilst the gender role theory reflects the experiences of the Indian group, it does not reflect the experiences of Pakistani and Bangladeshi couples; similarly, time availability theory reflects the experiences of Pakistani couples but not that of Indian and Bangladeshi couples.

The final empirical chapter aims to assess the gender-ethnicity inequality in financial decision making within the couple, again among the White, Indian, Pakistani, and Bangladeshi groups in the UK and using UKHLS data for 2012-2013. We find that ethnic minority women are less likely to take control of financial decision-making responsibility compared to White women, whilst ethnic minority men are more likely to take control of financial decision making compared to White men. Resource bargaining theory is found to be an important predictor of how White, Indian, and Pakistani ethnic groups share financial decision-making responsibility. Relative earnings are used as proxy to measure how financial decision-making responsibility is allocated as the wife's earnings increase relative to her husbands. Higher female earnings relative to their husband increases the likelihood of the wife making main financial decisions and reduces the likelihood of the husband making main financial decisions for White and Indian couples. The effect of gender roles is consistent among White and Indian couples in

determining financial decision-making, although gender roles theory appears to have a greater implication for Indian than for white couples for financial decision-making. Our theoretical proxies explain the least variation in financial decision-making for Bangladeshi couples, although the small sample size of the Bangladeshi couples is a likely contributor.

Declaration

I confirm that this is my own work and the use of all materials from other sources has been properly and fully acknowledged.

Anisa Butt

Acknowledgements

I thank my academic supervisors, Giovanni Razzu, Sarah Jewell and Simonetta Longhi for their support, advice, and encouragement throughout my PhD study. I also thank academic staff, colleagues, fellow PhD friends at the university of Reading, and my family, who have advised and supported me throughout this journey.

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Chapter 1 Introduction

How ethnic minority men and women fare in comparison to the White majority in the UK is an important question in the economic inequality literature. There are three relevant and related strands in the literature: one on economic inequalities by gender; one on economic inequality among ethnic minority groups and White British[1]; one on the intersectionality of gender and ethnicity.

Economic inequalities between men and women are well documented: women have lower levels of labour market participation and employment opportunities, generally earn less than men, are often underrepresented in senior positions and overrepresented in low paying jobs, and have limited influence over important household decisions, including how their personal income is spent (Ortiz-Ospina and Roser, 2019; Dale, 2008).

Economic inequalities among ethnic minority groups are as important as those based on gender and, although they have been explored less in comparison, over the last decade, they have received increased attention. There is considerable variation in the socioeconomic status, cultural backgrounds, and historical experiences among White and minority ethnic groups in the UK. For instance, significant income inequalities exist across ethnic groups in the UK (Francis-Devine, 2020); most ethnic minority groups have, on average, lower income than Whites (Barnard & Turner, 2011; Platt, 2011), but there are also differences among ethnic minority groups. For example, Pakistani and Bangladeshi men and women have the lowest income in the UK, whilst Indian men and women have one of the highest incomes, despite all migrating from South Asia at similar times (Francis-Devine, 2020).[2] Policies often focus on between group inequalities, such as the gender pay gap, therefore placing strong emphasis on average differences. However, there are also large differences in income within ethnic groups, particularly by gender (Brewer and Wren-Lewis, 2016; Platt, 2011; Nandi and Platt, 2010).

When ethnicity and gender are intersected, the economic differences among White and ethnic minority men and women may be amplified (Mitchell, Marie and Steele, 2019; Calasanti & Giles, 2018; Dale, 2008; Crenshaw, 1989). Research on the intersectionality of ethnicity and gender is important as it provides further insights into the inequalities experienced by ethnic

[1] Henceforth we refer to the 'White British' group as 'White' group.
[2] Although it would be interesting to split my sample by immigration status, I do not have a large enough sample size for reliable analysis.

minority men and women, which are often lost when ethnicity and gender inequalities are considered independently. The literature on wage gaps and intersectionality between gender and ethnicity points out to three key findings: ethnic minority men are disadvantaged when compared to White men; ethnic inequalities are lower among women than among men; there is no major difference between White women and ethnic minority women (Longhi & Brynin, 2017; Longhi and Platt, 2008), although ethnic minority women have lower labour market participation than White women and men (Dale, 2008). These findings are important since they confirm that economic inequalities are amplified when individuals face multiple disadvantages such as those based on ethnicity and gender. The existence of intersectional inequalities in these literatures motivate an exploration of gender and ethnicity in areas such as income. Whilst an important literature has pointed towards these income differences (Hills, 2010; Nandi and Platt, 2010) the explanations behind these differences, specifically when ethnicity and gender are interacted, are less explored.

It is within this context that chapter 3 and chapter 4 in this thesis are situated. Both chapters make use of data from The UK Household Longitudinal Study (UKHLS) from 2009-2010. Chapter 3 in this thesis uses the data to address the following question: is total income[3] inequality in the UK explained by income differences between ethnic groups, or a result of income differences within each ethnic group, taking gender into consideration? We explore this question to assess the extent to which income inequality (as a strong proxy for economic inequality) results from either within or between group inequality among ethnic and gender groups. We address the question by employing a population subgroup decomposition by ethnicity and gender following Shorrocks (1984) and using UKHLS data for 2009-2010. To our knowledge, this analysis has not been conducted using the data for the mentioned time-period and provides a useful comparison to Nandi and Platt (2011) who use UK household income data from Family Resources Survey (FRS) and the Household Below Average Income (HBAI) data for the period 2003/04 and 2007/08.

We begin our analysis with seven ethnic groups and find that total income inequality is, indeed, largely explained by within group variations in income within each ethnic-gender group, which is consistent with the findings in Nandi and Platt (2010). Our Analysis in this chapter highlights South Asian groups (Indian, Pakistani, and Bangladeshi ethnic groups) to be the most

[3] Individual-level income comprised of Labour, miscellaneous, private, investment, pension, and social benefit income.

disadvantaged compared to other ethnic groups, whether this be due to higher levels of income inequality or lower average incomes. On this basis, the analysis in the successive chapters focus on Indian, Pakistani, and Bangladeshi ethnic groups, the White British group being used as a comparison. This is evidence to further explore inequalities within the ethnic groups and the intersection between gender and ethnicity, since it is important to understand what drives the larger income inequalities in these groups. For example, what explains the gap between high-income and low-income women, and do drivers of inequality vary across ethnic groups, for men and women?

Chapter 4 also uses these ethnicity and gender data to study the income inequality observed within the four ethnic groups: White, Indian, Pakistani, and Bangladeshi ethnic groups. Income inequality is a concern of policy makers, and the negative effects of income inequality has been documented well in the literature. For example, large income inequalities can lead to social unrest or hinder economic growth (see Barro, 2000). However, understanding the factors components of income inequality within ethnic minority groups is somewhat less developed, particularly at the intersection of gender and ethnicity; unlike the large literature looking at wage decomposition, this chapter focuses on income, which encompasses income from social benefits, pensions, miscellaneous income, investment and private income, as well as earnings, therefore presenting a thorough picture of disposable income. Employing regression-based decomposition techniques, following Fields (2003), on the same data as in Chapter 3, we supplement the population subgroup decomposition results.[4] We focus on understanding the extent to which some key demographic and labour market factors, such as employment status, age and educational achievement, can explain the income inequality of the White and South Asian ethnic groups. More specifically, informed by the existing literature, in chapter 4 we consider the extent to which income variations within each group can be explained by educational and employment differences as well as other socio-economic factors, and whether these factors vary by ethnicity and by gender. We find that employment, age, dependent children, and education factors are significant drivers of income inequality within each ethnic group, although these determinants influence each group to a varied degree. For example, educational differences account for a higher proportion of income inequality for Pakistani men, and the least for Bangladeshi and Pakistani women. Moreover, for men and women in the White, Indian, Pakistani and Bangladeshi ethnic groups, we find that the variables we control

[4] See Cowell and Fiorio (2009) for a helpful discussion on how the various decomposition methods complement each other.

for account for between 34 to 53 percent of income inequality across our groups, while almost half of total income inequality across all groups remains unexplained.

As well as considering inequalities outside the home, an important literature suggests that inequalities within the home are still as persistent as they have been (Lyonette and Crompton, 2014; Cineli, 2022)despite substantial progress in various labour market outcomes. Both White and ethnic minority women have achieved higher employment over the last decades, the pay gap between men and women has decreased and women are now more educated and financially independent than they ever have been. However, substantial gaps remain and may be particularly pronounced among ethnic minority groups, where traditional "male" and "female" roles are often followed (Dale, 2008). For example, although the Pakistani ethnic group experienced one of the largest increase in educational attainment (degree level qualification) between 1991 and 2011, second to Indian ethnic group, Pakistani women still have the lowest labour market participation, and a substantial proportion of their income is comprised of social benefits compared to White and Indian women (Dale, 2008). As such, an important literature looks at inequalities within the home (Kan and Laurie, 2016), for two important reasons, one intrinsic and one instrumental. In the latter, household inequalities can have wider implications on economic inequalities outside the home, in paid labour market outcomes, as sees above. However, household inequalities are also intrinsically important regardless of the impact they may have on the labour market outcomes because they may affect individual autonomy and agency. An important area of the literature on inequalities within the home has focused on the division of housework, and the theories which describe how the division of housework is established among couples. Three main theories have been most prominent in the literature: time availability theory, resource bargaining theory and gender roles theory. With the exception of Kan and Laurie (2016), most of these have been applied to gender rather than ethnicity.

Another important area of the literature on inequalities within the home focuses on bargaining power and control of financial assets. Again, this literature has devoted much less attention to the experience of ethnic minority groups. It has highlighted the role of resource theory in determining financial decision-making within the household, specifically the fact that the individual with the higher earnings is more likely to make financial decisions within the household. (Dema-Moreno, 2009). The literature shows that Pakistani and Bangladeshi women are among those with the lowest labour market participation, earnings, and income: to what extent are these disadvantages are related to financial decision-making within the home?

The last two analytical chapters in this thesis discuss inequalities within the couples, more specifically inequalities in the division of housework and in financial decision-making responsibility, both key indicators of female bargaining power and equality within couples, (Fuwa, 2004; Guvuriro and Booysen, 2019) and, as such, important to understand intra-household dynamics and gender relations in society. Both chapters make use of data on ethnicity and gender role attitudes from The UK Household Longitudinal Study (UKHLS), 2012-2013. Although theories of both division of housework and financial decision making are well established in the literature, few studies explore these theories in the context of the intersection of ethnicity and gender (Kolpashnikova & Kan, 2020; Kan and Laurie, 2018), therefore the consistency of these mechanisms across different ethnic groups are unexplored. Chapter 5 focuses on the division of housework, through the lens of the three theoretical approaches of time availability, resource bargaining and gender roles. [5] Much of the application of these theories has been limited to the White majority with some exceptions (Kan and Laurie, 2016). Our focus on gender and ethnicity means that we can provide further insight into the woman's influence over important household decisions across White and ethnic minority groups, than what the current literature presents. We find that ethnic minority women do a larger share of housework than White women and minority men; we find the three theories are well adapt to reflecting the division of housework, particularly the experience of the majority White group. However, they reflect the the division of housework among ethnic minority groups in different degrees: resource bargaining theory reflects the division of housework among all couples, whilst gender roles theory reflects the experiences of the White and Indian group only, but not that of Pakistani and Bangladeshi groups.

The final chapter considers how financial decision-making responsibility is determined among couples across ethnic groups; we reflect on two main theories in this literature, resource bargaining and gender theories. Financial decision-making is an important indicator of how women fare in the couple (Guvuriro and Booysen, 2019). This analysis expands the picture from the previous chapter on the different roles women assume within the household. Where main financial decision-making responsibility is either shared, made by the wife or made by the husband, the analysis finds that White women have more control over financial decision-making than ethnic minority women, while ethnic minority men have greater financial control

[5] In the literature this theory is also referred to as "doing gender" (Kan and Laurie, 2016). We refer to this theory as gender roles theory throughout this thesis.

than White men.[6] Relative earnings are found to be an important predictor of how White, Indian, and Pakistani couples determine financial decision-making, whilst traditional gender roles are only applicable to White and Indian couples.

Based on the literature and empirical studies discussed, this thesis has therefore explored how ethnic minority men and women fare in comparison to the White majority, in terms of economic inequalities, specifically inequalities in income, the division of housework and financial decision-making. This thesis is framed as a collection of four empirical chapters on economic inequalities faced by ethnic minority groups, namely White, Indian, Pakistani and Bangladeshi ethnic groups. There are some elements that bring the analyses together and some others that distinguishes them. The first two analytical chapters share a common set of methodological approaches characterised by inequality decompositions. These allow us to shed light on two key issues: first, the extent to which inequalities between groups are as important as those within groups, and this by ethnicity and gender; second, the extent to which various factors, that we expect to affect inequality, do actually explain it. These two analyses offer an important view at an aggregate level, by showing whether inequality between men and women in some ethnic minority groups is more or less pronounced than inequality within the gender and the ethnic groups, or whether education, or labour market status, or age, explain more or less of that inequality. Therefore, they can take us only so far in explaining economic inequalities by gender and ethnicity. That is why the other two analyses zoom into the household and specifically look at the division of household work and the extent to which financial decision making within the household in unequal. Given the shift to a within-household focus, established theoretical approaches, such as time availability, bargaining and gender roles, offer an important support and add a theoretical dimension that is not present in the first two analyses. As it has become already evident, although obviously methodologically distinct, all the analyses share a common dataset. The UKHLS. This dataset has important strengths for the analyses in this thesis. It includes an ethnic minority boost, which means that the sample allows analysis of small populations and minority groups. Moreover, the data include questions on housework, decision-making responsibility and gender attitudes, which are useful for our analysis in chapter 5 and chapter 6. Given its role across the four analytical chapters, chapter 2 in the thesis is dedicated to a more detailed discussion of this common dataset, with more detailed information, including some descriptive statistics that also help to further motivate the

[6] In chapter 5 and chapter 6 our couple are married to individuals of the same ethnicity. More information is provided in section 5.4 Data.

study in the context of ethnicity and gender, and the focus on South Asian ethnic groups. They indeed show again that economic and social differences among ethnic groups in the UK exist. The story begins with seven ethnic groups: White, Indian, Pakistani, Bangladeshi, Black, Asian and Other ethnic group in chapter 2, our analysis in chapter 3 justifies the narrowing of these ethnic groups to White, Indian, Pakistani and Bangladeshi ethnic groups for the remainder of the thesis. The data chapter is followed by four empirical chapters on economic inequalities among White, Indian, Pakistani, and Bangladeshi ethnic groups which we have introduced earlier on. The last chapter draws the main conclusions from each empirical chapter, pointing out the policy implications that emerge from them and areas for further research.

Chapter 2 Data

We use data from Understanding Society: The UK Household Longitudinal Study (UKHLS). UKHLS is a longitudinal sample of households representing the UK population. The UKHLS interviews all members of selected households on a range of social, economic and behavioural factors, such as income, earnings, current employment, education, gender attitudes and household size. Each member of the sample is re-interviewed in subsequent years; the study aims to follow participants over a long period of time to offer a long-term perspective on participants lives. The survey started in 2009, and to date reports 10 waves of adult response data from 2009-2019. The survey follows participants interviewed in the first wave, and their descendants. The UKHLS data is useful for our analysis for several reasons. The sample includes information at individual level but also for partners/spouses, which allows for both analysis of inequalities at the individual level (as in chapter 3 and 4) and couple-level analysis (as in chapter 5 and chapter 6). Furthermore, the sample allows analysis of small populations and minority groups, due to the inclusion of the ethnic minority boost, which supplements the main sample. The main sample consists of 28,000 UK households and provides data for the UK population and for the white majority, against which ethnic minority experiences can be compared. In addition to the main sample, approximately 4,000 households are included from the boosted ethnic minority sample. The ethnic minority boost oversamples from selected five key minority groups: Indians, Pakistanis, Bangladeshis, Caribbeans and Africans. The selection depends on the head of the household and most of this oversample comes from selected high minority density. The Ethnic Minority Boost sample is restricted to 3145 postcode sectors where the ethnic minority concentration was greater than 5%. This accounts for approximately 35% of all postcode sectors in Great Britain. Some types of households and individuals are more likely to be included in the sample than others due to design or non-response attrition after wave 1.

We use the first wave (2009-2010) to avoid attrition in analytical chapters 3 and 4, and wave 9 (2017-2018) as a robustness check in appendices[7]. We make use of wave 4 (2012-13), which includes questions on housework, decision-making responsibility and gender attitudes for analysis in chapter 5, and in chapter 6. Gender role questions are asked in wave 2 and 4; we make use of the most recent wave.

[7] At the time of analysis wave 9 was the most up to date wave released by the UKHLS.

Analysis including the ethnic minority boost sample requires the use of weights to compensate for the selection process and reflect the population. Due to survey design, some individuals are more likely to be drawn into the sample with a higher probability compared to others, some groups are over-represented, whist other groups are under-represented since they are less likely to respond and partake in the survey. The ethnic minority boost oversamples ethnic minorities to allow for meaningful analysis, as such unweighted analysis will be biased, or overestimate effects in certain minority population samples. As such weights are used to correct for the unequal selection probability, non-responses in the first wave and attrition in subsequent waves (Kaminska and Lynn, 2019). We use cross-sectional adult main interview weight for data in wave 1[8].

Originally, the ethnicity variable in the UKHLS data is categorised into 18 ethnic groups. For the purposes of this study we focus on key minority groups boosted by the sample, combining ethnic groups with smallest samples together. Although additional samples are included for Caribbean and African ethnic groups in the ethnic minority boost sample, we combine both ethnic groups into one group. We do so based on the literature on wage gaps, which suggests that differences across Caribbean and African groups are relatively small compared to the differences between Indian, Pakistani and Bangladeshi ethnic groups (Longhi & Brynin, 2017). This results in the creation of seven ethnic groups: White British, Indian, Pakistani, Bangladeshi, Asian, Black and Other. Similar groupings are made in the literature (Nandi and Platt, 2010). The White category includes those of British, English/Scottish/Welsh/Northern Irish ethnicity. Asian include Chinese and any other Asian background, Sri Lankan, far Eastern Asian. Black include Caribbean, African, any other black background. Other includes any White minorities, other White background, mixed White and Black Caribbean, mixed White and Black African, mixed White and Asian, any other mixed background, Arab and any other ethnic group. Minority White groups are included in the other group. The justification being that trends in inequality, incomes and experiences observed in the minority white groups are unlike those of the White group (ONS, 2015). It therefore makes little sense to combine these

[8] The correct wave is chosen based on various characteristics: the sample year/wave, age sample of individuals, e.g. 16+ adults, whether questions are from questions in the main questionnaire or supplemented questionnaires, e.g. here we uses questions from the main sample and ethnic minority boost. We use cross-sectional adult main interview weight (a_indinus_xw) dor wave 1 2009-2010. For wave 9 we use cross-sectional adult main interview weight (i_indinub_xw). Wave 2 onwards “us” changes to “ub” to include BHPS, the general population sample and ethnic minority boost.

sample groups. White, Indian, Pakistani and Bangladeshi are the only ethnic subgroups which are not grouped alongside other ethnic groups since the ethnic minority boost provides sufficient sample size for analysis of these ethnic groups separately. These are our groups of interest.

Table 2.1 reports the number of men and women in each ethnic group for our sample from 2009-2010 according to the groupings in our study. The sample of Asian, Black and Other group are larger than the Indian, Pakistani and Bangladeshi samples, since these ethnic groups are grouped to include participants from relevant minority groups.

Table 2.1 Ethnic groups, number of men and women: 2009-2010

Ethnic group	Total	Male	Female
White	29,094	12,789	16,305
Indian	1,821	932	889
Pakistani	1,460	691	769
Bangladeshi	1,139	577	562
Asian	943	435	508
Black	2,522	1,026	1,496
Other	3,396	1,472	1,924
Total	40,375	17,922	22,453

Source: UKLHS, Wave 1, 2009-2010.

Notes: Data reported in table 2.1 are unweighted

Although the survey provides ten years of annual data, we do not exploit the panel element of the dataset. This is because the methods implemented in the analytical chapters are for cross-section data. Furthermore, retention of all participants is not possible throughout all waves. This is particularly true for the ethnic minority boost sample (Fisher, Fumagalli, Buck and Avram, 2019). This is due to participants inability or unwillingness to respond, therefore, attrition in the ethnic minority sample results in small sample sizes among our minority groups, particularly in the later waves. [9] Instead we exploit the cross-sectional element of the data. We carry out analysis for our ethnic groups from 2017-2018 in appendices, from the smaller ethnic minority samples in wave 9 as robustness check in chapters 3 and 4.

We are interested in exploring inequalities in income among men and women in our ethnic groups, rather than alternative economic inequalities such as wage inequalities, or wealth

[9] We check samples sizes of ethnic minority groups in each wave. See Table 2A.1 for number of men and women in each ethnic group from 2017-2018 (wave 9)

inequalities. [10] A vast literature expanding from human capital theory have sought to understand which factors influence wage differentials (Blinder, 1973; Oaxaca, 1973). Wage differentials among ethnic and gender groups have gained a considerable amount of attention in the labour economics literature, particularly in the US (Cain, 1986), while income differentials within these groups have received comparatively less attention. This work argues that exploration of income presents a more complete picture of UK inequality, as it enables the inclusion of various income components (such as benefit income, investment income etc) which are excluded when performing analysis on wage data. These income components are very important when exploring the sources of inequality for ethnic minority and gender groups.

Income encompasses various components including wages, benefits and other income sources, which are all informative. This may be particularly relevant in revealing important information for ethnic minority women. An important literature documents the economic inactivity of Pakistani and Bangladeshi women (Ahmed and Dale, 2008), as such exploration of wage inequalities may fail to include an important segment of minority women in discussions of inequalities among ethnic minority groups. The UKHLS collects personal income information for all individuals aged 16 or above. This sample is asked to report information on wages, self-employment earnings, second job earnings, interest and dividends, pensions, benefits, rent from properties, among other income sources. Personal income details are summed to obtain total personal income- net of tax, which is the variable used for analyses in chapter 3 and chapter 4. We use individual-level income data since we are interested in exploring income inequalities for men and women within each ethnic group, use of household income data would restrict our analysis to head of the household, which may have important implication for our analysis, particularly for ethnic minority groups where the head of the household is more likely to be a man (UKHLS 2009-2010). The six income classifications are defined in Table 2B.1 in Appendix 2B[11]. The experiences of economic inequalities among ethnic minority men and women are an important and relevant discussion to be had in understanding income inequality.

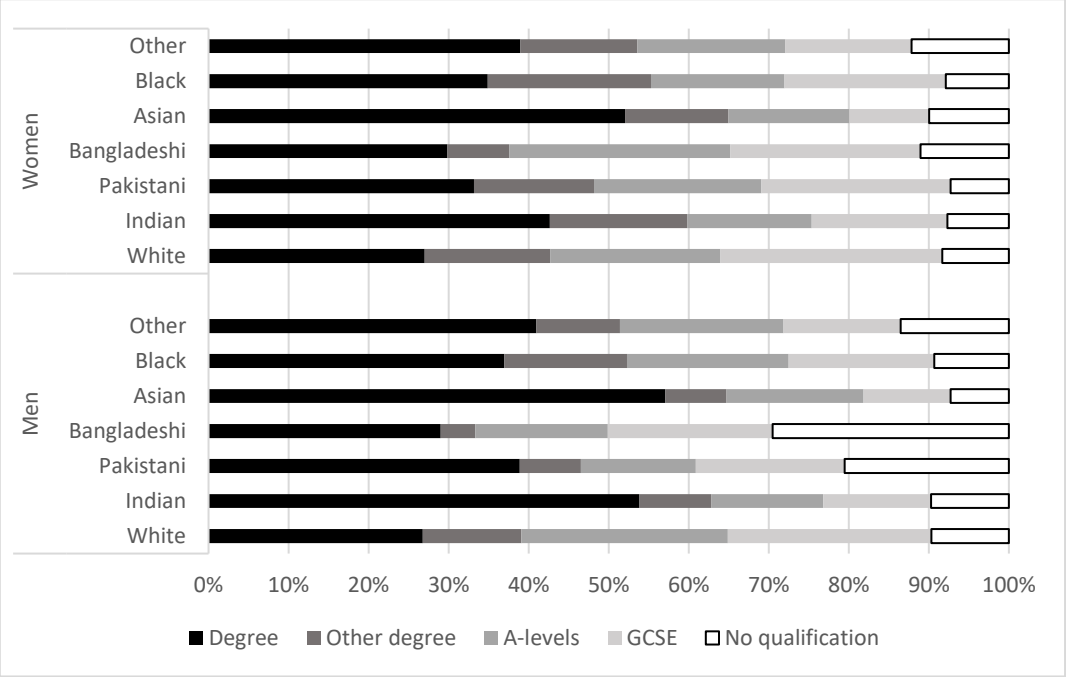
The Figures below reports descriptive information on White and ethnic minorities women and men as resulting from the UKLHS 2009-10 wave data we use in our analysis in chapters 3 and

[10] We discuss in more detail the justification of exploring income inequalities in chapter 4, Appendix 4.C.

[11] See figure 2B.1 for the income composition of ethnic minority men and women's income, as a proportion of total income.

4. We look at background information on education, employment, age, marital status, and dependent children.

Figure 2.1 Men and women's educational attainment in each ethnic group

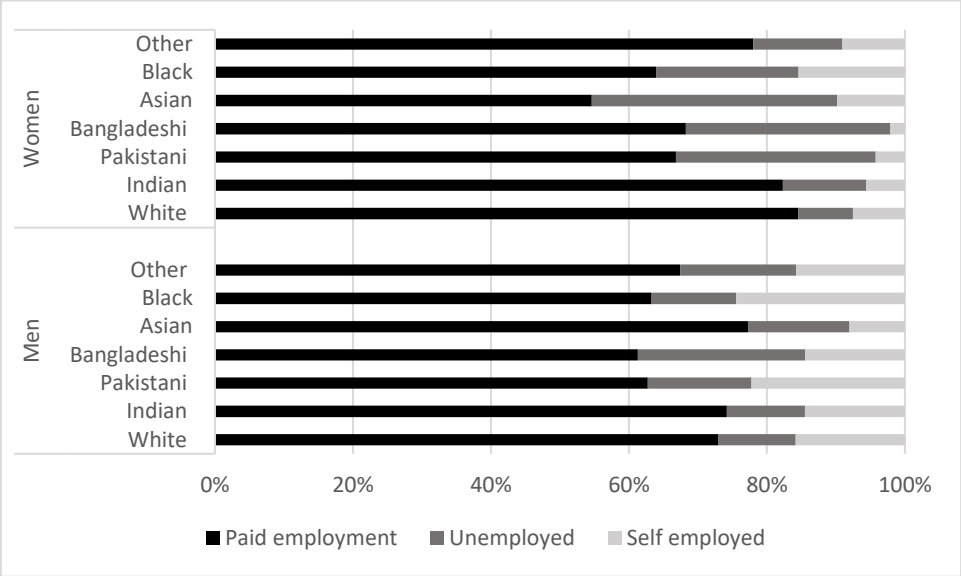


Source: UKLHS, Wave 1, 2009-2010.

Note: Figure 2.1 reports educational attainment for men and women of working age for each ethnic group. We report degree, other degree, A-levels, GCSE and no qualifications contribution.

Figure 2.1 reports educational attainment for men and women in each ethnic group. Differences in educational attainment can be important contributors to income inequality as it creates differences in labour market opportunities and amplifies economic disparities (Ferrant and Thim, 2019). A higher proportion of Asian men and women have a degree than all other ethnic groups. Among White, Indian, Pakistani, Bangladeshi and Black ethnic groups, a larger proportion of men have no qualifications than women. A higher proportion of White, Indian, and Pakistani men have a degree than women in the same ethnic group. Both Pakistani men, and Bangladeshi men and women are least likely to have a degree amongst all groups; Pakistani and Bangladeshi men are more likely to have no qualifications than all other men and women in each ethnic group; these may have important implications for income inequality in these ethnic-gender groups.

Figure 2.2 Men and women's employment status in each ethnic group

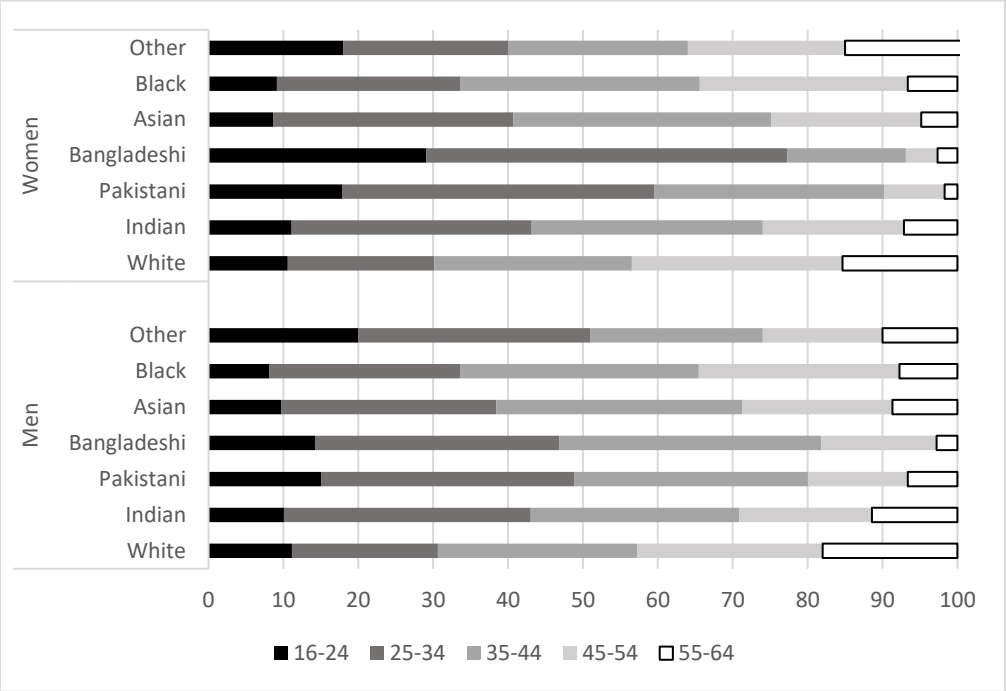


Source: UKLHS, Wave 1, 2009-2010.

Note: Figure 2.2 reports employment status of men and women of working age in each ethnic group. Unemployed include retire, full-time student, long-term sick or disabled, family-care or home responsibility and man and women out of the labour market.

Figure 2.2 indicates that a large proportion of Pakistani and Bangladeshi women are unemployed compared to women in other ethnic groups, and also to men in the same ethnic group. This may be a possible explanation for the high variation in income among women in these ethnic groups (see figure 2B.3 in Appendix 2B). Employment rates, and self-employment, are larger for all men than women in the same ethnic group. A larger proportion of White men and women are in paid employment than is the case for all other ethnic minority groups. It is well established that minority ethnic groups generally have lower rates of economic activity and higher rates of unemployment compared to white groups in the UK, Pakistani and Bangladeshi women being amongst the most inactive among ethnic minority groups (Ahmed and Dale, 2008). As the generational effect comes into play and more qualified ethnic minority individuals participate in the labour market, this is likely to widen the spread of income. Ahmed and Dale (2008) use women's qualification levels by age and whether they were born in the UK, and find that only 5% of individuals belonging to ethnic minority groups, who did not migrate to the UK until the age 16 or older, had degree level qualification, compared with 20% for women born or brought up in the UK. Such differences in educational attainment are likely to have a significant impact upon the spread of income within the minority group.

Figure 2.3 Men and women's age composition in each ethnic group

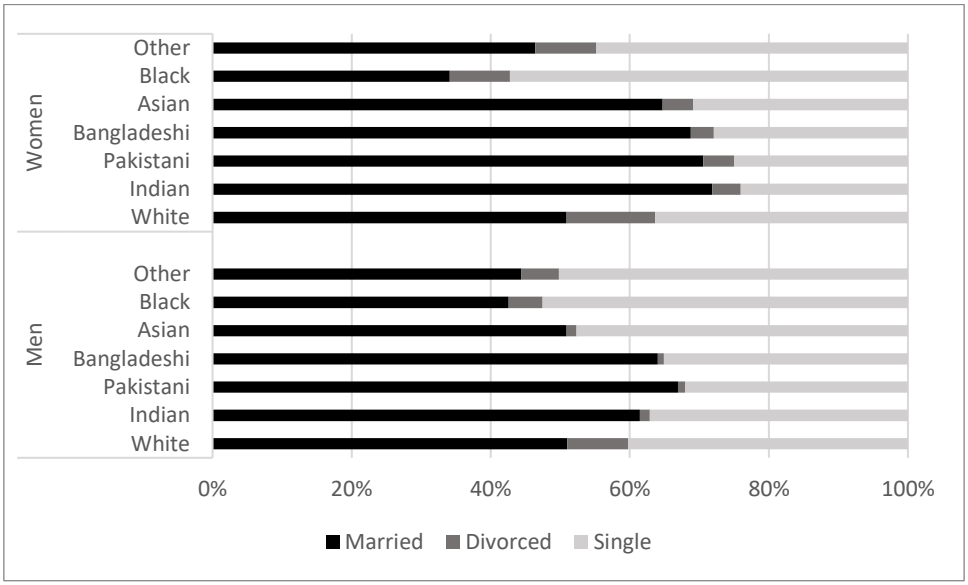


Source: UKLHS, Wave 1, 2009-2010.

Note: Figure 2.3 reports men and women of working age from 16-64.

Figure 2.3 reports the age composition of men and women in each ethnic group. The age differences among White men and women are less pronounced than for other ethnic groups; all men and women in each ethnic group report a younger demographic than the White group. Pakistani and Bangladeshi women report the smallest proportion of individuals aged 55-64 among all women and men. Since age is related to income, the differences in the composition of age of men and women in ethnic groups may lead us to difference in average incomes among men and women in White and minority ethnic groups (Nandi and Platt, 2010).

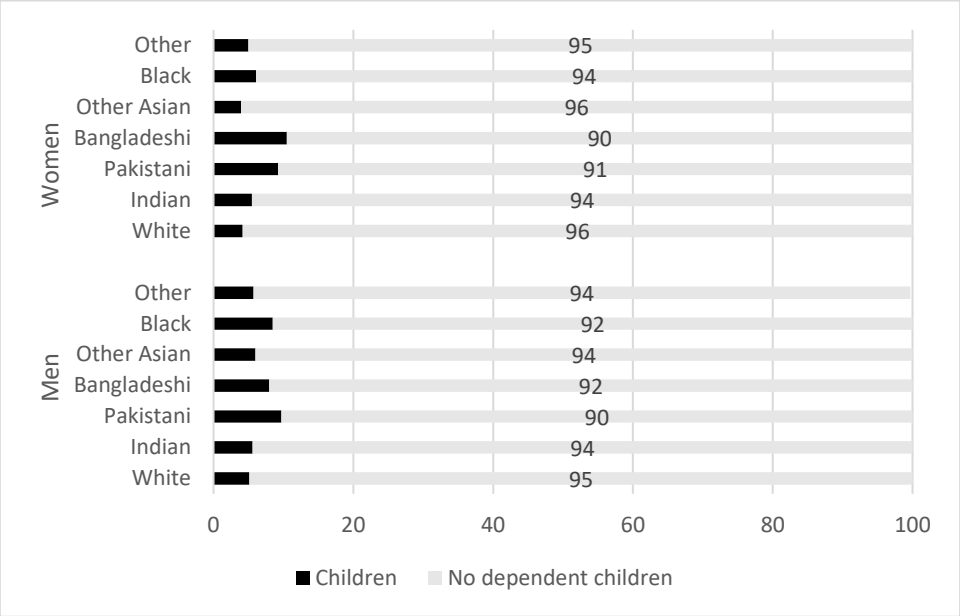
Figure 2.4 Men and women's marital status for each ethnic group



Source: UKLHS, Wave 1, 2009-2010.

Figure 2.4 reports marital status for men and women in each ethnic group. A larger proportion of our sample are married than single and divorced. The largest proportion of Indian, Pakistani and Bangladeshi men and women are married; the smallest are divorced. Generally, women are more likely to be married than men, excluding Black group. Marital status may have an important influence on income inequality as married men are found to have higher incomes than unmarried men (McDade, 2014), this is likely because men with higher incomes are more likely to be selected for marriage. Marriage may be associated with better economic outcomes for individuals since married couples are more likely to have two incomes rather than ones (Gregg et al. 2007).

Figure 2.5 Proportion of dependent children for each ethnic group



Source: UKLHS, Wave 1, 2009-2010.

Figure 2.5 reports the proportion of dependent children for men and women in each ethnic group. A higher proportion of Bangladeshi and Pakistani men and women report having dependent children than all ethnic groups; White men and women report the lowest proportion of dependent children among all ethnic groups.

Exploration of the data highlights interesting variations in educational attainment, employment status, age, marital status and dependent children among men and women in ethnic minority groups in our samples, all of which may have important influences on income inequality The data has thus far highlighted some ethnic minority groups such as Pakistani and Bangladeshi to be more disadvantaged compared to the White or other ethnic groups. We explore these, among other factors informed by the literature, in subsequent chapters. In chapter 3, we make use of income and ethnicity data to explore income inequality among White and ethnic minority men and women. In chapter 4, we utilise the broad range of individual and household variables available in the UKHLS dataset to explore the contribution of socioeconomic factors in explaining income inequality for men and women in ethnic groups. In both chapters 3 and 4 we make use of UKHLS data (2009/2010) for working age (16-64) men and women. In chapter 5, we make use of housework and gender attitude questions in wave 4, and couple-levels data to estimate differences in female share of housework. In chapter 6, we make use of financial decision-making and gender attitudes in wave 4, to explore differences in and financial decision-making among ethnic groups. In both chapters 5 and 6 we use respondent-reported

data from wave 4 of the UKHLS (2012-13), which includes questions on housework and gender attitudes. The sample includes 4,267 heterosexual married couples[12] where both partners are aged 16-64.

[12] We limit the studies to heterosexual married couples in both chapters based on the existing literature (Brickdale, 2015; Dema-Moreno, 2009; Bianchi et al., 2000; Shelton and John, 1993).

2.A Appendix

Table 2A.1 Ethnic groups, number of men and women: 2017-2018

Ethnic group	Total	Male	Female
White	19,374	8,678	10,696
Indian	1,252	595	657
Pakistani	1,295	570	725
Bangladeshi	713	310	403
Asian	434	181	253
Black	1,287	476	811
Other	2,365	1,008	1,357
Total	26,720	11,818	14,902

Source: UKLHS, Wave 9, 2017-2018

2.B Appendix

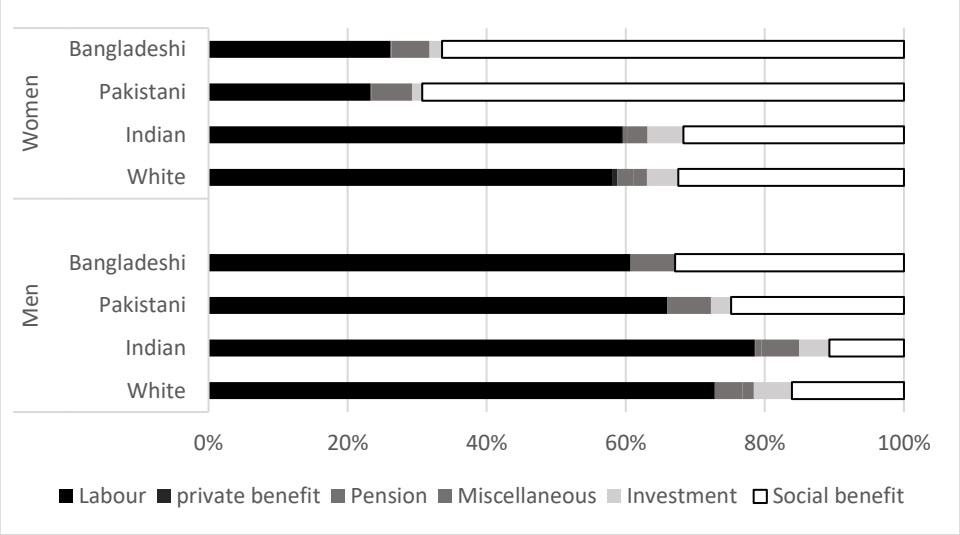
Table 2B.1 Income components

Income components	Variables includes
Labour Income	Labour income comprises of the sum of three earnings components: Net usual pay, net self-employment income; pay in second job.
Miscellaneous income	Miscellaneous income includes educational grant, trade union and friendly society payment, maintenance or alimony, payments from a family member not living together, amount for rent from boarders or lodgers, rent from any other property, any other regular payment
Private benefit	Private benefit income includes trade union/friendly society payment, maintenance or alimony, sickness and accident insurance.
Investment	Investment income includes Private pension/annuity, rent from boarders or lodgers, rent from any other property monthly income from savings and investment (annual income from savings and investment divided by 12).
Pension	Pension income includes, pension from previous employer, pension from a spouse's previous employer.

Social benefit	Social benefit income includes state retirement (old age pension), a widows or war widows pension, a widowed mother's allowance/widowed parent's allowance, pension credit (includes guarantee credit & saving credit), severe disablement allowance, industrial injury disability allowance, disability living allowance, attendance allowance, carer's allowance, war disablement pension, incapacity benefit, income support, job seeker's allowance, child benefit (including-lone parent child benefit payments) national insurance credits, child tax credit, working tax credit, maternity allowance, housing benefit, council tax benefit, foster allowance/guardian allowance, rate rebate, employment and support allowance, return to work credit, in-work credit for lone parents, other disability related benefits or payment, income from any other state benefit, universal credit, personal independence payments

Source: Understanding Society and its income data. (Fisher, Fumagalli, Buck and Avram, 2019)

Figure 2B.1 Income composition of ethnic minority men and women's income: Labour income, private benefits, pensions, miscellaneous, investment and social benefit income as a proportion of total income.

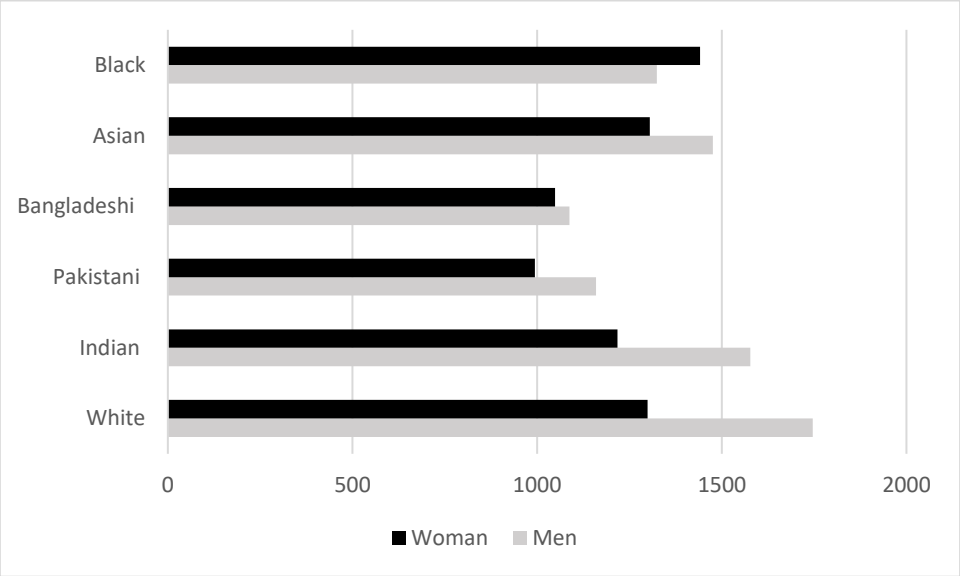


Source: UKLHS, Wave 1, 2009-2010.

Notes: Income is reported as total monthly personal income net of tax. Figure 2.1 disaggregates total income into labour income, private benefit income, pensions, miscellaneous, investment and social benefit income for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups.

Figure 2B.1 shows that a significant proportion of average income for women comprises of social benefit income. This proportion is particularly large for Pakistani and Bangladeshi women and exceeds the contribution of labour income for both Pakistani and Bangladeshi women; the social benefit income proportion is larger than the proportion of social benefit income for Indian and White women, and for men in each ethnic group. The contribution of labour income as a proportion of income is larger for all men than for women and is greater for Indian and White men than for Bangladeshi and Pakistani men, as is the case among women. The largest proportion of labour income and the smallest proportion of social benefit is found for Indian men and women. We observe differences in the composition of income between men and women in the same ethnic group: social benefit income is a larger component of women's income, whilst labour income accounts for a smaller share of women's income than men's. We also observe differences in the composition of income between ethnic groups: White and Indian ethnic groups share greater similarities in their composition of income, as is the case amongst Pakistani and Bangladeshi ethnic groups.

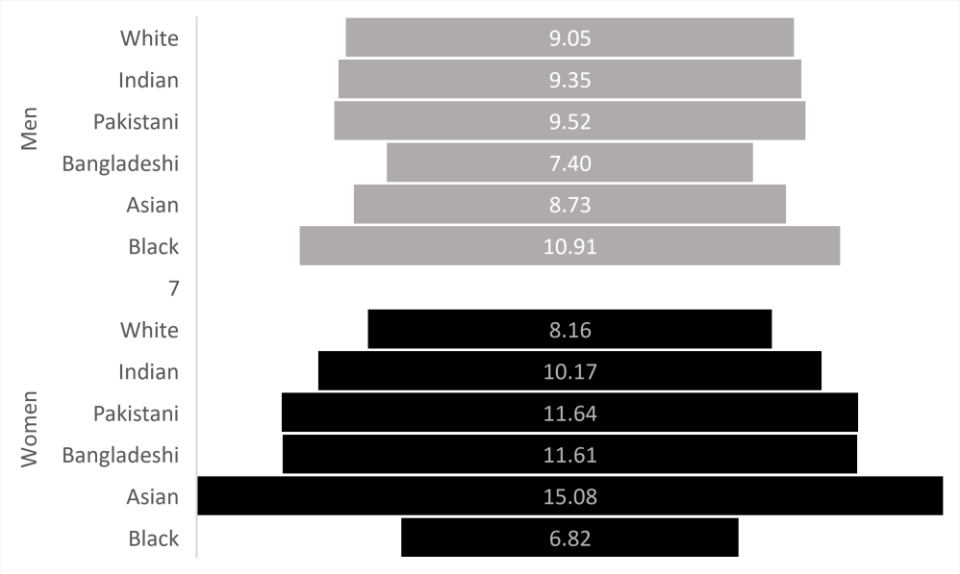
Figure 2B.2 Men and women's income in each ethnic group



Source: UKLHS, Wave 1, 2009-2010.

Notes: The horizontal axis reports Income as total monthly personal income net of tax (£). White men and women income is largest among all ethnic groups.

Figure 2B.3 Income gaps for men and women in each ethnic group: 90/10 ratio



Source: UKLHS, Wave 1, 2009-2010.

Notes: This figure reports the 90/10 ration for men and women in each ethnic group. Which shows how much more income the richest 10% of the population have than the poorest 10% of the population. Income is reported as total monthly personal income net of tax.

Chapter 3 A decomposition of UK income inequality by population subgroups: The intersection of ethnicity and gender

3.1 Introduction

Income inequality in the UK is an area of research which has garnered much attention in the economic literature, and justifiably so. Compared to other developed countries, the UK has a relatively high level of income inequality, which has risen substantially in the 1980s and fluctuated at the high level since then. This has been the result of rising incomes for the richest, whilst the poorest have observed falling incomes (ONS, 2018). High levels of income inequality are not socially desirable, as economically divided groups can suffer from important social and economic consequences, such as diminished economic opportunities (Hills, 2010; Platt, 2011). In the UK, income inequality[13] among ethnic groups have been found to vary from one group to another (Nandi and Platt, 2010). People from Pakistani and Bangladeshi ethnic groups have the lowest median household incomes (followed by people from a Black ethnic group) and are twice as likely to be in the bottom fifth of incomes than average, while people from White and Indian ethnic groups have the highest median income (Francis-Devine, 2020)[14]. There are also large disparities between the proportion of people within different ethnic groups, with high and low incomes, for example 47 percent of people from Pakistani ethnic groups live in households in the bottom fifth of incomes compared to 18 percent of people from White ethnic groups, while 4 percent of those from the Pakistani ethnic group live in households in the top fifth of income, compared to 21 percent of people from White ethnic groups (HBAI, 2019) [15].

Further, an emerging literature has highlighted the importance of considering the intersectionality of gender and ethnicity and its application to economic inequalities (Hurtado, 2018; Kan and Laurie, 2018; Crenshaw, 2015). The inequalities experienced by ethnic minority men are likely to be different to those experienced by White men (Platt, 2011). It is therefore useful to understand the extent of income dispersion across ethnic and gender groups. Studies

[13] From here on inequalities refer to income inequalities, measured by individual total monthly personal income-net of taxes.

[14] Median weekly household income by ethnic group: Pakistani (£334), Bangladeshi (£365), White (£518) and Indian (£538).

[15] Household below average income (Francis-Devine, 2020).

have highlighted inequalities within ethnic groups contribute more to total income inequality than between group income differences (Hills, 2010; Nandi and Platt, 2010; Platt, 2011). Furthermore, differences in average incomes may obscure differences between ethnic and gender groups (Hills, 2010).

In this chapter, we highlight income variations among ethnic groups in the UK and consider whether ethnic income inequality is largely a product of disparities between ethnic groups and gender or a result of inequalities within each group. We employ the index decomposition methodology of Shorrocks (1984) to quantify the contribution of within-group and between-group components to total income inequality. The within-group component looks at the dispersion of income within ethnic groups, for men and women separately, and the between-group component reveals the income gaps between ethnic groups and between men and women. The two components, identified through the decomposition method, sum to overall inequality. Therefore, the idea of the decomposition is to identify the amount that each component contributes to overall inequality. Given the focus on ethnicity and gender, in this chapter we apply population subgroup decomposition to disaggregate measures of inequality into the inequality observed between ethnic minority and gender groups, and the inequality within groups.

An important body of literature has considered the differences in earnings, income and wealth inequalities among different classifications of the population in the UK (Mookherjee and Shorrocks, 1982; Shorrocks, 1984; Lambert and Aronson, 1993; Jenkins, 1995). However, fewer studies consider the presence of inequalities within ethnic groups or focus on inequalities intersecting ethnicity and gender. The UK studies which do consider ethnicity and gender cover a period up to 2008 (Brewer, Muriel and Wren-Lewis, 2009; Nandi and Plant, 2010). Here, we employ the Understanding Society - UK Household Longitudinal Study (UKHLS) for the period 2009-2010. UKHLS includes a rich ethnic minority population sample, which provides a useful comparison to existing studies. Few UK data sources provide the necessary sample to conduct analysis on ethnic minority groups in the UK. The use of the population subgroup decomposition approach has been widely employed and tested in the empirical literature (Shorrocks, 1984; Brewer, Muriel and Wren-Lewis, 2009; Nandi and Platt, 2010; De Silva, 2013). Its usefulness in isolating the components of inequality is ideal, also to provide direction for further research. We find Shorrock (1984)'s method to be complementary to other methodologies, such as regression-based decomposition techniques (Fields, 2003), which can

be used to provide deeper insight into factors contributing to ethnic income inequality in the UK (Fiorio and Cowell, 2009).

The main results of our analysis reveal that within-group inequality is the key driver in explaining total income inequality over 2009-2010. We find inequality within Indian, Pakistani and Bangladeshi ethnic groups is larger than between group differences. We would like to emphasis this point, which is often overlooked in favour of exploring between group differences. In this analysis we do not allude to undermine the important consequences of inequalities between ethnic groups, as suggested in Kanbur (2000), social stability ceases to exist if between group inequalities extend beyond a certain threshold. Rather we use this evidence to support the need to consider the importance of within-group differences amongst minority and gender groups and focus better policy and attention within ethnic and gender groups which are often overlooked (Platt, 2011), to reduce total ethnic income inequality.

Greater diversities over the life course of minorities are likely to affect the distribution of incomes within ethnic and gender groups, that is, variations in educational attainment, employment opportunities and labour participation and the practice of strong cultural traditions are some of the factors which we look to explore in subsequent chapters.

The remainder of this chapter is organised as follows. Section 3.2 discusses the literature; section 3.3 presents the methodology; sections 3.4 and 3.5 present data and results respectively and section 3.6 concludes.

3.2 Reviewing inequality decomposition by population subgroup literature

3.2.1 A summary of the theoretical literature of inequality decomposition by population subgroups

Decomposition methods have been used to disaggregate measurements of inequality into components which sum to overall inequality. Decomposition methods in economics generally fall into two main categories: index decomposition and regression-based decomposition. Index decomposition is the earliest form of decomposition methods used in the economic literature and is arguably still relevant in current research, despite the expansion of decomposition methodology over the years. The idea of the disaggregation is to identify the amount each component contributes to overall inequality. The Index decomposition approach became popular in the early 1980s when it was applied by Bourguignon (1979), Cowell (1980) and

Shorrocks (1980, 1982, and 1984). However, index decompositions lacked the ability to explain the inequality observed beyond the components of inequality. Regression-based decomposition compensated for this.[16]

The index decomposition is an accounting-based technique used to isolate various components of inequality, providing largely descriptive analysis. There are two main forms of aggregate index decomposition: decomposition by factor component (Shorrocks, 1982) and decomposition by population subgroups (Shorrocks, 1984). The first method disaggregates the income of households and individuals into various components. The components illustrate the contribution of each income source, such as earnings, income from investments and transfer payments, to overall income inequality (Fei et al., 1978; Pyatt et al., 1980, Shorrocks, 1982).[17] The second method decomposes inequality by dividing the population into discrete, mutually exclusive population subgroups. Population subgroup decomposition disaggregates a measurement of inequality into two components: a within-group component and a between-group component; both sum to overall inequality.

One methodological challenge, discussed in various studies, is the selection of a suitable inequality measure which can be decomposed. A large body of research has considered the necessary conditions which make the decomposition of an inequality index appropriate, and substantial research effort has been devoted to axiomatically derive indices which can be decomposed into the sum of within and between group components (Bourguignon 1979; Shorrocks 1980; 1984). Comparisons of inequality are invariably dependent on the inequality measure used; the choice of an index has a significant influence upon the estimated result. Since different inequality measures do not rank all distributions identically and vary in sensitivities at different points of the income distribution (Atkinson, 1970), it is likely the analysis of different income measures will deliver some variations. To overcome these variations and inform robustness, we decompose a set of inequality indices common to the literature.

Previous studies have identified key axiomatic properties required for successful decomposition (Bourguignon, 1979; Cowell, 1980; Shorrrocks, 1980, 1984; Cowell and Kuga, 1981). The relevant properties the inequality measure must satisfy to be decomposable are:

[16] Fortin, Lemieux and Firpo (2011) review regression-based methodologies applied in the economic empirical literature. We apply regression-based decomposition in the following chapter.
[17] We implement an extension of Shorrocks (1982) decomposition by factor components in chapter 4.

continuity, scale invariance, population principle (Dalton, 1920), the Pigou-Dalton transfer principle, symmetry, normalisation and additive decomposability (Shorrocks, 1980). We discuss each property in some detail.

An inequality index is continuous if changes in either component of inequality reflect in changes in overall inequality. Scale invariance is another desirable property of an inequality index (Kolm, 1976; Chakravarty, 1999). An inequality measure is scale invariant if proportional changes in all incomes in the population do not modify the level of overall inequality in the distribution. An index which satisfies this property is also dissent to the idea of money illusion; if incomes are measured in pounds in place of dollars, the level of inequality will not change. The population principle suggests inequality is unchanged if the population and their income is replicated a finite number of times, as such the size of the population is irrelevant. According to the Pigou-Dalton transfer principle, if income is redistributed from the rich to the poor, inequality must decrease. The Pigou-Dalton transfer principle states that a regressive transfer will increase inequality, whilst a progressive transfer reduces inequality. The property of symmetry states that if two individuals exchange incomes in the distribution, inequality should remain the same, i.e. individuals are interchangeable. Normalisation means that an inequality index will assume the value of zero if the distribution of income is entirely equal. Various relative indices meet these criteria. The final axiomatic property discussed is the concept of additive decomposability. The index is additively decomposable if the overall level of inequality in the population can be perfectly expressed as the sum of within-group inequality and between-group inequality, requiring a consistent relation between overall inequality and its components. The within-group inequality contribution is the sum of subgroup inequality values, the between-group component of inequality is the inequality in the population which arises as a result of the variation between the population subgroup mean incomes. This axiom is central to this chapter. The principle of decomposability reduces the number of satisfactory inequality indices to measures belonging to the generalised entropy family.

Inequality indices belonging to the generalised entropy family are amongst the most cited inequality indices in the literature (Deutsch and Silber, 1999). The general formula of the entropy index is given by:

$$GE(\theta) = \frac{1}{\theta(\theta-1)}\left(\frac{1}{n}\sum_{i=1}^{n}\left(\frac{y_i}{\bar{y}}\right)^{\theta} - 1\right) \tag{3.1}$$

Where y_i is income, $\bar{y}$ is the mean income, and θ is a measure of income inequality. The values of the Generalised entropy measures vary between 0 and 1, with 0 representing an equal distribution and higher value representing a higher level of inequality. The most common values of θ used are 0, 1, and 2. GE(0) is the mean log deviation, GE(1) the Theil index and GE(2) half the squared coefficient of variation (Deutsch and Silber, 1999; De Silva, 2013).

The decomposition of inequality in this chapter is done employing the Theil's entropy index, the mean log deviation, and half the squared coefficient of variation. These are the inequality measures with the most desirable properties for decomposition analysis and have extensively been used in seminal studies (Bourguignon, 1979; Jenkins, 1995). The generalised entropy index of inequality $I(\theta)$ can be expressed as:

$$I(\theta) = \begin{cases} \dfrac{1}{n}\displaystyle\sum_{i=1}^{n}\left(\ln\left(\frac{y_i}{\bar{y}}\right)\right) if\ \theta = 0 \\ \dfrac{1}{n}\displaystyle\sum_{i=1}^{n}\left(\frac{y_i}{\bar{y}}\right)\left(\ln\left(\frac{y_i}{\bar{y}}\right)\right)\ if\ \theta = 1 \\ \dfrac{1}{2}\left(\dfrac{y_i - \bar{y}}{\bar{y}}\right)^2\ if\ \theta = 2 \end{cases} \tag{3.2}$$

Hence, $I(\theta)$ becomes the mean log deviation when $\theta = 0$. When $\theta = 1$, it becomes the Theil index of inequality and when $\theta = 2$, the half-squared coefficient of variation. y_i is net personal total monthly income, $\bar{y}$ is mean income variable. The parameter θ in the generalised entropy class represents the weight given to distances between incomes at different parts of the income distribution and can take any real value. For lower values of θ, the generalised entropy measure is more sensitive to changes in the lower tail of the distribution, while for higher values, the

generalised entropy measure is more sensitive to changes that affect the upper tail. When $\theta = 1$, the index is equally sensitive across the entire distribution.

The remainder of the axiomatic approach discussion is dedicated to the relevance of the Gini index in the decomposition literature. Given the popularity of the Gini index in inequality research, it is important to consider the disaggregation of the Gini Index. The Gini coefficient is a well-known measure of income inequality. The general formula for the Gini coefficient is given by:

$$G = \frac{\sum_{i=1}^{n} \sum_{j=1}^{n} |x_i - x_j|}{2n^2 \bar{x}} \tag{3.3}$$

Where n is the number of observations, x is observed income and $\bar{x}$ is mean income. The Gini index does not satisfy all the axiomatic criteria and, more specifically, it fails to satisfy the additive decomposability criteria in certain circumstances. When the income distribution is partitioned by overlapping subgroups, the Gini index may be decomposed into three components: a within-group inequality component, a between-group inequality component and an interaction term (Deutsch and Silber, 1999). Whilst the measure can be overlooked in the decomposition literature due to this residual term, it is argued that the interaction term can provide valuable information on the extent of the overlap between the various population subgroups in the sample population (Pyatt, 1976; Silber, 1989; Lambert and Aronson, 1993).

3.2.2 Applications of inequality decomposition by population subgroups

Population subgroup decomposition has been utilised in the literature to carry out inequality decomposition (Shorrocks, 1984, Cowell and Fiorio, 2009; De Silva, 2013; Brewer, Muriel and Wren-Lewis 2009). A common approach is disaggregation of the population into groups by age (Mookherjee and Shorrocks, 1982), sex, education, employment status, household type and region (Brewer, Muriel and Wren-Lewis, 2009). Our work is related to the literature on the relative importance of ethnicity and gender differences as potential contributors to income inequality.

Identifying population subgroups by gender is one possible application of subgroup decomposition analysis (Deutsch and Silber, 1999; Kaya, 2010; Nandi and Platt, 2010; De Silva, 2013; Brewer et al, 2016; Ogwang, 2016; Bayar, 2016). Studies find that the contribution

of between gender inequalities is comparatively smaller than that of within group inequalities, in some cases completely negligible (De Silva, 2013). Generally, studies decomposing generalised entropy measures by gender find that income inequality does not vary substantially between male and female, as such they argue that gender differences are not critical contributors to total income inequality, rather the differences within the female and male groups have a more substantial influence on total income inequality (De Silva, 2013). The apparent negligibility of the between group component should not be mistaken as disregard of the significance of gender in conversations of inequalities, rather this highlights the importance of also focusing on disparities within male and within female groups, which may be attributed to a variety and combination of factors which we explore in more detail in later chapter. This represents a strong rationale for intersectionality analysis.

We find little research on the application of population subgroup decomposition on ethnic minority groups in the UK, notable exceptions being Brewer, Muriel and Wren-Lewis (2009), and Nandi and Platt (2010). Both discuss ethnicity and gender as part of a wide discussion of UK inequality. Brewer, Muriel and Wren-Lewis (2009) decompose MLD according to age, sex, marital status, region, education, occupation, head of household ethnicity and tenure subgroups. They find that income gaps between ethnic groups do not contribute to changes in income inequality over the period 1994-2006; rather, income differences within ethnic groups may be the source of changes in income inequality over that period. Although Brewer, Muriel and Wren-Lewis (2009) is a fine example of Shorrocks (1982, 1984) decomposition methodologies, they have relatively small sample sizes for all ethnic groups apart from the white group. Further, they decompose by ethnicity of household head, which neglects the potential role of other household members, particularly where it is common for ethnic minority households to be headed by a male household member. As the population subgroup decomposition is considered separately for ethnicity and gender, their study does not consider their interaction and the role this may play in terms of income inequality.

The latter issue is addressed by Nandi and Platt (2010), who provide a convincing population subgroup decomposition analysis of the MLD by ethnic group and gender using UK household income data from Family Resources Survey (FRS) and the Household Below Average Income (HBAI) data for the period 2003/04-2007/08. They find that, for both decompositions by ethnic group and ethnic group and gender, the between group component is substantially smaller than the within-group component, which accounts for a significant proportion of income inequality.

In this study, we use the UKHLS data, which provides a useful comparison to Nandi and Platt (2010). Our analysis is conducted for the period 2009-2010 using individual-level income data.

Moreover, exploring the intersection of ethnicity and gender can enable further insights into how ethnic income inequalities are mediated in the UK (Platt, 2011). Much of the current UK research provides a theoretical understanding of why it is important to explore the gender and ethnicity intersection; however, less of this work is empirical, with few exceptions (Hill et al, 2010; Nandi and Platt, 2010). Making use of the rich ethnic minority sample in the UKHLS, we contribute to this strand of research.

3.3 Methodology

Following Shorrocks' (1984) subgroup decomposition method, total inequality is decomposed into the sum of inequalities within each ethnic subgroup and the inequality which exists between each subgroup. Each index in the generalised entropy family can be additively decomposed as:

$$I(\theta) = I_{within} + I_{between} \tag{3.4}$$

I_{within}illustrates the inequality within each population subgroup, this is the weighted sum of inequality within each ethnic group, using weights dependent on the population and income shares. $I_{between}$ estimates the inequality between the population subgroups, the inequality which would arise in society if everyone in the ethnic subgroup received the mean income of the population. Below we look closer at the implementation of the population decomposition, $I(\theta)$ being total inequality with respect to each index.

The subgroup decomposition of $I(\theta)$ is done by splitting the population into k mutually exclusive population subgroups, $k = 1, \dots, k$. The decomposed $I(\theta)$ can be expressed as:

$$I(\theta) = \sum_{k=1}^{n} \left(\frac{n_k}{n}\right)^{1-\theta} \left(\frac{n_k}{n}\frac{\bar{y}_k}{\bar{y}}\right)^{\theta} I_k(\theta) + \frac{1}{\theta(\theta-1)}\left(\sum_{k=1}^{n} \frac{n_k}{n}\left(\frac{\bar{y}_k}{\bar{y}}\right)^{\theta} - 1\right) \tag{3.5}$$

Where k refers to the sub-group. $\frac{n_k}{n}$, population share of sub-group k, is the number of persons in subgroup k divided by the total number of persons. $\left(\frac{n_k}{n}\frac{\bar{y}_k}{\bar{y}}\right)$ is the share of total income held by subgroup k's members. I_k inequality for subgroup k, is calculated as if the subgroup were a separate population. θ= 0, 1,2 refer to mean log deviation, Theil index and half squared coefficient of variation respectively. The within group component is captured by the first term I_{within} . The within-group component is the inequality which would remain if the average income in all groups were equalised but the inequality within each group remained unchanged. The second component, $I_{between}$, is the level of inequality which would arise if everyone within subgroup k had income level $\bar{y}_k$; the inequality which would arise if everyone in a population subgroup had an income equal to the average income of the subgroup.

Apart for the mean log deviation, the Theil index and half squared coefficient of variation, we also estimate the Gini coefficient. We decompose by population subgroup into components representing inequality within groups, inequality between groups and a residual term according to Pyatt (1976).[18]

$$Gini = Gini_{within} + Gini_{between} + Gini_{residual} \tag{3.6}$$

Where $Inequality_{Gini}$ is the gini coefficient, $Gini_{within}$ is inequality within each ethnic group, $Gini_{between}$ is inequality between ethnic groups and $Gini_{residual}$ is the residual term. Inequality within groups is equal to a subgroup weighted sum of each subgroup's Gini index, where each subgroup's weight is equal to the product of the subgroup's income share and population share. Inequality between groups is equal to the Gini coefficient arising when each observation is attributed to the mean income for the subgroup. The residual term exists when the income distribution of each subgroup overlaps along the income range; it is equal to zero if there are no subgroup income distribution overlaps.

[18] Stata package decogini is used to decompose the Gini coefficient into within, between and residual components.

$$Gini = \sum_k v_k^2 \lambda_k G^k + G_B + R \tag{3.7}$$

v_k is the population share of subgroup k, λ_k is the share of total income held by subgroup k's members relative to the whole population. $G^k$is the Gini coefficient for group k. G_B is the Gini coefficient when each member has the mean income of subgroup k. R is the residual term.

3.4 Data

We use UKHLS data (2009/2010) for working age (16-64) men and women.[19] We carry out our analysis using individual incomes, more specifically, total monthly personal income net of taxes. Descriptive statistics reporting population share, mean income, and income shares are provided for the seven ethnic groupings for 2009/2010 in Table 3.1.

Table 3.1 Descriptive statistics for each ethnic group 2009-2010

Ethnic group	Population share	Mean Income	Income share
White	0.847	1421.07	0.849
		(8.3677)	
Indian	0.025	1443.69	0.026
		(35.0030)	
Pakistani***	0.013	1048.10	0.010
		(26.7037)	
Bangladeshi***	0.005	1193.52	0.004
		(29.5994)	
Asian***	0.012	1284.42	0.011
		(34.6574)	
Black****	0.023	1350.04	0.022
		(23.6126)	
Other	0.073	1516.23	0.078
		(27.4830)	

Source: UKLHS, Wave 1, 2009-2010.

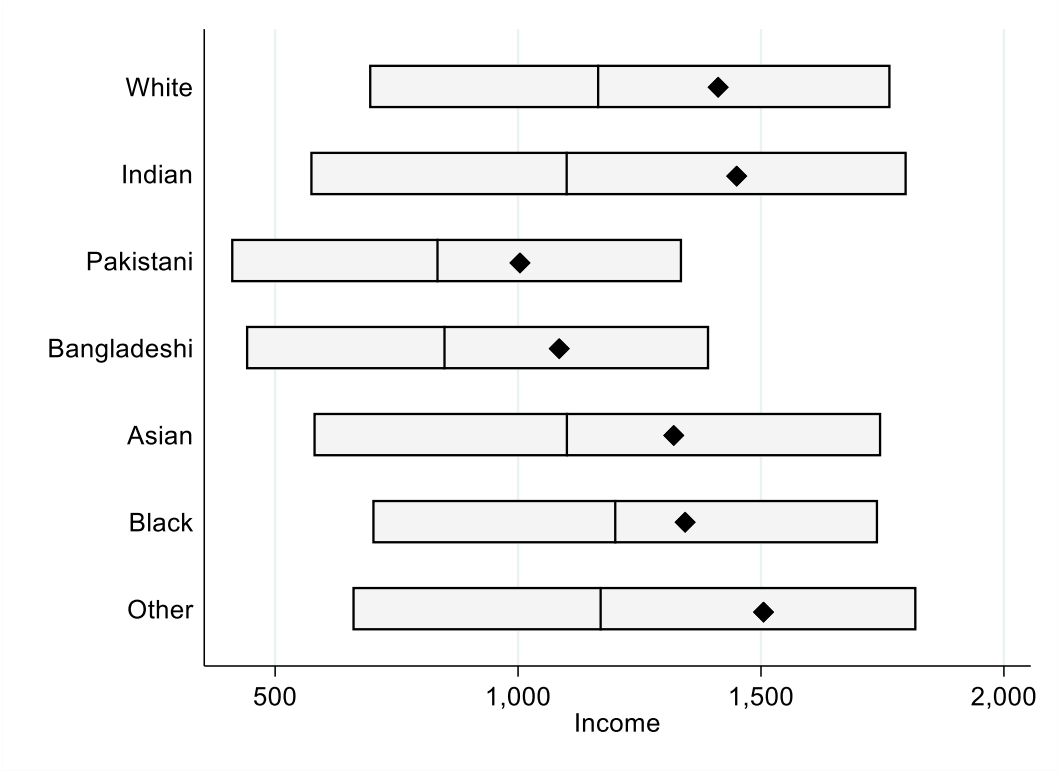
Note: This table reports descriptive statistics, population share, mean income and income share for each ethnic group in our sample. Total monthly personal income net of tax is reported. Income is reported in pounds (£) per month. Standard deviations: White 1386.519, Indian 1378.068, Pakistani 926.5852, Bangladeshi 912.3145, Asian 965.4422, Black 1101.723, Other 1498.513. standard error mean (in parenthesises in Table 3.1): White 8.367722, Indian 35.00296, Pakistani 26.70374,

[19] Refer to Chapter 2 for more details on data.

Bangladeshi 29.59939, Asian 34.65736, Black 23.61258, Other 27.48293. We conduct t-test, we find a significant difference in mean income between White and Pakistani, White and Bangladeshi, White and Other Asian, White and Black. All are significant at the 1% level, indicated by *** in Table 3.1.

Population share indicates the proportion of individuals in each ethnic group across the weighted sample. The White ethnic group holds the largest population share amongst all other ethnic groups (0.847), considerably higher than the remaining ethnic groups. The mean income describes the average income of each ethnic group in the sample. The Indian ethnic group holds the largest mean monthly income of the individual ethnic groups (£1443.69), followed by white (£1421.07). Bangladeshi (£1193.52) and Pakistani (£1048.10) ethnic groups have the lowest mean income of all groups. We observe little variation in monthly mean income among the White and Indian ethnic groups; there is noticeable difference between White, Bangladeshi and Pakistani ethnic groups. This is important for two reasons. Firstly, we observe heterogeneity in mean income among White and ethnic minority groups, which can be an important indication of income inequality between ethnic groups: on average, ethnic minorities have less income comparative to the White group. Second, we also observe substantial income variations among ethnic minority groups. This motivates exploration of variations among ethnic minority groups, which should not be limited to differences between White and ethnic minority groups. The remaining column estimates the income share of each ethnic group as a proportion of the whole sample population. The White ethnic group have the highest income share amongst the sample population. Such result is expected due to the dominance of the White group in the population.

Figure 3.1 Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group 2009-2010



Source: UKLHS, Wave 1, 2009-2010.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi ethnic groups in our sample, 2009-2010. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax. Standard errors and standard deviations show in Table 3.1. Figure 3.A1 in appendix 3A reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, in 2017-2018.

Figure 3.1 describes the interquartile range, 25th percentile, median, mean and 75th percentile for each ethnic group. [20] It illustrates a wide spread of incomes between the 25th and 75th percentile for each ethnic group, highlighting substantial inequalities within ethnic groups. We also notice variations in mean incomes across ethnic groups, notable being those among Pakistani and Bangladeshi groups compared to all other ethnic groups. The median income for the White group (£1164.78) is the highest among all ethnic groups, closely followed by the Indian group (£1100), and lowest for Pakistani ethnic group (£834.16). [21] Individuals situated

[20] Asian, Black and Other group are "grouped" to include multiple ethnicities. For this reason, we focus on White, Indian, Pakistani and Bangladeshi ethnic groups which include individuals only belonging to these groups.

[21] Percentiles for men and women monthly income are reported in table 3.A1 in Appendix 3A.

at the 50th percentile of the White and Indian sample, have incomes higher than the bottom 50th percentile of the Pakistani and Bangladeshi group. We observe marginal difference in median income for the Pakistani and Bangladeshi (£848.56) ethnic group and identify little heterogeneity in the distribution of income among the Pakistani and Bangladeshi groups. The interquartile ranges report important variation in the distribution of incomes for Pakistani and Bangladeshi groups in comparison with all other ethnic groups. The income of 75th percentile of Pakistani (£1337.60) and Bangladeshi (£1393.26) distribution are lower than the mean income of the White (£1421.07) and Indian (£1443.69) ethnic groups. The interquartile ranges identify gaps in mean income between ethnic groups of which the difference between Pakistani and Bangladeshi ethnic groups and White and Indian are largest.

The Indian group reports the greatest spread in income, individuals situated at 25th percentile have monthly income of £572.33, whilst those at the 75th percentile have income £1800. Pakistani and Bangladeshi ethnic groups indicate the smallest spread among the interquartile range. The income of the 25th percentile of Pakistani (£409.38) and Bangladeshi (£440) ethnic groups are lowest comparative to all other ethnic groups; 75th percentile of the Bangladeshi group have income of £1393.26, for the Pakistani group this figure is lower (£1337.56). Although the variation in income is smallest among the interquartile range for Pakistani and Bangladeshi groups, income distributions are clustered lower in comparison to all other ethnic groups. This shows that, although they report the least income differences between individuals situated at the 25th and 75th percentile, in general, Pakistani and Bangladeshi incomes are lower than the income of all other groups. The difference is particularly stark in relation to the Indian group, who are also originally migrants from the south of the Asian continent.

Table 3.2 Descriptive statistics by gender 2009-2010

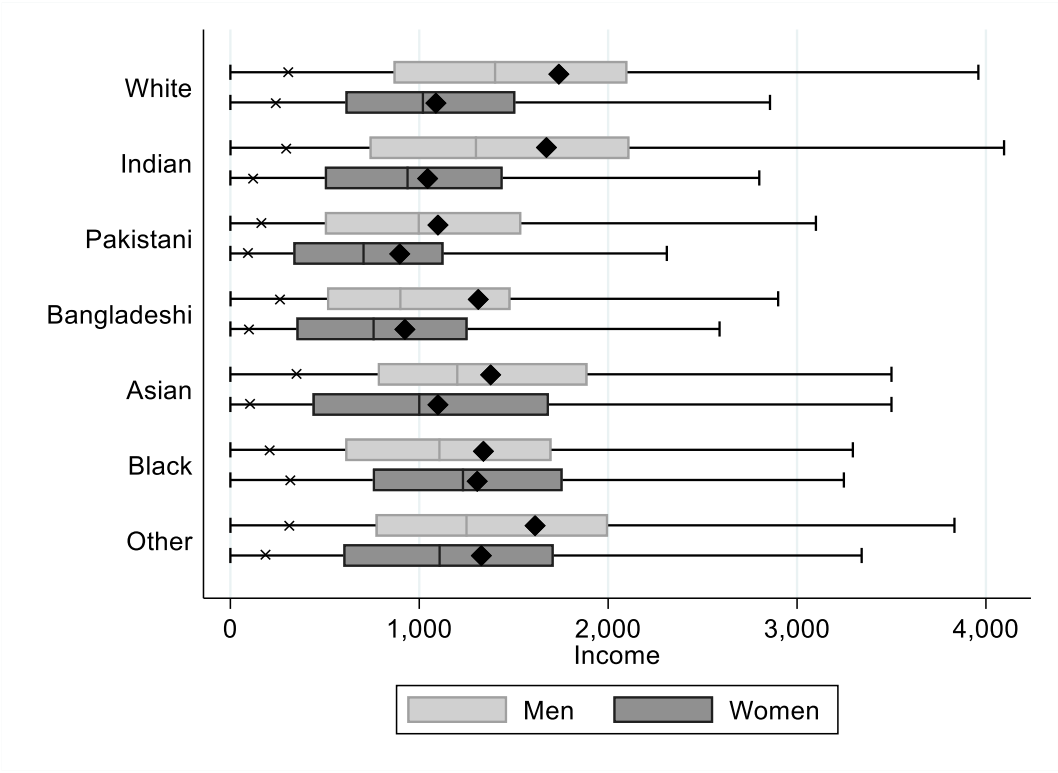
Ethnic Group	Gender	Population share	Mean	Income share
White***	Men	0.495	1689.57	0.588
	Women	0.505	1158.37	0.412
Indian***	Men	0.582	1672.26	0.674
	Women	0.418	1125.07	0.326
Pakistani***	Men	0.557	1216.04	0.646
	Women	0.443	837.1	0.354
Bangladeshi***	Men	0.597	1399.29	0.7
	Women	0.403	889.01	0.3
Asian***	Men	0.521	1398.37	0.568
	Women	0.479	1160.27	0.432
Black	Men	0.452	1381.10	0.462
	Women	0.548	1324.43	0.538
Other***	Men	0.483	1720.48	0.548
	Women	0.517	1325.70	0.452

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports descriptive statistics, population share, mean income and income share for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. Total monthly personal income net of tax is reported. Income is reported in pounds (£) per month. We conduct t-test, we find a significant difference in mean income between men and women in each ethnic group, differences in mean income between men and women are significant for all groups, except for the black group. Significant at the 1% level, indicated by *** in Table 3.2. . Standard deviations: White men 1746.52, White women 957.5304, Indian men, 1638.272, Indian women, 932.1906, Pakistani men, 1095.133, Pakistani women, 683.8067, Bangladeshi men, 987.6199, Bangladeshi women, 809.1103, Asian men, 969.2228, Asian women, 947.1872, Black men, 1405.142, Black women, 852.452, Other men, 1793.569, Other women, 1214.361. standard error mean (in parenthesises): White men (15.93814), White women (7.704003), Indian men, (57.49207), Indian women, (34.31441), Pakistani men, (45.12415), Pakistani women, (27.57375), Bangladeshi men, (44.79935), Bangladeshi women, (37.562), Asian men, (51.29671), Asian women, (46.27312), Black men, (48.16766), Black women, (23.40982), Other men, (50.28919), Other women, (29.44392).

Descriptive statistics reporting population share, mean income, and income shares by ethnicity and gender are reported in table 3.2. More than half of the White, Black and Other group sample is female. The share of males in our sample is greater than that of females for Indian, Pakistani and Bangladeshi groups. For all groups the average income of men is considerably higher than the average income of women. The largest difference in average income between men and women is found in the Indian (£547.19) and White group (£531.02). For all groups, the male income share is larger than the female share, particularly among White, Indian and Pakistani ethnic groups.

Figure 3.2 Boxplot by ethnic group and gender 2009-2010



Source: UKLHS, Wave 1, 2009-2010.

Note: This figure reports the interquartile range and whiskers for White, Indian, Pakistani, Bangladeshi men and women in our sample, 2009-2010. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. The whiskers report the upper and lower adjacent values, or maximum and minimum value excluding outliers. x represents the 10th percentile. Total monthly personal income net of tax is reported. Standard errors and standard deviations show in Table 3.2. Figure 3.A6 in appendix 3A is reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, 2017-2018..

Figure 3.2 describes the interquartile range, median, mean, 10th percentile and upper and lower whisker income values for men and women in each ethnic group. Women situated at the 10th percentile of the income distribution have lower incomes than men. We observe less dispersion in the distribution of income for women in each ethnic group comparative to men, except for Asian women who have a larger dispersion of income among the interquartile range comparative Asian men. As such we would expect greater inequality among men in each ethnic group comparative to women. The median income, 75th percentiles and upper whisker are higher for men than women in all ethnic groups apart from the black group. This suggests greater variation in the spread of income and higher levels of income for men compared to women within our ethnic groups. For Black women the median income is higher comparative to Black men, although mean income for Black women is lower than Black men. The proximity

of the mean to the median income values for Black women as opposed to Black men suggests that income among the top 25 per cent of income holders are relatively less dispersed for women. The Indian male group observes the greatest spread in income among all groups, the difference between the 25th and 75th percentiles and upper whisker value being most noticeable in this group.

A number of Bangladeshi women have very low or zero income, and relatively fewer have high income, resulting in a larger degree of income dispersion among Bangladeshi women than Bangladeshi men. Despite the higher level of income inequality among Bangladeshi women, the income held by the top 1 per cent of women (£2681.19) is considerably lower than that of men (£4766.67), as reported in table 3.A1 in Appendix 3A. All men and women within the minority groups observe higher levels of income inequality compared to White men and women, apart from Bangladeshi men. Bangladeshi men report the highest income for individuals situated at the 1st percentile (£70.30) of the income distribution, whilst those at the 99th percentile (£4766.67) report the lowest income among men of all ethnic groups.

The distribution of income is clustered lower down on the income axis for female groups compared to males, suggesting in general that women have lower income than men in the same ethnic group. Median and mean income difference between men and women in each ethnic group is more noticeable than the differences between ethnic groups reported in figure 3.2. Therefore, we expect to observe greater between group differences when intersecting ethnicity and gender than the between group differences by ethnicity only.

We take a closer look at men's income in figure 3.3.[22] Figure 3.3 illustrates a wide spread of incomes between men situated at the 25th and 75th percentile of their group incomes. The highest mean income is reported for White (£1689.57), followed by Indian (£1672.26) men. We observe a substantial gap in mean incomes for men among ethnic groups, the largest difference in mean income being between White and Pakistani men (£473.53). The monthly Income of Pakistani (£1540.4) and Bangladeshi men (£1483.18) situated at the 75th percentile is lower than the monthly mean income for both White and Indian men. As such, the average

[22] See figure 3.A2 in appendix 3A for a larger version of men's income only. Figure 3.A2 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for each ethnic group, men 2009-2010. Figure 3.A4 in appendix 3A reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, men 2017-2018.

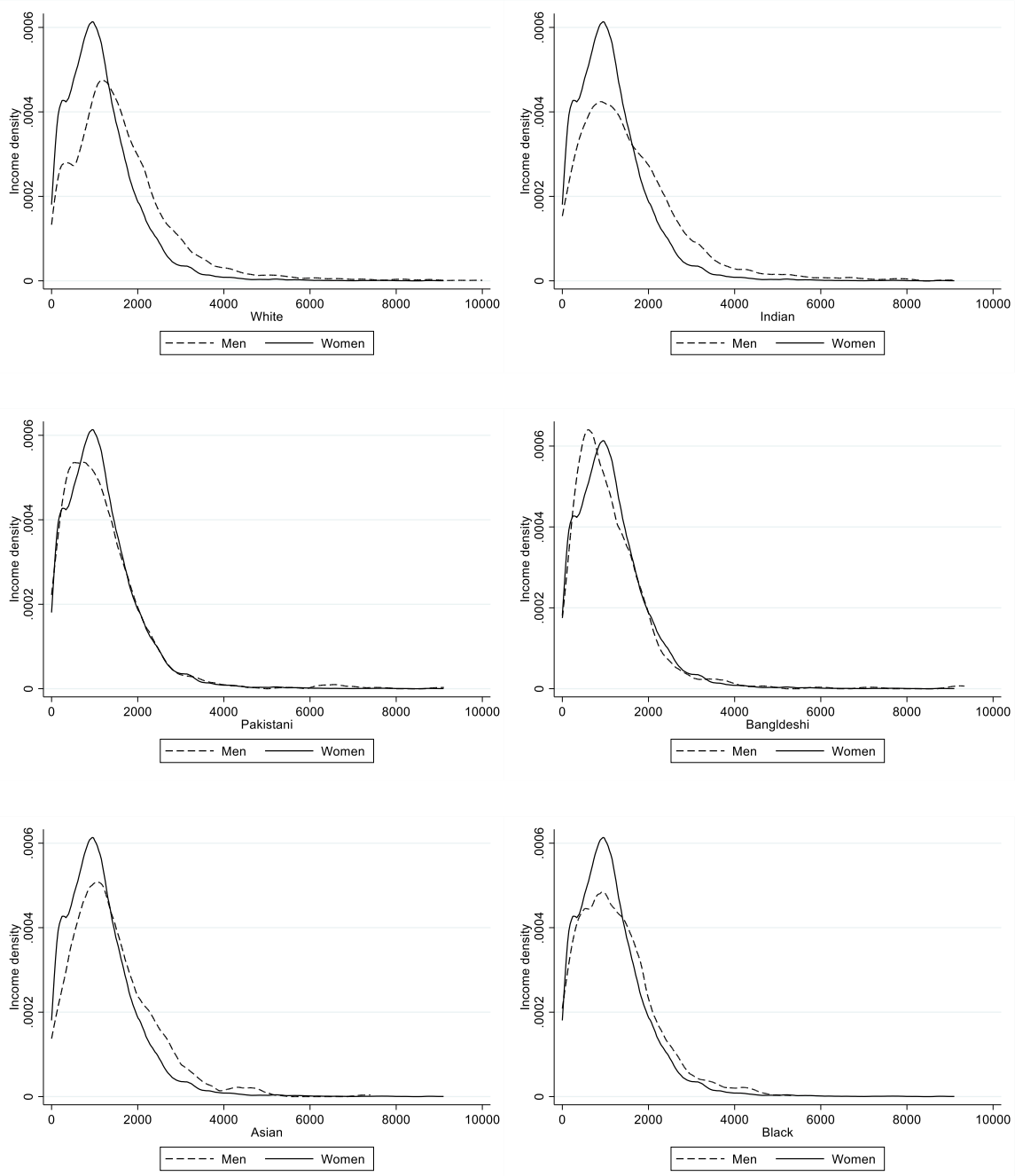
incomes of the White and Indian men are greater than the income of the top 25 per cent of Pakistani and Bangladeshi men in their respective groups. For Bangladeshi men, the mean income is spread furthest from the median income compared to all other ethnic groups. The income for Pakistani (£500) and Bangladeshi (£511.33) men situated at the 25th percentile are the lowest among all ethnic groups; the interquartile ranges are less varied and concentrated than all other ethnic groups. The interquartile range is largest among Indian men, compared to all other ethnic groups; the spread in income between men situated at the 25th percentile and 75th percentile (£1,376.5) is largest among this group, which contrasts the patterns observed for men in the Pakistani and Bangladeshi group. The income data for men highlight two main points. First, we observe heterogeneity in income among White and minority groups, most notably between Pakistani, Bangladeshi, and Black ethnic groups. Second, we find variations in income among ethnic minority groups, particularly among the south Asian ethnic groups, Indian and Pakistani and Bangladeshi. We observe more similarities among Indian and White men than between Indian, Pakistani and Bangladeshi distributions of income.

Next we look in more detail at women's income in figure 3.3.[23] Among our sample, Black women report the highest mean and median income. Asian women have the greatest variation in the interquartile income range compared to all other groups. There are little differences in the spread of income across the 25th and 75th percentile among women in the remaining ethnic groups. Pakistani, Bangladeshi and Indian women have lower median and mean income compared to White women. Pakistani, Bangladeshi and Indian women's interquartile ranges are situated lower compared to all other groups, suggesting that, generally, south Asian women have lower incomes compared to all other groups. White women situated at the 50th percentile of the distribution (£1019.26) have income higher than the median income of Indian (£937.98), Bangladeshi (£758.21) and Pakistani women (£705). Pakistani and Bangladeshi women situated at the 25th percentile have lower income than all other ethnic groups, £333.33 and £349.7 respectively; Pakistani and Bangladeshi women at the 75th percentile of the income distribution have income less than all other groups £1128.37 and £1255.8 respectively. As such, the variation in the interquartile income distribution is smallest compared to all other groups. As in figure 3.3, we observe heterogeneity among our ethnic groups, and find variations in the

[23] See figure 3.A3 in appendix 3A for a larger version of women's income only. Figure 3.A3 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for each ethnic group, women 2009-2010. Figure 3.A5 in appendix 3A reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, women 2017-2018.

distribution of income within and between each ethnic group, although this variation is lower comparative to income differences for men observed in figure 3.3.

Figure 3.3 Men and women's income distribution in each ethnic group 2009-2010



Source: UKLHS, Wave 1, 2009-2010.

Note: We limit individual incomes to less than £9000 a month for clarity.

Figure 3.3 illustrates the income distribution of men and women in each ethnic group. Women's incomes in each ethnic group are more heavily concentrated towards the bottom end of the income distribution than men's incomes. This is not the case for the Bangladeshi group, for which monthly income for Bangladeshi men peaks at a higher level towards the lower end of the income distribution than for Bangladeshi women; as such, we would expect greater

income inequality among Bangladeshi men than Bangladeshi women. The difference in the income distribution is most starkly noticeable within the White and Indian ethnic groups, where men's incomes are flatter and decline more gradually than for White and Indian. The income distribution for Pakistani men and women closely imitate one another past their respective peaks, as such we would expect less gender income inequality for Pakistani than for other ethnic groups.

Table 3.3 Subgroup Indices 2009-2010

Ethnic group	MLD	Theil	CoV	Gini
White	0.37887	0.30927	0.49197	0.4046
Indian	0.42994	0.34411	0.50062	0.4333
Pakistani	0.43556	0.33888	0.45126	0.4369
Bangladeshi	0.39383	0.34711	0.52109	0.4312
Asian	0.37056	0.25316	0.26436	0.3854
Black	0.34149	0.27533	0.48058	0.3793
Other	0.40212	0.33367	0.62257	0.4150

Source: UKLHS, Wave 1, 2009-2010.

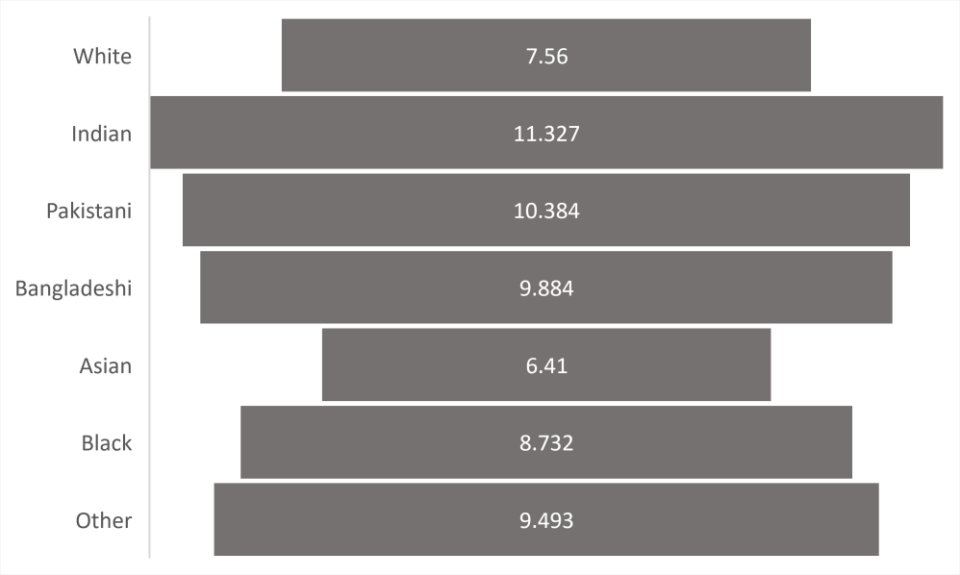
Note: This table reports inequality indices, mean log deviation (MLD), theil index (Theil), half squared coefficient of variation (CoV), Gini Index for each ethnic group.

Table 3.3 reports the generalised entropy measures: mean log deviation, Theil index and half squared coefficient of variation (CoV) (when θ is equal to 0, 1 and 2), and the Gini coefficient. The generalised entropy measures possess the main properties which, according to the literature, a robust inequality measure must satisfy. We also report the Gini index (and 90:10 ratio in figure 3.4) which are widely reported and useful comparison to the generalised entropy measures.[24] Measures of income inequality reported in table 3.3 show that the largest degree of inequality is among Pakistani, Indian and Bangladeshi ethnic groups. Inequality levels measured by the mean log deviation indicate that the Pakistani (0.436), Indian (0.430), and Bangladeshi (0.394) groups observe the highest levels of inequality among the ethnic minority groups in the UK. This pattern is consistent across all reported inequality measures. The inequality results reported for the remaining ethnic groups do not seem to be substantially lower than those for the Pakistani, Indian, Bangladeshi and White ethnic groups, however there is a

[24] We exclude the other group, as this is a combination of "other" groups, as such the results are difficult to interpret.

noticeable difference, particularly the consistency at which these three groups are identified by all indices.

Figure 3.4 Income gaps by ethnic group: 90/10 ratio



Source: UKLHS, Wave 1, 2009-2010.

Notes: This figure reports the 90/10 ration for each ethnic group. Which shows how much more income the richest 10% of the population have than the poorest 10% of the population. Income is reported as total monthly personal income net of tax.

Figure 3.4 reports the 90:10 ratios for various ethnic groups: it shows that inequalities within minority groups differ substantially. For instance, within the Indian ethnic minority, those near the top of the income distribution can earn as much as 11 times more than those near the bottom of the distribution .

We find the larger inequalities within ethnic group are not attributed or dependent upon regional/geographical location/differences. We use subgroup decomposition by ethnicity and region, for example, for each ethnic group, are income gaps larger within a particular region, or between regions. Analysis showed income inequalities within regions are larger than between-region income inequality for White, Indian, Pakistani, and Bangladeshi ethnic groups. The understanding society uses government office regions which are large, as such we are unable to pick up much of the variability between regional groups . We find Income inequality is most prevalent in London for White, Pakistani, Bangladeshi. For Indian ethnic group, North-East. Since we find little intra-ethnic inequality between regions, we do not explore this idea further.

3.5 Results

Table 3.4 reports the within-group and between-group inequality components for the population subgroup decomposition by ethnic group. Generalised entropy measures are reported for both within-group and between-group components.

Table 3.4 Inequality Decomposition 2009-2010

Inequality	MLD	Theil	CoV	MLD%	Theil%	CoV%
Within	0.382	0.311	0.501	0.998	0.997	0.998
Between	0.001	0.001	0.001	0.002	0.003	0.002
Total	0.383	0.312	0.502	100	100	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports decomposition of inequality indices, mean log deviation (MLD), Theil index (Theil), half squared coefficient of variation (CoV). We report the within group component and the between group component. Both components sum to total income inequality. We also report the percentage contribution of each component to total income inequality for each inequality index.

According to all three inequality measures, income inequality is driven by within-group inequality. These results are consistent with Nandi and Platt (2010). The effect of the within-group inequality component dominates, whilst the between group component is negligible; income dispersion within the ethnic groups is the key driver of overall inequality. [25] The result is important because it shows that 99 per cent of total income inequality in the population is attributed to disparities within each ethnic group, while less than 1 per cent is attributed to inequalities between ethnic groups. It is unsurprising that a significant proportion of total income inequality is dominated by the within-group component since the variation in group incomes are large. However, these proportions highlight the mass disparities between the richest and poorest within each minority groups, compared to the average across groups. Furthermore, these results indicate that average income differences between ethnic groups are unlikely to be highly representative of the income experiences faced by individuals within each ethnic group. The within group component is increasing for higher values of θ, as the measure becomes more sensitive to individuals at the higher end of the income distribution. This

[25] Table 3.B1 in Appendix 3.B reports inequality decomposition for 2017-2018. Our results are consistent with the findings in table 3.4. The within-group components are considerably larger than the between group component for each inequality index. Although we find the between group component for the 2017-2018 inequality decomposition by ethnic group are marginally larger across each index.

indicates that within-group inequality is increasing because of individuals at the top end of the income distribution receiving increasingly higher income relative to those at the lower end of the income distribution (Piketty and Saez, 2003; Atkinson, 1970).

Table 3.5 reports decomposition of the Gini coefficient. Within-group inequality counts for over 56 percent of total income inequality, while the between group component for less than 6 percent of total income inequality. The residual term accounts for approximately 38 percent of total income inequality.[26] These results support those of the generalised entropy decomposition, although we find the between group component accounts for relatively more of overall ethnic income inequality when considered against the between-group components of generalised entropy measures in table 3.4.

Table 3.5 Gini Inequality Decomposition 2009-2010

Inequality	Gini	Gini %
Within	0.229	56.92
Between	0.022	5.352
Residual	0.152	37.728
Total	0.403	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports decomposition of Gini index. We report total income inequality, the within group component, the between group component and the residual. The three components sum to total income inequality. We also report the percentage contribution of each component to total income inequality for the Gini coefficient.

The findings of our population subgroup decomposition in Table 3.4 and Table 3.5 indicate income inequality within-ethnic group is a significant driver of overall income inequality. These findings are substantial enough to further substantiate a closer look at income inequality within ethnic group. In earlier finding of this chapter (please see 3.4 Data section) and chapter 2 Data, Indian, Pakistani and Bangladeshi ethnic groups are repeatedly identified as ethnic groups with somewhat concerning disparities, whether this be higher levels of income inequality (Table 3.3), low incomes compared to other ethnic groups[27] (Table 3.1) and between

[26] Table 3.B2 in Appendix 3.B reports Gini decomposition for 2017-2018. The results of the decomposition are consistent with those in Table 3.5. Although the Gini coefficient reports a small decrease in total income inequality in 2017-2018. The contribution of each inequality component in 2017-2018 is consistent with 2009-2010 estimations, although the between group component is marginally larger in 2017-2018, suggesting an increase in income inequality between ethnic groups in 2017-2018 comparative to 2009-2010.

[27] This is not the case for the Indian ethnic group. Indian income patterns differ to Pakistani and Bangladeshi ethnic groups, however this is an area of interest, since these three South Asian ethnic groups are often considered as a homogenous group.

men and women (Table 3.2) and variations in men and women's income distributions (Figure 3.3 and Figure 3.4). Such findings and the nature of our data[28] validate further exploration within these ethnic groups. A significant literature has highlighted the importance of considering both gender and ethnicity in discussions of inequalities (Hurtado, 2018; Kan and Laurie, 2018; Crenshaw, 2015; Nandi and Platt, 2011). As such we continue our decomposition of Indian, Pakistani and Bangladeshi ethnic groups, with the inclusion of gender. The White group is used as a suitable comparative group.

Table 3.6 reports decomposition results by ethnicity and gender. This is an important step in our analysis as we decompose income inequality by interacting our ethnic groups with gender. The intersectionality of gender and ethnicity is helpful to shed light, for instance, on who are the men and women, or the ethnic minority individuals, at the top and bottom ends of the distributions. We report inequality levels by gender within each ethnic group and present the corresponding within and between group decomposition components.

More specifically, the table shows how inequality differs across men and women according to their ethnic group, and variation in the extent to which group inequality is driven by inequalities between the sexes. By reporting the levels of inequality of men and women across the groups, and the amount of the overall group inequality that derives from within sex inequality and that contributed by inequalities between men and women, we can better understand the extent to which equalising incomes between sexes within groups might effectively tackle overall inequality, and whether the answer is different for different ethnic groups.

[28] Indian, Pakistani, and Bangladeshi ethnic groups are the only ethnic groups which are not grouped with other ethnic groups. For example Black include Caribbean, African, any other black background. Asian include Chinese and any other Asian background, Sri Lankan, far Eastern Asian.

Table 3.6 Decomposition of population groups, by ethnic group and Gender 2009-2010

Group	Observation	MLD	Theil	CoV	MLD%	Theil%	CoV%
White	Men	0.386	0.316	0.509			
	Women	0.337	0.257	0.354			
	Within-sex	0.361	0.292	0.475	0.953	0.943	0.965
	Between-sex	0.018	0.018	0.017	0.047	0.057	0.036
	Total	0.379	0.309	0.492	100	100	100
Indian	Men	0.403	0.340	0.501			
	Women	0.423	0.298	0.362			
	Within-sex	0.411	0.326	0.483	0.955	0.946	0.968
	Between-sex	0.019	0.018	0.017	0.045	0.054	0.032
	Total	0.430	0.344	0.501	100	100	100
Pakistani	Men	0.434	0.331	0.441			
	Women	0.400	0.306	0.370			
	Within-sex	0.419	0.322	0.435	0.961	0.951	0.964
	Between-sex	0.017	0.016	0.016	0.039	0.049	0.036
	Total	0.436	0.339	0.451	100	100	100
Bangladeshi	Men	0.329	0.308	0.448			
	Women	0.430	0.362	0.588			
	Within-sex	0.370	0.324	0.499	0.939	0.934	0.958
	Between-sex	0.024	0.023	0.022	0.061	0.066	0.042
	Total	0.394	0.347	0.521	100	100	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports decomposition results by ethnicity and gender. We report decomposition of three inequality indices: mean log deviation (MLD), Theil index (Theil), half squared coefficient of variation (CoV), for men and women in the White, Indian, Pakistani and Bangladeshi ethnic groups. We report the Total income inequality, the within group component, and the between group component. Both components sum to total income inequality. The between group component quantifies the inequality between men and women within each ethnic group. The within group component quantifies the income inequality among men and among women. We also report the percentage contribution of each component to total income inequality for each inequality index.

The decomposition results in Table 3.6 report the extent of inequality for men and women in each ethnic group, total income inequality for each ethnic group, how much of total income inequality in the ethnic group is due to differences between men and women, and how much is attributed to differences within male and female groups. Income inequality among men is found to be larger than income inequality among women for the White, Indian, and Pakistani ethnic

group. This is not the case for the Bangladeshi ethnic group, where income inequality for Bangladeshi women is larger than for men across all indices. These results differ to those in Nandi and Platt (2010), in which income inequality among women is found to be larger than for men. This difference in estimated income inequality for men and women within each ethnic group is likely to be a result of differences in data.[29] Further, Nandi and Platt (2010) report decomposition of the mean log deviation only, the consistencies among the inequality decomposition of all four inequality measures used in this study enforce the robustness of our results. Since women, on average, have poorer economic outcomes than men in the same ethnic group,[30] relatively small inequalities for White, Pakistani and Indian women may represent concentration of women at lower levels of income. The largest inequalities are experienced by Pakistani and Indian men, which is particularly interesting since the experiences in economic outcomes between Pakistani and Indian men differ. Generally, Pakistani men have poorer economic outcomes than Indian men. Therefore, it is important to consider whether reducing within-group income inequality by equalising income within some ethnic minority groups, particularly among Pakistani men, would simply concentrate Pakistani men at lower-income levels, increasing income inequality between groups.

The within-group component is substantially larger than the between-group inequality component, which is also consistent with previous findings (Nandi and Platt, 2010). We find that income inequality between gender does not account for the majority share of total income inequality in each ethnic group, nor is it substantially large in comparison. For Indian and Pakistani ethnic groups, inequality within male and female groups accounts for a larger proportion of total income inequality than for the White group. The between group component accounts for a marginally higher proportion of total income inequality within the white group, although the within-group component dominates. These findings indicate that total income inequality is explained by larger income disparities between men and women in the white group, compared to the contribution of income disparities among men and women in the Indian and Pakistani groups. The between group component for the Bangladeshi group accounts for the largest share of total income inequality among all ethnic groups.

[29] Nandi and Platt (2010) use Family Resource Survey and Household Below Average Income 2003/2004-2007/2008, using household data, whilst we use individual level for men and women.

[30] See Chapter 2 for an exploration of economic inequalities.

We find that income inequality between men and women accounts for a larger proportion of total income inequality for each ethnic group, than the contribution of inequality between ethnic groups to total income inequality. These results support the need to discuss the intersection of multiple identities such as ethnicity and gender in society and highlight the possibility for the compounded effect of disadvantages associated with multiple characteristics faced by some groups in society. We report decomposition results by ethnicity and gender for 2017-2018 in Appendix 3.B. [31]

As the value of θ increases from 1 to 2 (or from Theil's index to CoV) total inequality increases and so does the within-group component. The variation in income is greatest when using the CoV, which is more sensitive to differences at the top end of the income distribution. This indicates that within group inequality increases due to individuals at the top end of the distribution possessing substantially higher income relative to those at the lower end. If only those at the top end of the income distribution within the groups were benefiting from policies that invest in education, training and employment opportunities, then this would result in increased inequality in society. For lower values of θ, the between group component increases; the between group component appears relatively more important when the subgroup decomposition is done with a measure of inequality that is more sensitive to changes in income at the lower end of the distribution.

Table 3.7 reports the decomposition of the Gini coefficient by ethnicity and gender. The results echo those reported in table 3.6. Income inequality among men are higher than among women for the White, Indian and Pakistani ethnic groups, whilst the opposite is true for the Bangladeshi group. Within-group inequality accounts for the largest component of total income inequality, whilst the between group component accounts for the minority share of total income inequality between men and women in each ethnic group. We find that the share of the between group component is significantly larger the within-group component. Inequality levels for men and women within all minority groups are greater than those for White men and women, except for

[31] Table 3.B3 in Appendix 3.B reports decomposition of inequality indices by ethnicity and gender using the mean log deviation, Theil index, and half squared coefficient of variation for 2017-2018. The within group component across the White, Indian, Pakistani and Bangladeshi ethnic groups accounts for the largest proportion of total income inequality as in Table 3.6. As in table 3.6, the inequality among White and Indian men is greater than inequality among White and Indian women. In 2017-2018, income inequality among Pakistani and Bangladeshi women is greater than Pakistani and Bangladeshi men.

Bangladeshi men. The results indicate the between-group component for the White group accounts for a larger proportion of total ethnic income inequality compared to all other minority groups, although in the case of the Indian group the difference is marginal. For all groups, the between group inequality components of the Gini decomposition accounts for a larger proportion of total income inequality than is the case for the decomposition of generalised entropy measures. These findings suggest that disparities between men and women within each ethnic group account for a larger proportion of ethnic income inequality in each group, compared to ethnic differences between groups. These findings are important as they highlight the degree of heterogeneity experienced within ethnic and gender groups. We report Gini decomposition results by ethnicity and gender for 2017-2018 in Appendix 3.B. [32]

[32] Table 3.B4 in Appendix 3.B reports decomposition of inequality indices by ethnicity and gender for Gini index for the period 2017-2018. As in table 3.7, the within group component is larger than the between group component. As was the case for 2009-2010 decomposition by ethnicity and gender, the decomposition for the Gini index reports a larger between group component than in the decomposition of generalised entropy measures. Estimations in table 3.B4 show that income inequality among Indian, Pakistani and Bangladeshi women is larger than the that among ethnic minority men. For the White group, income inequality among White men is greater than income inequality among White women, as shown in table 3.7 for the 2009-2010 period.

Table 3.7 Gini Decomposition of population groups, by ethnic group and Gender 2009-2010

Ethnic group	Inequality	Gini	Gini %
White	Men	0.404	
	Women	0.372	
	Within-sex	0.192	47.97
	Between-sex	0.095	23.80
	Residual	0.113	28.23
	Total	0.4	100
Indian	Men	0.428	
	Women	0.414	
	Within-sex	0.214	49.25
	Between-sex	0.102	23.41
	Residual	0.119	27.35
	Total	0.435	100
Pakistani	Men	0.419	
	Women	0.412	
	Within-sex	0.207	48.69
	Between-sex	0.092	21.56
	Residual	0.127	29.75
	Total	0.426	100
Bangladeshi	Men	0.397	
	Women	0.413	
	Within-sex	0.203	49.63
	Between-sex	0.059	14.39
	Residual	0.147	35.98
	Total	0.408	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports decomposition results by ethnicity and gender. We report decomposition of Gini coefficient for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. We report the Total income inequality, the within group component, the between group component and the residual. All three components sum to total income inequality. The between group component quantifies the inequality between men and women within each ethnic group. The within group component quantifies the income inequality among men and among women. We also report the percentage contribution of each component to total income inequality

3.6 Conclusion

In this chapter, by employing a standard decomposition methodology, we quantify the contribution of inequalities within and between ethnic and gender groups towards total income inequality in the UK. Results for the decomposition among all indices were consistent and endorse the robustness of the reported results. [33] Decomposition analysis results reveal that, for all population subgroups, between-group inequality accounts only for a very small part of the overall inequality in the population. The evidence indicates inequality between men and women within ethnic groups is larger compared to income inequality between ethnic groups. This strengthens the need to consider the influence of ethnicity and gender simultaneously. These findings suggest that average income differences between the groups, whether we characterise them according to their ethnicity or to their gender, are unlikely to be very representative of the income experiences faced by individuals within each of the groups.

Further, we find that inequalities are more substantial within Indian, Pakistani and Bangladeshi ethnic groups than the White groups. A larger dispersion of income among ethnic minority groups indicate average incomes are less representative of the experiences faced by minority men and women than men and women in the White group. Among the White, Indian and Pakistani groups, inequalities among men are larger in comparison to inequality among women in the same ethnic groups, whilst the opposite is true for the Bangladeshi group, unlike findings in Nandi and Platt (2010). This is likely to be a result of the low-income levels reported by Bangladeshi men in our sample. A number of Bangladeshi women have zero income, and few have high income, which result in a larger degree of income dispersion among Bangladeshi women than is the case for Bangladeshi men. In summary, our results indicate the following. Firstly, ethnic income inequality in the UK is largely driven by income inequality within ethnic groups, less so by differences in mean income between ethnic groups. Second, income inequality observed within White, Indian, Pakistani and Bangladeshi ethnic groups are driven by inequalities among men and among women, rather than differences in mean income between men and women within each ethnic group. Third, income inequality between men and women accounts for a larger proportion of total income inequality for each ethnic group, than the contribution of inequality between ethnic groups to total income inequality. Finally, not only

[33] Inequality decomposition of 2017-2018 are largely consistent with the 2009-2010 estimations, reinforcing the robustness of our estimations.

do we observe heterogeneity among White and ethnic minority groups, but we also observe variations among ethnic minority groups. Primarily the decomposition results identify larger inequality for women than men in the Bangladeshi ethnic group, the opposite is found for men and women the Indian, Pakistani and White ethnic groups. Whilst exploration of the distribution of income identifies more income similarities among White and Indian men and women, than between Indian Pakistani and Bangladeshi men and women's distributions of income. Income distributions for Pakistani and Bangladeshi ethnic groups are found to be similar.

The results of the decomposition indicate that policy aimed at reducing inequality between the ethnic groups and between ethnicity and gender groups would only have a limited effect on reducing overall inequality in the population. Although the results of the decomposition indicate smaller between-group difference among the ethnic and gender groups, we find evidence of disparities among ethnic groups as indicated by an exploration of the distribution of income. It is not surprising that inequalities within group are substantially larger than the between-group component, since variations in income for all groups are large. We do not suggest between group inequalities are less important than within group inequalities, in fact higher levels of between group income inequalities are likely to contribute to social disturbances and unrest in the population and therefore it is of some comfort we do not find mass difference between group income inequalities. Rather we use these results to highlight the importance of considering within group inequalities in reducing overall income inequality in the population.

Although the inequality decomposition is useful to disaggregate income into within and between group differences, which is itself valuable in highlighting areas of substantial group differences, this method does little to explain the observed variation in income. We complement this analysis with regression-based decomposition in the next chapter to identify drivers of income inequality. Since we find within group differences to be the most substantial component of total ethnic income inequality, in the proceeding chapter we investigate the factors contributing towards income inequality among men and women in the White, Indian, Pakistani and Bangladeshi ethnic groups.

3.A Appendix

Table 3.A1 Income distribution percentiles for White, Indian, Pakistani and Bangladeshi men and women 2009-2010

	White		Indian		Pakistani		Bangladeshi	
Percentiles	Men	Women	Men	Women	Men	Women	Men	Women
1%	10.83	16.67	25.06	4.33	3.75	8.33	70.30	8.00
5%	205.83	144.44	200.00	88.00	130.00	88.00	195.00	130.00
10%	346.67	271.00	333.33	189.33	230.79	146.00	312.00	156.83
25%	863.33	608.87	736.45	500.00	500.00	333.33	511.33	349.70
50%	1401.30	1019.26	1300.00	937.98	997.53	705.00	900.00	758.21
75%	2102.25	1508.80	2112.95	1441.69	1540.00	1128.37	1483.18	1255.80
90%	3004.68	2129.39	3094.25	2075.42	2202.50	1622.00	2063.00	1778.16
95%	3938.62	2563.33	4071.89	2611.06	2721.98	1954.31	2620.08	2047.18
99%	8100.00	4092.65	7842.27	4793.00	6412.18	2841.55	4766.67	2681.19

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports total monthly personal income-net of tax of men and women situated at different percentiles of the income distribution. 1st to 99th percentiles are reported for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups, 2009-2010. The 50th Percentile reports the median income for each group.

The remaining tables and figures in appendix 3.A are reported using 2017-2018 data from wave 9 of UKHLS data.

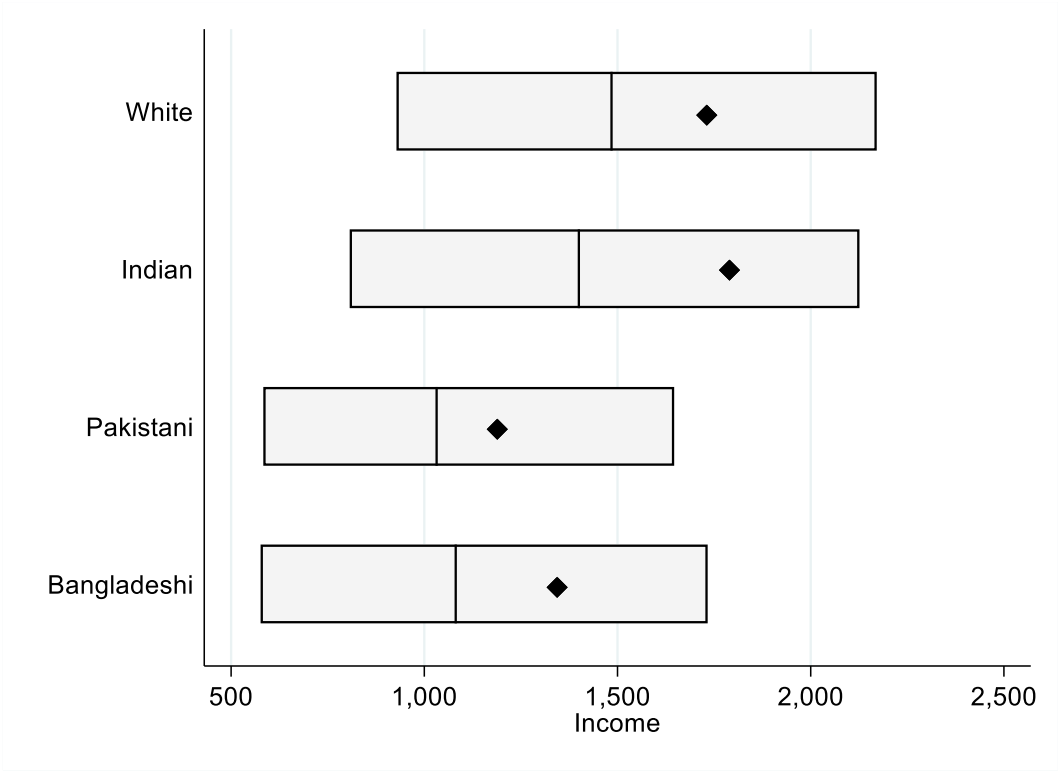
Table 3.A2 Descriptive statistics for each ethnic group: 2017-2018

Ethnic group	Population share	Mean	Income share
White	0.86359	1695.773	0.85739
Indian	0.02084	1758.927	0.02147
Pakistani	0.01301	1188.809	0.00906
Bangladeshi	0.00587	1391.863	0.00478
Other Asian	0.01004	1743.695	0.01025
Black	0.02049	1534.956	0.01841
Other	0.06615	2030.398	0.07864

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports descriptive statistics, population share, mean income and income share for each ethnic group in our sample. Total monthly personal income net of tax is reported. Income is reported in pounds (£) per month.

Figure 3.A1 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, by ethnic group 2017-2018



Source: UKLHS, Wave 9, 2017-2018.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi ethnic groups in our sample, 2017-2018. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax is reported.

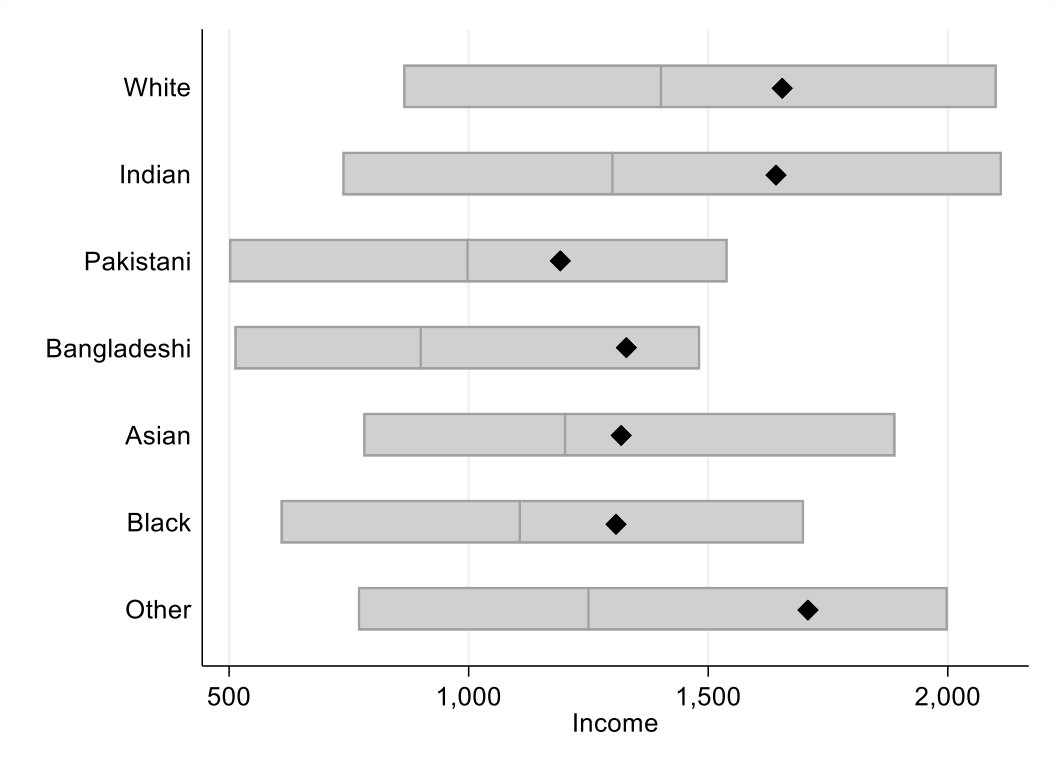
Table 3.A3 Descriptive statistics for men and women 2017-2018

Ethnic Group	Gender	Population share	Mean	Income share
White	Men	0.486	1966.26	0.564
	Women	0.514	1439.89	0.436
Indian	Men	0.548	2033.73	0.634
	Women	0.452	1425.18	0.366
Pakistani	Men	0.508	1412.77	0.604
	Women	0.492	957.17	0.396
Bangladeshi	Men	0.524	1442.82	0.544
	Women	0.476	1335.66	0.456

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports descriptive statistics, population share, mean income and income share for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. Total monthly personal income net of tax is reported.

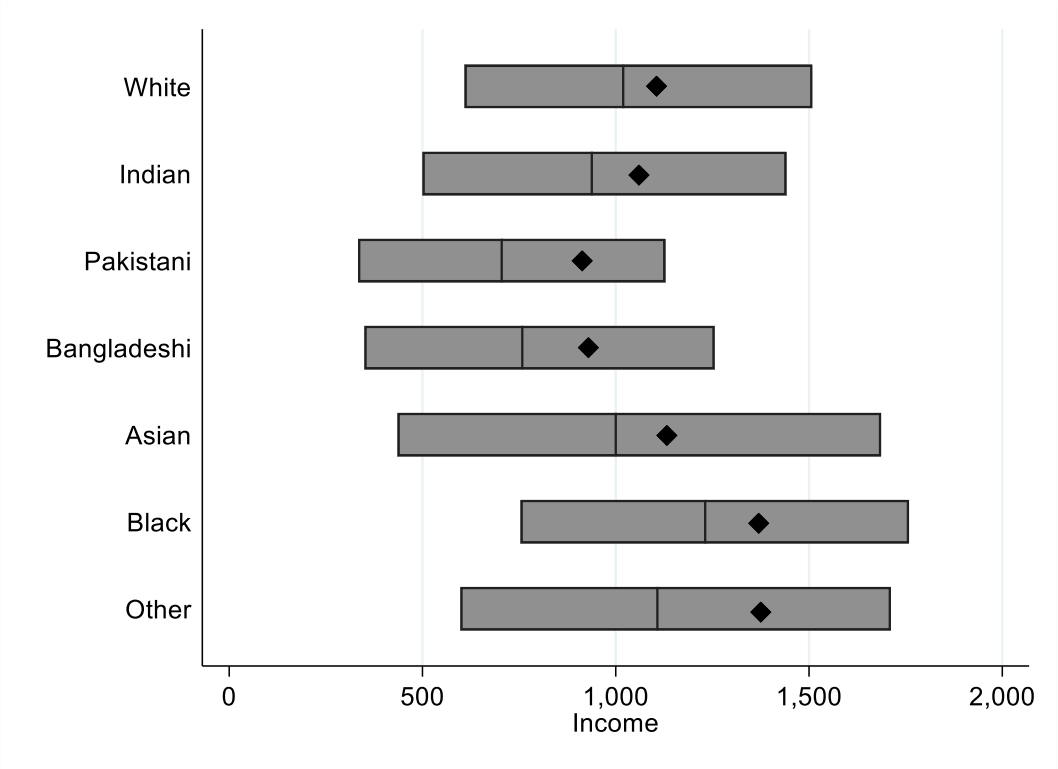
Figure 3.A2 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for each ethnic group, men 2009-2010



Source: UKLHS, Wave 1, 2009-2010.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi men, 2009-2010. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax is reported. Standard errors and standard deviations show in Table 3.2. Figure 3.A4 in appendix 3A reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, men 2017-2018.

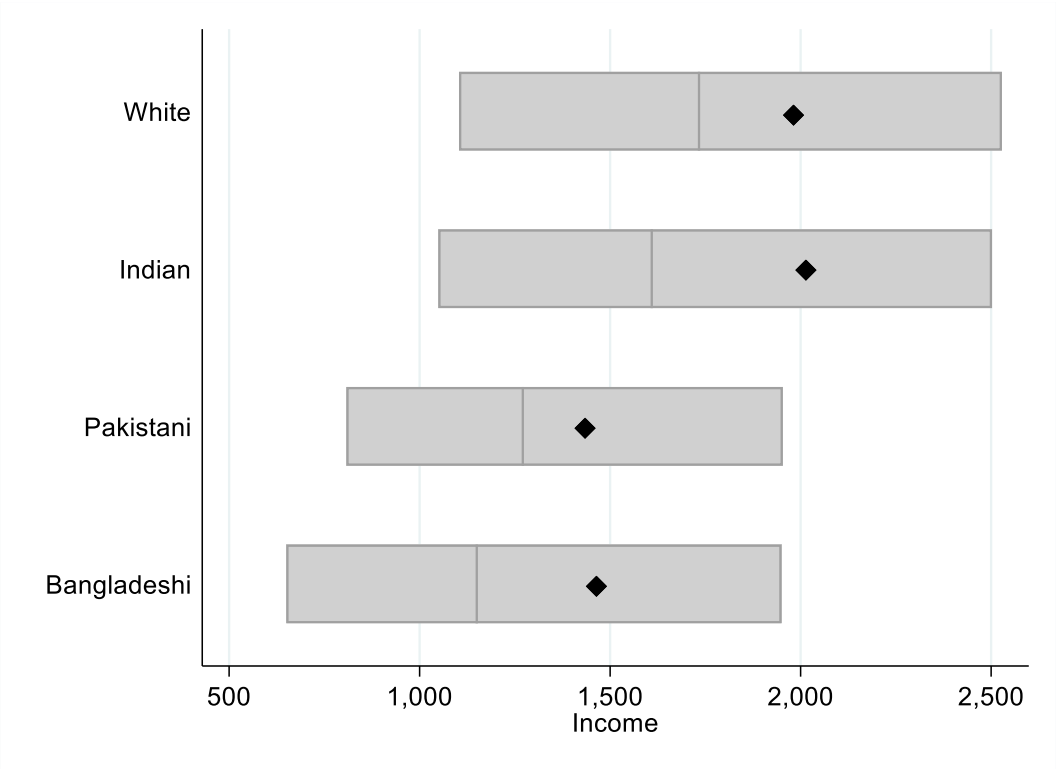
Figure 3.A3 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for each ethnic group, women 2009-2010



Source: UKLHS, Wave 1, 2009-2010.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi women, 2009-2010. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax is reported. Standard errors and standard deviations show in Table 3.2. Figure 3.A5 in appendix 3A reports Interquartile ranges, 25th and 75th percentile, median and mean monthly income for each ethnic group, women 2017-2018.

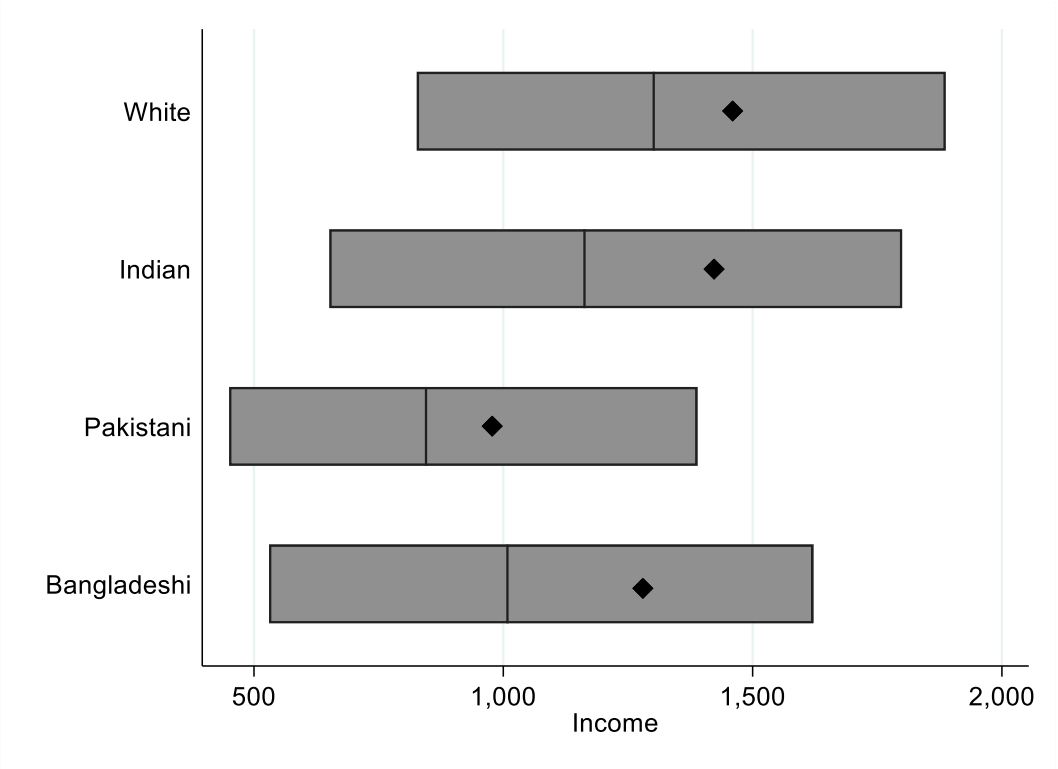
Figure 3.A4 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for White, Indian, Pakistani and Bangladeshi men 2017-2018



Source: UKLHS, Wave 9, 2017-2018.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi men, 2017-2018. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax is reported

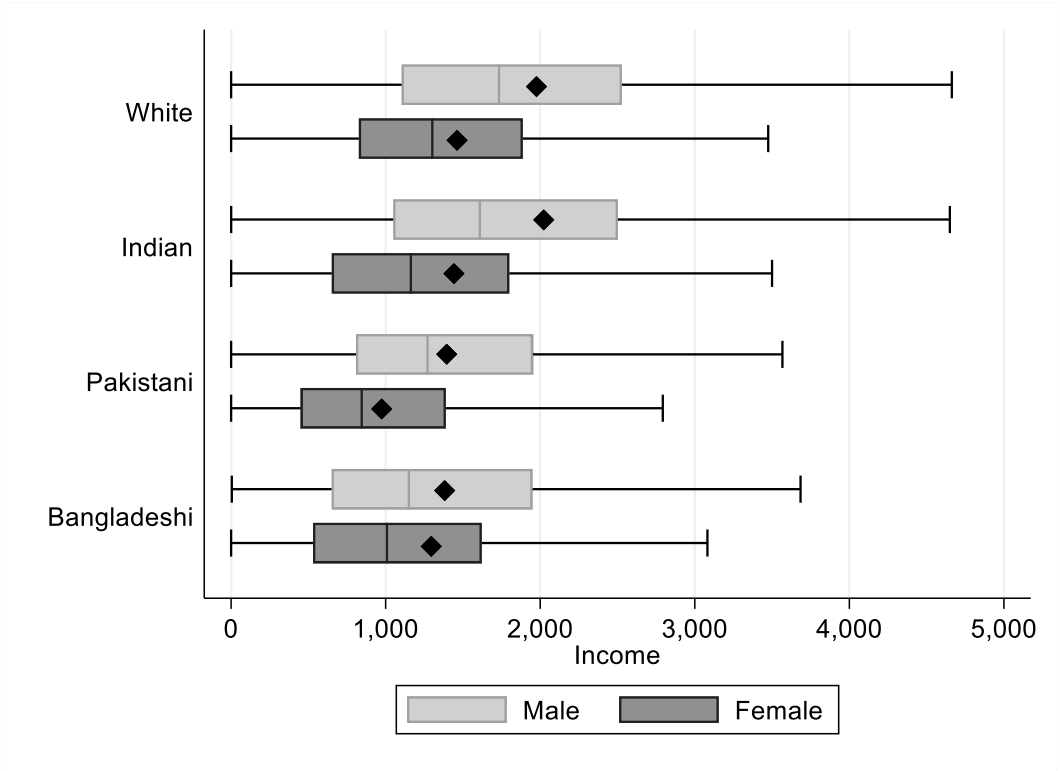
Figure 3.A5 Interquartile ranges, 25th and 75th percentile, median and mean monthly income, for White, Indian, Pakistani and Bangladeshi women 2017-2018



Source: UKLHS, Wave 9, 2017-2018.

Note: This figure reports the interquartile range for White, Indian, Pakistani, Bangladeshi women, 2017-2018. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. Total monthly personal income net of tax is reported.

Figure 3.A6 Boxplot by ethnic group and gender 2017-2018



Source: UKLHS, Wave 9, 2017-2018.

Note: This figure reports the interquartile range and whiskers for White, Indian, Pakistani, Bangladeshi men and women in our sample, 2017-2018. The outer edges report the 25th and 75th percentiles. The middle vertical line reports the median income. And the diamond reports the mean income. The whiskers report the upper and lower adjacent values. Total monthly personal income net of tax is reported.

Table 3.A4 Subgroup indices 2017-2018

Ethnic group	MLD	Theil	CoV	Gini	90/10 ratio
White	0.389	0.287	0.491	0.385	7.56
Indian	0.477	0.280	0.314	0.399	11.327
Pakistani	0.411	0.262	0.291	0.390	10.384
Bangladeshi	0.391	0.324	0.608	0.404	9.884
Other Asian	0.424	0.219	0.218	0.355	6.41
Black	0.314	0.200	0.196	0.342	8.732
Other	0.539	0.630	3.118	0.475	9.493

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports inequality indices, mean log deviation (MLD), theil index (Theil), half squared coefficient of variation (CoV), Gini Indian and the 90/10 ratio for each ethnic group.

3.B Appendix

Tables in Appendix 3.B report inequality decomposition by ethnicity, and ethnicity and gender for 2017-2018 data using wave 9 of UKHLS data.

Table 3.B1 Inequality decomposition 2017-2018

Inequality	MLD	Theil	CoV	MLD%	Theil%	CoV%
Within	0.3996	0.3119	0.7261	0.995	0.994	0.997
Between	0.0021	0.0020	0.0020	0.005	0.006	0.003
Total	0.40166	0.31389	0.72808	100	100	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports decomposition of inequality indices, mean log deviation (MLD), theil index (Theil), half squared coefficient of variation (CoV). We report the Total income inequality, the within group component, and the between group component. Both components sum to total income inequality. We also report the percentage contribution of each component to total income inequality for each inequality index.

Table 3.B2 Gini inequality decomposition 2017-2018

Inequality	Gini	Gini %
Within	0.218	56.276
Between	0.027	6.977
Residual	0.143	36.747
Total	0.388	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports decomposition of Gini index. We report the total income inequality, the within group component, and the between group component and the residual. Three components sum to total income inequality. We also report the percentage contribution of each component to total income inequality for the Gini coefficient.

Table 3.B3 Decomposition of population subgroups ethnicity and gender 2017-2018

Ethnic Group	Observation	MLD	Theil	CoV	MLD%	Theil%	CoV%
White	Men	0.402	0.292	0.496			
	Women	0.352	0.254	0.417			
	Within-sex	0.377	0.275	0.479	0.969	0.958	0.975
	Between-sex	0.012	0.012	0.012	0.031	0.042	0.025
	Total	0.389	0.287	0.491	100	100	100
Indian	Men	0.501	0.266	0.274			
	Women	0.415	0.263	0.332			
	Within-sex	0.462	0.265	0.299	0.968	0.946	0.953
	Between-sex	0.015	0.015	0.015	0.032	0.054	0.047
	Total	0.477	0.280	0.314	100	100	100
Pakistani	Men	0.316	0.220	0.256			
	Women	0.470	0.278	0.277			
	Within-sex	0.392	0.243	0.272	0.954	0.929	0.937
	Between-sex	0.019	0.019	0.018	0.046	0.071	0.063
	Total	0.411	0.262	0.291	100	100	100
Bangladeshi	Men	0.354	0.238	0.259			
	Women	0.430	0.424	1.054			
	Within-sex	0.390	0.323	0.608	0.998	0.998	0.999
	Between-sex	0.001	0.001	0.001	0.002	0.002	0.001
	Total	0.391	0.324	0.608	100	100	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports decomposition results by ethnicity and gender. We report decomposition of inequality indices, mean log deviation (MLD), theil index (Theil), half squared coefficient of variation (CoV), for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. We report the Total income inequality, the within group component, and the between group component. Both components sum to total income inequality. The between group component quantifies the inequality between men and women within each ethnic group. The within group component quantifies the income inequality among men and among women. We also report the percentage contribution of each component to total income inequality for each inequality index.

Table 3.B4 Gini decomposition by population subgroups ethnicity and gender 2017-2018

Ethnic group	Inequality	Gini	Gini %
White	Men	0.379	
	Women	0.361	
	Within-sex	0.184	48.335
	Between-sex	0.080	21.085
	Residual	0.116	30.579
	Total	0.380	100
Indian	Men	0.392	
	Women	0.396	
	Within-sex	0.196	48.390
	Between-sex	0.087	21.514
	Residual	0.122	30.096
	Total	0.405	100
Pakistani	Men	0.359	
	Women	0.394	
	Within-sex	0.186	47.698
	Between-sex	0.102	26.230
	Residual	0.102	26.072
	Total	0.390	100
Bangladeshi	Men	0.393	
	Women	0.468	
	Within-sex	0.221	50.498
	Between-sex	0.009	2.1430
	Residual	0.207	47.359
	Total	0.437	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports decomposition results by ethnicity and gender. We report decomposition of Gini coefficient for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. We report the Total income inequality, the within group component, the between group component and the residual. All three components sum to total income inequality. The between group component quantifies the inequality between men and women within each ethnic group. The within group component quantifies the income inequality among men and among women. We also report the percentage contribution of each component to total income inequality.

Chapter 4 A regression-based decomposition of UK income inequality: The intersection of ethnicity and gender

4.1 Introduction

When UK income inequality is disaggregated according to different ethnic groups, as we did in the previous chapter, we found that inequalities within minority ethnic groups are substantial, in some cases larger than income inequalities across the whole population (Nandi and Platt, 2011). This evidence challenges the notion that minority groups are largely homogenous, in fact the distribution of incomes within different minority population show substantial dispersion. Therefore, the economic experience of these groups is not a reflection of the average income: averages can be misleading.

Several explanations may account for the income variations observed within groups. The empirical evidence on the income variation experienced within ethnic minority groups has been so far scarce, and typically based on small samples. Previous studies have explored the contribution of demographic or economic subgroups to trends in inequality, with the aim to understand the relative contribution of different population shares to changes overtime (Jenkins, 1995; Jenkins and Van Kerm, 2005; Brewer and Wren-Lewis, 2009). However ethnic income inequality in the UK and the factors contributing to inequalities within minority groups have received much less attention, this gap becomes more evident specifically when the intersection between gender and ethnicity is considered and even more so in the case of a detailed focus on Indian, Pakistani, Bangladeshi men and women in the UK.

We explore the factors which contribute to explaining UK inequality for these groups of men and women. Employing a regression-based approach, we investigate the microeconomic determinants of income inequality in the UK focusing on ethnicity and gender for 2009-2010. We explore, how much of the inequality within men and women in White, Indian, Pakistani and Bangladeshi groups in the UK can be explained by a range of individual and household characteristics: education, employment status, unemployment, children, marital status, household size, housing tenure, and region.

We use UKHLS data from 2009-2010 and implement the regression-based decomposition methodology developed by Fields (2003) to highlight the major sources of inequality within these minority groups. We measure the relative contributions of a set of factors to inequality in

individual disposable incomes, with the explanatory variables being introduced in an income generating model. The estimated coefficients are then used to calculate factor inequality weights. The results suggest the most relevant factors in explaining the observed inequality are employment status, dependent children, age and education.

This chapter is structured as follows: section 4.2 offers an overview of the regression-based decomposition literature, section 4.3 details the methodological approach defined by Fields (2003), section 4.4 review the literature on drivers of income inequality, and section 4.5 provides data and variable information. Section 4.6 discusses the results obtained from the decomposition analysis, and a concluding section highlights major findings.

4.2 Review of regression-based inequality decomposition

Interest in empirical questions concerning income inequality and its determinants have led to common practices of decomposing inequality indices, as we did in the previous chapter, this can be a useful tool, although it is largely descriptive. Limitations of said methods led to the consideration of decomposition using regression analysis. Regression-based decomposition approaches, derived from mainstream applied economics, was originally developed in the early 1970s by Blinder (1973) and Oaxaca (1973) and has been extensively applied (Jann, 2008). [34] Regression-based decomposition methods have developed since this seminal work, although these methods are often utilised to decompose differences between groups or over time (Fortin, Lemieux and Firpo, 2010).[35] Regression-based decomposition regained popularity when Morduch and Sicular (2002) and Fields (2003) devised a regression-based decomposition by income determinants, as an extension of the decomposition by income source first initiated by Shorrocks (1982), which quantified the contribution of individual income sources to the observed income inequality (refer to Appendix 4A, equation 4.A3). The Regression-based decomposition starts with the estimation of an income-generating equation, the estimated coefficients from this function are then used to derive the inequality weight of each of the explanatory variables used in the regression. These methods claimed to hold three main advantages, which garnered much attention in the literature (Fields, 2003; Morduch and Sicular, 2002). Firstly, they provide an exact allocation of contributions to the identified variables; secondly the decomposition techniques can be employed with a variety of inequality

[34] See section 4.A.1 Decomposition techniques in Appendix 4.A.

[35] See Fortin, Lemieux and Firpo (2010) for a review of decomposition methods in economics.

indices and decomposition rules, and, lastly, are associated with a simple procedure for deriving standard errors and confidence intervals for estimated components of inequality.

There are two main differences between Morduch and Sicular (2002) on one hand, and Fields (2003) regression-based decomposition approach on the other hand. Firstly, Fields (2003) regresses income and not inequality of income; secondly, the factor shares obtained by Fields (2003) do not vary with the inequality measure chosen, while this is not the case for Morduch and Sicular (2002). Morduch and Sicular (2002) approach has been criticised on the basis that the error term, which is included into their original income equation, does not make any contribution towards overall inequality (Wan, 2004). Fields' method, which accounts for the contribution of the error term to total inequality, is thus generally preferred, even though, at times, the error term tends to be large, which means that a significant proportion of overall inequality remains unexplained.

Fields (2003) decomposition method has been extensively applied by researchers. Some studies decompose wage inequality (Deng and Li, 2009). Other studies decompose household income inequality (Gunatilaka and Chotikapanich, 2009; Naschold, 2009; Manna and Regoli, 2012; and Brewer and Wren-Lewis, 2016). Regression-based decomposition has been utilised in the context of developing countries (Rani et al. 2017; Ayyash and Sek, 2020) and developed (Fiorio and Cowell, 2009), although less in a UK context. Unlike these studies, we decompose individual level income for ethnic minority groups in the UK.[36] Regression-based decomposition methods have been utilised very little in the context of UK data, with exceptions including Brewer, Muriel and Wren-Lewis (2009) and Brewer and Wren-Lewis (2016), who utilise a different data source and time period.[37] Of these limited studies, there has been very little focus on ethnic income inequality or intersectionality, more specifically, ethnicity and gender, which is a key aspect of this study.

[36] See Appendix 4C for discussion on use of income opposed to other economic inequalities. Exploration of the ethnicity and income data in Appendix 4C, inform and justifies the decision to decompose income inequality. The primary reasoning being income encompasses a range of income sources such as labour income, benefit income which may be particularly important for ethnic minority women, such as Pakistani and Bangladeshi women who are less economically active compared to men and White women (Dale, 2008).

[37] The Family Resources Survey and Households Below Average Incomes (1978-2009).

4.3 Methodology

The first step in the regression-based decomposition of income inequality requires the specification and estimation of an income generating function, that is a model where income is regressed on some explanatory variables accounting for individual and household characteristics.[38] The dependent variable is used in logarithmic form, as the income variable can be approximated well by a lognormal distribution (Shorrocks and Wan, 2004):

$$\ln(y_i) = \alpha + \sum_{j=1}^{J} \beta_j X_{i,j} + \varepsilon_i \quad (4.1)$$

y_i is individual income, α is the constant and $X_{i,j}$ a set of explanatory variables, where $j = 1, 2, \ldots j$. ε_i is the error term. This Mincerian equation is run for White, Indian, Pakistani, Bangladeshi ethnic groups, for both male and female groups. The dependent variable is represented by (log of) total net monthly personal income. The variables X_i are sets of indicator variables which represent individual and household characteristics, including age, education, employment status, marital status, household size, housing tenure, UK born, and region. These variables are informed by the literature and presented in more detail in section 4.4. In the regression-based decomposition literature, gender is often included as an important explanatory factor to quantify the contribution of gender to overall income inequality[39] (Manna and Regoli, 2012). For the main results presented in table 4.1, gender and ethnicity are used to form groupings. Having found in the previous chapter significant inequalities are observed within the ethnic minority groups we focus on, this methodology allows us to estimate how much each variable contributes to income inequality in each of the group, by reporting the share of log-variance of income attributable to each variable.

[38] Analysis adjust standard errors for clustering at the family level.
[39] See Appendix 4.D for regression-based decomposition by ethnic group, including gender as an explanatory factor.

Using $\hat{\beta}_j$ from eq. 4 we can compute the factor inequality weight ($\hat{S}_j$):

$$\hat{S}_j = \hat{\beta}_j \frac{\widehat{cov}\left(X_j, ln(y)\right)}{\widehat{var}\left(ln(y)\right)} \tag{4.2}$$

The factor inequality weights are the contribution of each of the explanatory variables to total income inequality or how much of the total inequality in income is explained by each explanatory variable. Fields combines an income generating equation, such Equation 4.1 and Shorrocks (1982) original theorem,[40] to develop Equation 4.2. $\hat{\beta}_j$ is the coefficient of the *jth* explanatory factor estimated using OLS regression, $\widehat{cov}\left(X_j, ln(y)\right)$ is the covariance between the *jth* factor and the dependent variable and $\widehat{var}\left(ln(y)\right)$ is the variance of the dependent variable. The sign associated with $\hat{S}_j$ indicates whether the contribution of factor X_i is inequality increasing (+ positive values) or inequality reducing (- negative values).

The residual $\hat{S}_\varepsilon$ (unexplained part) is given by,

$$\hat{S}_\varepsilon = 1 - \sum_{j=1}^{J} \hat{S}_j \tag{4.3}$$

The factor inequality weights show how much of total inequality in income is explained by the explanatory variable in the regression. The residual indicates the share of income inequality which is not explained by the explanatory factors. $\hat{S}_\varepsilon$ is 1 minus the explained proportion. This decomposition technique can be applied to any inequality index which is consistent with the axiomatic properties (Shorrocks, 1982; Fields, 2003). For the regression-based decomposition, the variance of logs is used (as in Fields, 2003), which is more sensitive to lower parts of the income distribution.

[40] See Appendix 4A equation, 4.A3

4.4 Factors influencing income inequality

A large literature focuses on the factors of income inequality. Here, we discuss the relevant economic, social, demographic and cultural factors which influence variation in individual-level incomes, as this will help us to establish an appropriate specification for our decomposition analysis. In general, while some studies focus on single or few factors which influence income inequality (Abdullah, Doucouliagos & Manning, 2015; Lam, 1997), others address a larger range of factors (e.g. Brewer & Wren-Lewis, 2016; Xu and Zou, 2000, Clarke, Xu and Zou, 2003; Anand, 1983), a scarce literature covers the extent of all the relevant influencing factors in the literature. In fact, it is well established that it is uncertain whether the results of these empirical analysis reflect complete reality, particularly when questioning the influence of the interrelationship of these factors (Kaasa, 2005). We are mindful of this constraint when using the existing literature to justify the selection of variables used in the empirical model. We aim to include in the analysis as many relevant factors from the literature as allowed by the data.

Factors related to the relationship between economic development and income inequality have certainly received considerable attention. As income increases, we expect income inequality within-groups to increase, particularly if incomes increase for the rich than the relatively poorer; if income increases for the poor, income inequalities narrow (Kaasa, 2005). Individual incomes may be influenced by various factors such as age, education, employment, family background, as well as whether the individual is a long-standing or more recent immigrant (Vallejo and Keister, 2020). Consideration of gender and ethnicity may justify the further consideration of the differential impact of factors such as labour market participation (Dale 2008) or religious and cultural practices that may have a strong influencing factor on income within minority groups; for instance, practices which promote unequal distribution of inheritance for males and female, or dowry. [41]

We discuss the influence of social and demographic factors such age, education, employment, geographical location and household composition on income inequality. The influence of age structure on income inequality is mixed. Different, and in some cases opposing effects and theories can be found in the literature to understand whether ageing leads to more or less

[41] It may be argued such practices are less relevant when applied to ethnic minority groups living in UK who observe less traditional practices.

inequality in society. The non-linear effect of age has been well documented in the literature (Deaton and Paxson, 1997; Higgins and Williamson, 1999; Nielsen and Alderson, 1997). The literature suggests that, as age increases, income increases due to higher educational attainment, experience, job security etc; however, with further increasing age, income begins to reduce. Deaton and Paxson (1997) argue that older individuals have a higher dispersion of income, therefore a more aged population is likely to lead to higher income inequality.

The level of education is certainly one of the most important and actively discussed factors in explaining income inequality in the theoretical and empirical literature. Human capital theory emphasises the role of education in increasing the productivity and efficiency of workers (Becker & Chiswick, 1996). Many studies have found educational qualification to be an important factor influencing income inequality (Morduch and Sicular, 2002; Manna and Regoli, 2012; Brewer Wren-Lewis, 2016). Higher variation in the spread of educational qualifications in a population is associated with higher income inequality (Chiswick, 1971; Cornia and Kiiski, 2001; Nielson and Alderson, 1997).

Several studies have highlighted the contribution of employment status in explaining income inequality (Cowell, 2009; Manna and Regoli, 2012; Brewer and Wren-Lewis, 2016). Whilst some studies find the effect of employment status to have a significant impact on inequality (Cowell, 2009; Brewer and Wren-Lewis, 2016) other studies find its impact to be marginal (Manna and Regoli, 2012). Brewer and Wren-Lewis (2016) apply regression-based decomposition on household level income. Their results identify employment status to be the most significant explanatory variable, explaining almost a third of total inequality from 1968-2006. However, these studies do not consider the impact of employment status on ethnic income inequality.

The composition of the household can be an important determinant of income inequality. The more variation between household types, the higher the income inequality as different types of households have different incomes per household member (Wilkie, 1996). The literature has moved from consideration of household as a single unit, the so-called unitary model of the household - to a more collective model which takes account of the fact that a household may consist of several members who may have different preferences and intrahousehold bargaining power (Vermeulen, 2001). From a gender perspective, various studies have focused on single-female headed households (Partridge, Partridge and Rickman, 1998; Maxwell, 1990; Nielsen and Alderson, 1997; Bishop, Formby and Smith, 1997; Chevan and Stokes, 2000). Unlike

traditional household types where households usually consist of two employed persons, the single female headed household is reliant upon the income of a single female individual. Single female headed households generally have lower income per household member (Chant, 2004) and therefore overall inequality is higher when there is a greater variation of household types.

Marital status and number of dependent children have been less explored in analyses of inequality decomposition than other factors, exceptions include Heshmati (2004), Brewer, (2016) and Gu et al. (2019). Gustafsson and Johansson (1997) find that a larger share of children (aged 0-14) is associated with higher income inequality. These factors are particularly pertinent when performing analysis for ethnic minority groups and gender. It is well established that family commitments and caring responsibilities have a negative impact on levels of economic activity for women, and this appears to be the case for Pakistani and Bangladeshi women in particular (Ahmed and Dale, 2008).

The evidence on the influence of urbanisation on income inequality is contradictory. Some theories predict that higher population density and urbanisation are associated with lower inequality, and greater possibilities for progressive social organisation (Crenshaw, 1993; Yorukoglu, 2002). On the contrary, others suggest that higher population density and urbanisation are related to increasing inequality, indicating that inequalities are usually higher in urban than rural areas. For instance, Ahlfeldt and Pietrostefani (2019) finds that cities with high population density, whilst economically beneficial, are associated with greater inequality.[42] Districts with the greatest ethnic inequalities are found throughout England and are generally in urban areas with relatively large ethnic minority populations, and where minority communities are well established (Finney et al., 2011).. Inequalities do not exist only in areas with a large concentration of ethnic minorities, which are often their original settlement areas, but persist also in areas with low density of ethnic minority population. The latest evidence illustrates that many of the districts across England and Wales, which have become more unequal between 2001- 2011, are the less deprived rural districts with relatively small ethnic minority populations (Finney, 2011). This suggests that regional disparities may be a more relevant control in this analysis.

Few studies focus on the influence of cultural traditions on income inequality. One reason for this sparsity of analysis is that it is difficult to gauge a common indicator of cultural traditions

[42] This is resonant of the efficiency vs equity argument which is well versed in economic theory and the literature (Jorgenson and Slesnick 1985).

and the variation among different ethnic minority groups (Kaasa, 2005). Often, ethnic minority groups are treated as a homogenous group, which fails to recognise the heterogeneity between these minority groups and even within each minority group. It is important to understand that individuals within a minority group will value cultural traditions on a varied spectrum, in some cases acceptance of some cultural practices may hinder some groups in the population, whilst others progress. For instance, Clarke, Xu and Zou (2003) found that, in the case of larger ethnic heterogeneity, people care less about redistribution, as such inequality increases. Gradstein, Milanovic and Ying (2001) find religious traditions to have a significant impact upon income inequality. Due to data limitations we are unable to explore the influence of cultural factors on income inequality in this chapter. In chapter 5, we explore cultural influences in the context of inequalities in housework and financial responsibility among ethnic minority couples, to shed greater light on cultural influences and inequalities under the intersection of gender and ethnicity.

4.5 Data

The modelling approach is applied to White, Indian, Pakistani, Bangladeshi ethnic groups.[43] The regression-based decomposition is performed on the first wave in the sample (2008-2009) and the last wave (2017-2018).[44] We explore whether intra-ethnic income inequality is explained by individual (education, employment status, unemployment), and family factors (children, marital status, household size, housing tenure) and structural characteristics (e.g. region).

4.5.1 Dependent variable

The dependent variable used in the regression-based decomposition analysis is the log of total monthly personal income-net of taxes. We use net of tax to inform our discussion in the context of disposable income. The choice of the log of the dependent variable along with the selection of the explanatory variables was informed by the literature (De Silva, 2013) and data exploration. Our income variable encompasses a range of income sources; we find social benefit is an important source of income for ethnic minority groups, particularly Pakistani and Bangladeshi women, therefore we argue considering total income opposed to wages or labour income is important in order to include these minority women in our analysis, and economically

[43] See Appendix 4B for summary statistics for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups.

[44] Refer to Chapter 2 for detailed information of the data.

inactive men and women in our sample. This allows us to obtain a fuller picture of income inequality among our sample. See Appendix 4C for detailed justification of the use of income as our dependent variable, and disaggregation of income sources for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups.

The total net personal monthly income is defined as the sum of individual income from labour (including net wage income, net self-employment earnings and net pay in second job), miscellaneous income, private benefit income, investment income, pension income and social benefit income.[45] UKHLS collects detailed information on personal income, all individuals aged 16 or above are asked to report on these components. Each income item is reported after tax and national insurance contributions are deducted. The selection of total net personal income as the dependent variable is driven by the reasoning that the remaining income after tax and national insurance deductions is disposable income, which provides a better understanding of the allocation of income among individuals in the household (Manna and Regoli, 2012). The total net personal income is decomposed using the appropriate population weights, which are important to correct for oversampling of ethnic minorities.[46]

4.5.2 Independent variables

Our ethnic group sample consists of White, Indian, Pakistani and Bangladeshi individuals of working age from 16-64. Age is categorised into five groups (16-24, 25-34, 35-44, 45-54 and 55-64) where the reference category is the 55-64 age group. The structural age distribution of the minority group can lead to interesting observations and useful explanations of the income inequality within group. So far, we have seen the age composition of the White ethnic group is more equally spread compared to ethnic minority groups; whilst Bangladeshi and Pakistani men and women have the smallest proportion of 55-64 years and the youngest population (see figure 2.4, in chapter 2). This unequal age distribution may lead us to expect a larger degree of income variation for men and women within ethnic groups. Older women within minority groups may well have migrated to the UK as dependents and were often responsible for household and childcare duties, which led to labour market detachment and/or unsteady income. This may also be the case for second generation immigrant women, compared to younger, more economically active women in these minority group (Dale, 2008). Therefore,

[45] See table 2B.1 in Appendix 2.B in Chapter 2 for detailed information on income variable.

[46] Weights information is reported in Chapter 2

we may expect higher income inequality within minority female group and that age explains an important proportion of this within group income inequality.

We use educational qualification as a proxy for level of education.[47] Much of the existing literature implementing Fields (2003) regression-based decomposition employs years of schooling as the education variable (Manna and Regoli, 2012). However, we use information on individuals' highest level of qualification: degree, other degree, A-level, GCSE, other qualification and no qualification (reference category), as these categories are more consistent with the UK educational system and informative of individuals progression. We observe the largest degree of variation in educational attainment among Indian and Bangladeshi men; among men and women in White, Indian, Pakistani and Bangladeshi ethnic groups, a larger proportion of Indian men have a degree than all other groups, while the proportion of Indian men with no formal qualifications is smallest among all groups; the opposite is true for Bangladeshi men, among all other male groups, Bangladeshi men have the largest proportion of individuals with no qualifications and the smallest proportion of men with a degree (Figure 2.2 in chapter 2). Therefore, we expect variations in educational qualifications to explain an important component of income inequality for Indian and Bangladeshi men.

We use information on current economic activity to determine employment status: self-employed, paid employment- including full-time and part-time employment (reference category), unemployed, retired, family care or home, full-time student, long-term sick or disabled and other. Maternity leave, government training schemes and doing something else are considered in the other category. The greatest variation in employment status is observed among White and Indian ethnic groups, as such we expect employment factors to explain an important component of income inequality for men and women within these ethnic groups (see figure 2.3 in chapter 2).

Dependent children is included as another control variable in this analysis. Figure 2.6 in chapter 2, shows substantial variation among individuals with and without dependent children, we suggest this variation is likely to be a significant driver of income inequality for men and

[47] Here it is important to distinguish between higher variation in education and level of education. Average years of schooling is a popular measure of educational level, with contradictory evidence on its relationship with income inequality. For instance, Sylvester (2002), for a selection of 50 countries, found that countries with higher average number of school years had higher income inequality, whilst Partridge et al (1998) find income inequality to be lower in the US with higher years of education.

women within all ethnic groups. When exploring the influence of dependent children upon variation in income, it is important to highlight the potential link between having children and labour market status. The literature has found having children reduces employment, and this effect is larger for ethnic minority women (England, Garcia-Beaulieu, Ross, 2004). Figures 2.3 (men and women's employment status in each ethnic group) and figure 2.6 (proportion of dependent children for each ethnic group) show Pakistani and Bangladeshi women have the highest percentage of unemployment among all groups, they are also more likely to have dependent children than men and women in other ethnic groups. As such we may suggest the partial effect of having children is shown through the effect on log of the income, however the total effect of having children may manifest through the labour market status of men and women, particularly for ethnic minority women.

We use current marital status to determine the relationship status of individuals: single (reference category), married, divorced, widowed, and other. Housing tenure is categorised into owned (reference category), rented and other. Household size varies from 1-10+. We consider dummies for nation of birth: born in the UK and not UK born (reference category); and for dependent children (reference category).[48] We consider income inequality across eight regional areas: North, Midlands, East of England, London (reference category), South, Wales, Scotland, Northern Ireland, each with varying degrees of minority populated densities.[49]

We consider variables such as education, employment status, and age to be indicative of individual-level factors, whilst factors such as dependent children, marital status, household size, and housing structure, are considered family-level drivers of income inequality.

[48] Gustafsson and Johansson (1997) and Muller (1988) find a larger share of children in the population increases income inequality.

[49] See section 4.2 literature review which justifies the inclusion of these variables in our model, based on the literature.

4.6 Results

OLS estimations,[50] and results for regression-based decomposition,[51] by ethnicity for 2009-2010 are reported in Appendix 4D.[52] We estimate the effect of gender on income and find significant differences among men and women within the ethnic groups. Furthermore, gender is found to contribute towards income inequality within White, Indian and Bangladeshi ethnic groups, in particular, being female has an inequality increasing effect on total income inequality within each ethnic group. In order to shed greater light on the intersectionality of gender and ethnicity we estimate regression-based decomposition by ethnic group and gender for 2009-2010[53].

4.6.1 Regression-based decomposition estimations by ethnicity and gender: 2009-2010

The reported regression coefficients come from the estimation of the OLS model in Appendix 4.E, table 4.E1. We summarise the main results reported in table 4.E1 in Appendix 4.E. The R^2 varies from 0.34 to 0.53, which is reasonable for regressions of this sort (Gunatilaka and Chotikapanich, 2009). The signs of the estimated coefficients are in line with theoretical expectations and are statistically significant (De Silva, 2013).[54] 16-24 years olds observe a significant decrease in log of income when compared to the reference category of those aged 56-64. Education is associated with a statistically significant increase in log of income across all ethnic groups compared to individuals without formal qualifications (excluding Bangladeshi women). Having a degree is associated with a statistically significant increase of log of income for women and men in each ethnic group apart from Bangladeshi women. Higher degree shows no statistically significant effect on log of income for Bangladeshi men and women and Pakistani women. Being unemployed, taking care of the family or home and full-time student is associated with a statistically significant reduction in log of income for both genders across all ethnic groups compared to individuals in paid employment. All other categories of employment status are associated with a reduction in log of income compared to the reference

[50] See Table 4.D1 in Appendix 4D.

[51] See Table 4.D2 and 4.D3 in Appendix 4D.

[52] OLS estimations and regression-based decomposition by ethnic group for 2017-2018 are reported in table 4.F1 and 4.F2 respectively in Appendix 4.F. Factors are statistically significant for the White group only, this is likely due to small sample sizes for the Indian, Pakistani and Bangladeshi ethnic groups.

[53] Analysis adjust standard errors for clustering at the family level.

[54] See Appendix 4E for OLS estimations for regression-based decomposition for men and women in each ethnic group. We report the effect of variables on log income, and report significant results not reported here.

category, with results varying across ethnic groups. Being retired has a significant negative effect on log of income of all effected categories, exception being Bangladeshi women, where being retired has a significant positive influence upon log of income compared to Bangladeshi women in full-time or part-time employment. We find no impact of retirement on Bangladeshi men's log of income.

Table 4.1 presents the contribution of various individual and household characteristics to income inequality, measured using the covariance of logarithm, for the White, Indian, Pakistani and Bangladeshi male and female groups for 2009-2010.[55] The shares are computed using equation 4.2 and equation 4.3. The results obtained for the income generating equation enable us to calculate the factor inequality weights for each of the explanatory variables, therefore the contribution each of these explanatory variable makes to overall income inequality. The results from our estimations indicate that a 47-66% of income inequality cannot be explained by the explanatory variables incorporated into the estimated equation.[56] We find our results account for between 33 to 53 % of income inequality across our groups in 2009-2010. One criticism of Fields (2003) decomposition is that the decomposition results are limited because the explanatory variables account for only a small proportion of income inequality. However, these results are useful in showing how the explained part of income inequality is attributed to different explanatory variables.

Table 4.1 presents the regression-based inequality decomposition results for 2009-2010 considering White, Indian, Pakistani, and Bangladeshi, men and women separately. The inequality decomposition shows that the highest proportion of explained inequality is for the Indian male population, the explanatory variables accounting for approximately 53% of the variance in income and White men (approximately 43%). The unexplained proportion varies among our population groups. The contribution of the estimated residuals varies between 47.17% (Indian men) and 66.09% (White women). The residuals for White women (66.09%),

[55] Regression-based decomposition results for 2017-2018 are reported in table 4.F4 in appendix 4.F for the White men and women as a robustness check. OLS results are presented in table 4.F3. The results estimated are consistent with those reported in table 4.1. Employment status, education and age are the largest contributors towards the explained proportion of total income inequality. This analysis is conducted on the White group only, due to small sample sizes for the India, Pakistani and Bangladeshi ethnic group, where decomposition by gender-ethnic groups result in sample sizes too small for meaningful inference.

[56] Similarly, Cowell and Jenkins (1995) found that explanatory variables explained a relatively small fraction of income inequality.

and Pakistani women (64.27%) are the largest, followed by Pakistani men (64.09%), Bangladeshi men (59.65%), Bangladeshi women (57.81%), Indian women (56.92%) White men (56.79%) and Indian men (47.17%). Among our ethnic-gender groups, our variables explain less of the variation in income for White, Indian and Pakistani women than men. For the Bangladeshi group, the variables explain marginally more of variation in women's income (42.19%) than men's income (40.35%). The unexplained proportions for our ethnic-gender groups are varied and generally concur with the size of estimations in the literature (Manna and Regoli, 2012), although it is difficult to make an exact comparison as analysis on these groups is limited in the literature.

The most important variables in determining the explained portion of income inequality are Employment status, Age, dependent children and education across all groups, the results are largely consistent with our expectations. Our results are consistent with Brewer and Wren-Lewis (2016), who find employment status and education to explain the largest proportion of income inequality in the UK. The results in table 4.1 estimate employment status to have the highest inequality increasing contribution towards the explained proportion of total income inequality across all population groups. We look in more detail at the influence of different categories of employment towards total income inequality. Variations between employed individuals and full-time student contributes the most to total income inequality for men and women in all ethnic groups. Among White and Indian ethnic groups, employment difference among full-time students and employed, as an inequality increasing factor is more prominent among men than women, the opposite is observed among Pakistani and Bangladeshi groups, where these employment status differences explains a larger proportion of total income inequality among women. Compared to employed individuals, the full-time student category explains the greatest variation in income for White (13.19%) and Indian men (9.92%). [57] On average full-time students have lower incomes than employed individuals; students are more likely to be clustered towards the lower end of the income distribution resulting in a larger variation in income between these two categories of employment.

Unemployment is an inequality increasing factor and accounts for a notable proportion of total income inequality across all ethnic groups, particularly for White and Indian ethnic groups, which is consistent with the larger variation among categories of employment status within

[57] We observe the largest difference between the proportion of our sample in full-time education and employment, among White and Indian men. See Table 4.B1 and 4.B2 in Appendix 4B.

these groups. [58] Unemployment explains a larger degree of income inequality among men than women in ethnic groups. We also find unemployment is an important factor in explaining the variation in income for Indian women, the effect accounting for a smaller proportion of total income inequality for White, Pakistani and Bangladeshi women. We suggest that being unemployed has a larger inequality increasing influence on men within the ethnic groups compared to women, since women are more likely to be economically inactive or abstain from labour market participation than men (ONS, 2018). Therefore, being unemployed creates a smaller differential effect among women. This may be particularly true among some groups of ethnic minority women, such as Pakistani and Bangladeshi women (Dale, 2008) whilst Indian women experience a smaller employment gap than other ethnic minority women.[59]

Family responsibilities, such as family care or home care are associated with increasing inequality among men and women in each ethnic group. This is largest for Indian (12.12%), and White women (5.81%), and smaller for Pakistani (4.42%) and Bangladeshi (0.41%) women. Family responsibilities are associated with notably larger inequality for women than for men; a larger proportion of women in our sample are in charge of family responsibilities, than men; a very small proportion of men report family responsibility as an employment status responsibility, [60] therefore we expect less variation in income, since a smaller proportion of men are in this low-income category, compared to men in paid employment. Therefore, the variation between women with and without family and home responsibilities is likely to be larger than men.

Our results identify how much various educational qualifications influence the spread of income within each group. Educational qualifications account for a notable proportion of the explained income inequality across all groups. The sign of the inequality weight is in line with the discussed literature (Manna and Regoli, 2012; Chiswick, 1971; Cornia and Kiiski, 2001; Nielson and Alderson, 1997). Higher levels of educational qualifications such as degree and higher degree are associated with higher inequality, whilst lower levels of education such as A-level, GCSE and other qualifications are associated with lower inequality. This pattern is

[58] See figure 2.3, chapter 2.

[59] According ONS (2018), the employment gap between Indian men and women was approximately 14 percentage point, whilst the employment gap between Pakistani men and women, was of 36 percentage points.

[60] See Table 4.B1, 4.B2, 4.B3 & 4.B4 in Appendix 4.B.

generally consistent across all groups. Of the various educational qualifications, having a degree explains the largest proportion of income inequality across all groups, particularly for Indian men (7.07%) and Bangladeshi men (6.58%). Having a degree accounts for the smallest proportion of total income inequality for Indian women (1.30%). Degree-level education among ethnic minority women accounts for less of the explained proportion of total inequality than men. Although this is not the case for the White group.

Age has a varied impact upon income inequality depending on the age bracket. Relatively younger age is associated with higher inequality and, as age increases, we observe lower inequality; this pattern is most consistent for White women and Pakistani men. 16-24 age group is associated with higher inequality among White, Indian, and Pakistani ethnic groups, being largest for Pakistani men (12.84%). Having dependent children is associated with higher inequality among man and women in all ethnic groups; the effect of dependent children has a larger inequality increasing effect for women in each group than men; explaining the highest proportion of income inequality for Indian and Bangladeshi women. Although this effect is smallest for Pakistani women than White, Indian and Bangladeshi women, the explanatory difference is smallest between Pakistani men and women.

Inequality associated with the other factors vary according by gender in each ethnic group.[61] Being UK born explains the largest variance in income for Pakistani men and women, Particularly for Pakistani women, where being UK born is the fourth largest contributor towards income inequality among Pakistani women, after employment status, age, and children, accounting for approximately 7 percent of explained income inequality[62]. This variable has a negligible influence among all other ethnic groups. For Pakistani women, difference in place of birth (UK born or not) explains a larger share of the observed disparity in income than for Pakistani men or other groups. Marital status contributes less to the explained portion of total income inequality compared to Age, Education and Employment status. However, being married is associated with higher inequality for White and Indian men, and lower inequality for White women, whist the latter experience relatively higher inequality if divorced or widowed. Household size has the largest inequality reducing influence among Pakistani women, accounting for a small proportion of total income inequality for men and

[61] See Appendix 4E for discussion of OLS estimations of regression-based decomposition for effect of marital status, tenure and region on log of income.

[62] See table 4.2.

women in most ethnic groups. Renting is associated with lower inequality for White women, while the opposite is true for, Pakistani and Bangladeshi women.

Table 4.1 Regression-based decomposition by ethnic group and gender

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Explained proportion	43.21	33.91	52.83	43.08	35.91	35.73	40.35	42.19
Residual	56.79	66.09	47.17	56.92	64.09	64.27	59.65	57.81
16-24	**6.04**	**2.81**	**4.54**	**2.20**	**12.84**	2.86	**9.10**	-1.51
25-34	**-0.09**	**0.44**	-0.22	-0.29	**-2.23**	1.12	0.92	**6.61**
35-44	**0.39**	**0.61**	0.50	**2.14**	**-1.92**	2.68	-0.12	**8.63**
45-54	**0.32**	0.09	**1.16**	0.01	**-0.72**	-0.12	0.06	0.37
TOTAL Age	6.66	3.95	5.98	4.06	7.96	6.55	9.97	14.09
Degree	**3.71**	**4.14**	**7.07**	**1.30**	**5.28**	**1.89**	**6.58**	0.44
Higher degree	**0.53**	**0.71**	**0.15**	**0.96**	**0.48**	0.05	-0.30	0.04
A-level	**-0.41**	**-0.53**	-0.91	**-0.18**	-0.55	**-0.53**	**-0.99**	0.00
GCSE	-0.12	**-0.47**	-0.36	0.55	**-0.59**	0.01	-0.44	-0.01
Other qualification	0.01	-0.04	0.27	0.01	-0.06	0.03	-0.01	-0.03
TOTAL Education	3.72	3.81	6.23	2.64	4.57	1.44	4.85	0.44
Self-employed	**-0.40**	**-0.15**	0.18	0.00	**-0.54**	-0.37	0.36	**3.46**
Unemployed	**8.46**	**1.76**	**7.78**	**7.91**	**6.31**	**2.72**	**3.85**	**1.55**
Retired	**0.46**	**1.29**	**1.52**	**0.38**	**1.95**	**2.23**	0.01	**0.44**

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports results of regression-based decomposition by ethnic group and gender following Fields (2003). Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Total inequality is reported from 100. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4E, table 4.E1. This table continues into the next pages.

Table 4.1 (ctd.) Regression-based decomposition by ethnic group and gender continued

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Family care or home	**0.91**	**5.81**	**4.80**	**12.12**	**0.75**	**4.42**	**0.97**	**0.41**
Full-time student	**13.19**	**9.15**	**9.92**	**4.70**	**6.79**	**9.33**	**6.67**	**7.02**
LT sick or disabled	**0.91**	**0.14**	**0.41**	**0.34**	**0.15**	-0.12	0.07	0.23
Other	**1.38**	**0.12**	0.02	0.05	0.02	**-0.19**	0.19	0.02
TOTAL Employment status	24.91	18.11	24.64	25.50	15.44	18.02	12.11	13.13
Married	**2.42**	**-0.17**	**6.82**	-0.70	1.58	0.03	2.68	-0.35
Divorced	**0.02**	**0.54**	0.03	0.18	0.00	0.44	0.01	**0.98**
Widowed	0.01	**0.05**	-0.02	0.13	-0.10	-0.04	0.00	0.33
Other	0.00	**0.32**	-0.01	0.11	0.05	**2.15**	0.12	**1.26**
TOTAL Marital status	2.45	0.74	6.82	-0.27	1.53	2.58	2.81	2.20
Household size	**-0.09**	0.01	0.09	0.26	**-0.09**	**-1.58**	0.11	-0.21
TOTAL Household size	-0.09	0.01	0.09	0.26	-0.09	-1.58	0.11	-0.21
Rented	0.01	**-0.14**	0.27	0.35	0.09	**0.72**	0.28	**3.75**
Other	**0.05**	0.00	0.00	-0.02	**0.37**	0.00	0.00	0.00
TOTAL Tenure	0.06	-0.13	0.28	0.34	0.47	0.72	0.28	3.75

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports results of regression-based decomposition by ethnic group and gender following Fields (2003). Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Total inequality is reported from 100. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4E, table 4.E1.

Table 4.1 (ctd.) Regression-based decomposition by ethnic group and gender continued

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
UK born	0.01	0.00	-0.71	-0.08	**1.03**	**2.66**	**-0.09**	**0.07**
TOTAL Migrant	0.01	0.00	-0.71	-0.08	1.03	2.66	-0.09	0.07
North	**0.30**	-0.01	0.11	**0.32**	0.33	0.03	0.81	-0.06
Midlands	**0.49**	**0.09**	**0.62**	0.07	**0.74**	-0.01	0.19	0.18
East of England	**-0.10**	**0.05**	**0.96**	0.36	0.00	0.00	0.49	0.08
South	**-0.21**	**0.01**	-0.02	**0.62**	-0.06	0.60	0.81	0.12
Wales	**0.28**	0.02	0.10	0.15	0.00	0.00	0.43	-0.18
Scotland	**-0.02**	-0.01	0.04	0.05	0.02	0.10	0.00	0.00
Northern Ireland	**0.04**	0.00	0.03	0.00	0.02	0.00	0.00	0.00
TOTAL Region	0.77	0.13	1.85	1.59	1.05	0.71	2.73	0.14
Children	**4.73**	**7.28**	**7.65**	**9.05**	**3.97**	**4.63**	**7.58**	**8.58**
TOTAL Children	4.73	7.28	7.65	9.05	3.97	4.63	7.58	8.58
Total	100	100	100	100	100	100	100	100
Observations	9514	13312	695	674	511	567	431	441

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports results of regression-based decomposition by ethnic group and gender following Fields (2003). Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Total inequality is reported from 100. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4E, table 4.E1

Table 4.2 shows the contribution of each of the variables to the explained proportion of income inequality. In order to allow for more practical interpretation of the results, for the categorical variables the factor contributions have been aggregated by summing the contribution of the dummy variables. For example, the total contribution of education is made up of six terms, and these have been aggregated into one contribution. We highlight the main drivers of income inequality in our findings, our analysis indicates individual factors account for the largest proportion of income inequality within each group. We find that employment status, education, age (individual-level factors) and children (family factors) are associated with the largest contribution towards the explained inequality. Employment status explains one-third of total explained income inequality for Indian women and between 58 and 53% for White men and women. It explains relatively less, but still the represents the largest contribution, of the inequality of Bangladeshi men and women in the sample, 30 and 31% respectively. Employment status is found to explain a larger proportion of income inequality for minority women than men in the same ethnic group; employment status accounts for a larger proportion of the explained income inequality for White men than White women. These estimates may well be a reflection of differences in employment opportunities and labour market participation. It is well-known the labour market participation of ethnic minority women, particularly Pakistani and Bangladeshi women (Dale, 2008) is considerably lower than men in the same ethnic group and White men and women. This may well be a result of cultural and traditional ideologies which we attempt to explore in the proceeding chapter. Since there is likely to be large variation in employment status among women in these ethnic minority groups, we would expect greater differences in income for women than men within these minority groups, as a result of employment differences. In order to reduce inequalities within these minority groups, we suggest it is imperative to encourage greater labour market participation for women. Further, the importance of employment status as a driver of income inequality across all ethnic-gender groups highlight the large differences among individuals in paid employment and those who are not.

The second most relevant factor is either age or dependent children. For instance, age prevails for White women and Indian men and women, while dependent children prevail for White men, Pakistani and Bangladeshi men and women. Age is also consistently more relevant for Pakistani and, even more so for Bangladeshi women and men, explaining around one-third of the income inequality for Bangladeshi women. Dependent children are also found to be an

important driver of income inequality among all ethnic-gender group, expense on child-care can create substantial income differences within groups, particularly for women.

Education is found to be an important driver of income inequality for men and women in all ethnic groups, although accounting for a smaller proportion of explained inequality than employment status, dependent children, and age. Educational differences are found to explain a larger proportion of income equality for minority men than women, the opposite is true for the White group. We have observed larger variation in educational differences among minority men[63]; a large proportion of Pakistani and Bangladeshi men have no qualification compared to women and men in White and minority groups. As such we would expect differences in educational attainment, which may lead to lower labour market opportunities and outcomes for some, to result in greater income variations and income inequality within these groups. We suggest to reduce income inequality associated with educational attainment within ethnic-gender groups, it is important to improve educational opportunities and outcomes for all, in particular this may be the case to reduce inequalities within-group for Indian, Pakistani and Bangladeshi men.

The main findings in Table 4.1 and Table 4.2 highlight the differences in the proportion of income inequality that is explained by individual and family-level factors, across each of the different groups. These findings are important since they highlight the relevance for the intersectionality of ethnicity and gender in current conversations of inequalities. Analysis which are limited to discussing gender inequalities or discussions of inequalities between ethnic groups only, fail to recognize the amplified disparities when gender and ethnicity are considered simultaneously. The findings and implication of intersectional analysis can be useful for policy direction, and in highlighting specific segments of society who are more disadvantaged than other groups.

[63] See figure 2.3 in chapter 2

Table 4.2 Regression-based decomposition by ethnic group and gender: Explained proportion

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Age	15.41	11.65	11.32	9.42	22.17	18.33	24.72	33.41
Education	8.60	11.25	11.79	6.13	12.71	4.03	12.01	1.04
Employment status	57.65	53.41	46.64	59.19	42.99	50.42	30.02	31.12
Marital status	5.66	2.18	12.92	-0.63	4.25	7.22	6.96	5.23
Household size	-0.21	0.03	0.18	0.61	-0.26	-4.41	0.27	-0.50
Tenure	0.14	-0.40	0.52	0.79	1.30	2.01	0.69	8.89
UK born	0.03	0.01	-1.35	-0.18	2.86	7.44	-0.23	0.16
Region	1.78	0.39	3.51	3.68	2.92	1.99	6.77	0.32
Children	10.95	21.47	14.48	21.01	11.06	12.96	18.79	20.34
Total	100	100	100	100	100	100	100	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the contribution of each factor to the explained proportion of the decomposition. Total inequality is measured out of 100. Variables may not sum to 100 due to rounding by decimal place.

4.7 Conclusion

We employ regression-based decomposition and individual-level income data from UKLHS for years 2009-2010 to estimate the contribution of various factors to income inequality experienced by men and women of White, Indian, Pakistani and Bangladeshi ethnic groups, which exhibit the highest degree of within-group income inequality among various ethnic groups in the UK, as found out in the previous chapter. The selection of the independent variables are informed by the literature and the exploration of the income data. We use regression-based decomposition methods to explore whether intra-ethnic income inequality is explained by individual (education, employment status, unemployment) and family factors (children, marital status, household size, housing structure) and structural characteristics (e.g. region). The main findings are that individual factors explain most of the differences in income. One potential explanation for the prevalence of individual-level factors in explaining a larger proportion of the variance in income than family-level factors may be because of the larger number of couples in the sample. Approximately 55 percent of our sample is married, whilst 35 percent of our sample are single. The analysis shows that employment status, dependent children, age and education contribute the greatest share of total income inequality in the UK for our sample. Employment status, student status, dependent children, degree-level education and aged 16-24 are inequality increasing factors and are the largest contributors towards the explained proportion of total income inequality among all groups. The effects of marital status, household size, housing tenure, and region are comparatively marginal. The reported estimations indicate that, in order to reduce income inequality within each ethnic group, relatively higher consideration should be placed towards employment opportunities and educational attainment.

The variables taken into consideration in the regression explain the largest proportion of total income inequality for Indian and White men, while almost half of total income inequality across all groups remains unexplained. We also find that the factors explain the smallest proportion of income inequality for White women, compared to all other groups. Again, this finding further supports decomposition by gender and ethnicity. Not only do we find differences in the influence of the explanatory factors between women in different ethnic groups in general, but also between White women and White men, and White women and all other ethnic-gender groups. the main findings highlight disparities in the proportion of income inequality that can be explained by the explanatory factors, this is found across men and women

in the same ethnic group, men across ethnic groups, women across ethnic groups, and men and women across ethnic groups. This supports the need for analysis and research highlighting intersectionality between gender and ethnicity. The implication for intersectionality of gender and ethnicity could simply lead to more detailed analysis and discussions of inequalities, specifically here, highlighting the differences not only between men and women in general, but also how these differences can be amplified when simultaneously looking through an ethnicity lens and vice versa. The findings and conclusions from intersectionality of gender and ethnicity research can be important to guide policy makers in discussions of income inequality and poverty in the UK. For example, do some men and women in certain ethnic groups require greater encouragement to join the workforce, to reduce income inequalities within groups.

We find the determinants, and the explanatory power of inequalities within groups are different, therefore, a more detailed exploration of income inequality is necessary to account for potentially important drivers of income inequality within White and ethnic minority groups. We suggest that an exploration of cultural and traditional influences may be particularly relevant in the discussion of income inequality within ethnic minority groups. The regression-based decomposition is limited in that we are unable to identify all potential factors which explain the entirety of total income inequality within each ethnic-gender group. However, the results are useful to identify the main factors and extent of variation across each group. Moreover, the main findings support the use of intersectional analysis of gender and ethnicity, which can have important implication for policy such as highlighting the most disadvantaged in society, which more often than not are amplified when ethnicity and gender are considered simultaneously. Furthermore, it is not unusual for part of income inequality to remain unexplained (Manna and Regoli, 2012). This analysis is a sensible starting point to uncover the sources of income inequality among men and women in ethnic minority groups, and whether some factors hold more prominence in explaining income inequality in some ethnic-gender groups than others.

We have found, the determinant of income inequalities within ethnic-gender groups are different and quantify different proportions of the explained variation in income. Thus far we have considered variations in income for men and women in different ethnic groups which has given us some indication of the economic position of ethnic minority men and women relative to White men and women. Our analysis has consistently highlighted differences for men and women in our ethnic groups, what is clear is that ethnic minority groups and women are

disadvantaged in terms of income, higher inequality, educational attainment, and employment opportunities[64].

[64] See figures in Chapter 2.

4.A Appendix

4.A.1 Decomposition Techniques

This section provides more detail to the Oaxaca-Blinder decomposition and Shorrocks (1982) decomposition by factor component discussed in section 4.2 a review of regression-based inequality decomposition. To provide a fuller understanding of the decomposition technique used in the analysis, we present two strands closely related to the regression-based decomposition. The first decomposition technique is the Oaxaca-Blinder decomposition which decomposes differences in means between groups (Oaxaca, 1973; Blinder 1974). Oaxaca-Blinder has been extensively used in labour economics applications and is employed to explore wage differentials. The classic Oaxaca-Blinder decomposition method decomposes differences in mean wages across two different groups. The outcome variable Y_{gi} (wage rate is used in the Oaxaca decomposition) is linearly related to the covariates X_{ij}.

$$Y_{gi} = \beta_{g0} + \sum_{j=1}^{J} X_{ij}\,\beta_{gj} + \varepsilon_{gi}$$

$g = group\ A,\ B$

(4.A1)

$$\hat{\Delta}_o^{\mu} = \left(\hat{\beta}_{B0} - \hat{\beta}_{A0}\right) + \sum_{j=1}^{J} \bar{X}_{Bj}\left(\hat{\beta}_{Bj} - \hat{\beta}_{Aj}\right) + \sum_{j=1}^{J} \left(\bar{X}_{Bj} - \bar{X}_{Aj}\right)\hat{\beta}_{Aj}$$

(4.A2)

Equation 4.A2 shows the overall difference in average outcomes between group A and B. This is where the Oaxaca-Blinder decomposition differs from our chosen methodology. $\hat{\beta}_{g0}$ and $\hat{\beta}_{Bj}$ are the estimated intercept and slope coefficient of the regression model for g= group A, B. $\bar{X}$ is the mean of the coefficients. The first term in the equation is the unexplained effect in the Oaxaca decomposition, the second component is the explained effect which is due to differences in the covariates.

The second decomposition technique explored is decomposition by factor component by Shorrocks (1982). Decomposition by factor component is a form of index decomposition, which disaggregates household or individual income into various components that identify the contribution of each income source to overall income inequality.

$$y_j = \sum_{k=1}^{K} y_{jk}$$

(4.A3)

y_j is the measure of inequality and can be expressed as the sum of various income components which arise from various income sources *K*.

Fields (2003) decomposition methodology followed in this work is a combination of the two above mentioned techniques. We begin with an income generating equation used to calculate the contribution of different variables to income inequality.

4.B Appendix

Table 4.B1 Descriptive statistics for White men and women

	White men			White women		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
White	9,680			13,556		
Degree		0.230	0.421		0.206	0.404
Higher degree		0.110	0.313		0.134	0.340
A-level		0.242	0.428		0.202	0.401
GCSE		0.226	0.418		0.271	0.445
Other qualification		0.101	0.301		0.080	0.271
No qualification		0.092	0.289		0.107	0.309
16-24		0.140	0.347		0.138	0.345
25-34		0.175	0.380		0.192	0.394
35-44		0.239	0.427		0.250	0.433
45-54		0.226	0.418		0.235	0.424
55-64		0.220	0.414		0.184	0.387
Self-employed		0.134	0.340		0.053	0.225
Employed		0.643	0.479		0.602	0.490
Unemployed		0.069	0.253		0.046	0.209
Retired		0.052	0.223		0.067	0.250
Family care or home		0.009	0.095		0.117	0.322
Full-time student		0.046	0.209		0.050	0.219
LT sick or disabled		0.040	0.197		0.038	0.191
Other		0.007	0.083		0.027	0.163
Single		0.322	0.467		0.313	0.464
Married		0.597	0.490		0.543	0.498
Divorced		0.060	0.238		0.097	0.297
Widowed		0.006	0.077		0.012	0.107
Other		0.014	0.119		0.035	0.183
Owned		0.747	0.435		0.701	0.458
Rented		0.251	0.434		0.297	0.457
UK born		0.972	0.165		0.976	0.152

Source: UKLHS, Wave 1, 2009-2010. Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues to the next page.

Table 4.B1 (ctd.) Descriptive statistics for White men and women

	White men		White women	
	Mean	Standard deviation	Mean	Standard deviation
North	0.164	0.370	0.173	0.378
Midlands	0.259	0.438	0.254	0.435
East England	0.099	0.299	0.094	0.292
London	0.062	0.242	0.058	0.235
South	0.235	0.424	0.228	0.419
Wales	0.055	0.227	0.059	0.236
Scotland	0.085	0.279	0.089	0.285
Northern Ireland	0.040	0.196	0.045	0.207
No children	0.607	0.488	0.512	0.500
Children	0.393	0.488	0.488	0.500

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues from the preceding page.

Table 4.B2 Descriptive statistics for Indian men and women

	Indian men			Indian women		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
White	695			674		
Degree		0.481	0.500		0.349	0.477
Higher degree		0.089	0.285		0.132	0.339
A-level		0.151	0.358		0.165	0.371
GCSE		0.131	0.338		0.162	0.368
Other qualification		0.065	0.246		0.079	0.269
No qualification		0.083	0.277		0.114	0.318
16-24		0.153	0.360		0.142	0.350
25-34		0.306	0.461		0.270	0.444
35-44		0.263	0.441		0.319	0.466
45-54		0.155	0.363		0.172	0.378
55-64		0.122	0.328		0.096	0.295
Self-employed		0.127	0.333		0.039	0.193
Employed		0.675	0.469		0.595	0.491
Unemployed		0.056	0.230		0.047	0.213
Retired		0.014	0.119		0.022	0.148
Family care or home		0.004	0.066		0.185	0.389
Full-time student		0.098	0.297		0.058	0.234
LT sick or disabled		0.022	0.145		0.028	0.166
Other		0.004	0.066		0.025	0.157
Single		0.294	0.456		0.185	0.389
Married		0.689	0.463		0.736	0.441
Divorced		0.006	0.076		0.040	0.196
Widowed		0.003	0.054		0.016	0.127
Other		0.009	0.093		0.022	0.148
Owned		0.636	0.482		0.745	0.436
Rented		0.360	0.480		0.251	0.434

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues to the next page.

Table 4.B2 (ctd.) Descriptive statistics for Indian men and women

	Indian men		Indian women	
	Mean	Standard deviation	Mean	Standard deviation
UK born	0.259	0.438	0.369	0.483
North	0.068	0.251	0.062	0.242
Midlands	0.324	0.468	0.374	0.484
East of England	0.047	0.213	0.050	0.219
London	0.455	0.498	0.383	0.486
South	0.081	0.272	0.095	0.293
Wales	0.013	0.113	0.019	0.138
Scotland	0.010	0.100	0.015	0.121
Northern Ireland	0.003	0.054	0.001	0.039
No children	0.553	0.498	0.445	0.497
Children	0.447	0.498	0.555	0.497

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues from the preceding page.

Table 4.B3 Descriptive statistics for Pakistani men and women

	Pakistani men			Pakistani women		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
Pakistani	512			567		
Degree		0.336	0.473		0.171	0.377
Higher degree		0.063	0.242		0.079	0.271
A-level		0.143	0.350		0.203	0.402
GCSE		0.178	0.383		0.217	0.413
Other qualification		0.100	0.300		0.079	0.271
No qualification		0.182	0.386		0.250	0.434
16-24		0.182	0.386		0.169	0.375
25-34		0.305	0.461		0.402	0.491
35-44		0.279	0.449		0.295	0.456
45-54		0.141	0.348		0.099	0.299
55-64		0.094	0.292		0.035	0.185
Self-employed		0.195	0.397		0.016	0.125
Employed		0.557	0.497		0.247	0.432
Unemployed		0.090	0.286		0.076	0.265
Retired		0.008	0.088		0.009	0.094
Family care or home		0.002	0.044		0.515	0.500
Full-time student		0.084	0.278		0.079	0.271
LT sick or disabled		0.063	0.242		0.025	0.155
Other		0.002	0.044		0.034	0.180
Single		0.238	0.426		0.171	0.377
Married		0.730	0.444		0.690	0.463
Divorced		0.010	0.098		0.048	0.213
Widowed		0.004	0.062		0.021	0.144
Other		0.018	0.132		0.071	0.256
Owned		0.688	0.464		0.690	0.463
Rented		0.311	0.463		0.310	0.463

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues to the next page.

Table 4.B3(ctd.) Descriptive statistics for Pakistani men and women

	Pakistani men		Pakistani women	
	Mean	Standard deviation	Mean	Standard deviation
UK born	0.328	0.470	0.441	0.497
North	0.172	0.378	0.178	0.383
Midlands	0.428	0.495	0.487	0.500
East of England	0.088	0.283	0.062	0.241
London	0.244	0.430	0.203	0.402
South	0.053	0.224	0.051	0.220
Wales	0.006	0.076	0.005	0.073
Scotland	0.008	0.088	0.014	0.118
Northern Ireland	0.002	0.044	0.000	0.000
No children	0.385	0.487	0.272	0.445
Children	0.615	0.487	0.728	0.445

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues from the preceding page.

Table 4.B4 Descriptive statistics for Bangladeshi men and women

	Bangladeshi men			Bangladeshi women		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
Bangladeshi	431			441		
Degree		0.251	0.434		0.141	0.348
Higher degree		0.051	0.220		0.041	0.198
A-level		0.193	0.395		0.202	0.402
GCSE		0.174	0.380		0.263	0.441
Other qualification		0.077	0.266		0.075	0.263
No qualification		0.255	0.436		0.279	0.449
16-24		0.227	0.420		0.209	0.407
25-34		0.281	0.450		0.435	0.496
35-44		0.299	0.458		0.236	0.425
45-54		0.155	0.363		0.073	0.260
55-64		0.037	0.189		0.048	0.213
Self-employed		0.118	0.323		0.009	0.095
Employed		0.536	0.499		0.268	0.443
Unemployed		0.148	0.356		0.100	0.300
Retired		0.009	0.096		0.009	0.095
Family care or home		0.009	0.096		0.490	0.500
Full-time student		0.121	0.326		0.084	0.278
LT sick or disabled		0.044	0.206		0.020	0.142
Other		0.014	0.117		0.020	0.142
Single		0.316	0.465		0.197	0.398
Married		0.673	0.470		0.678	0.468
Divorced		0.005	0.068		0.039	0.193
Widowed		0.000	0.000		0.032	0.176
Other		0.007	0.083		0.054	0.227
Owned		0.381	0.486		0.365	0.482
Rented		0.619	0.486		0.635	0.482
UK born		0.227	0.420		0.283	0.451

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues to the next page.

Table 4.B4 (ctd.) Descriptive statistics for Bangladeshi men and women

	Bangladeshi men		Bangladeshi women		
	Observation	Mean	Standard deviation	Observation	Mean	Standard deviation
North		0.079	0.270		0.098	0.297
Midlands		0.139	0.347		0.136	0.343
East of England		0.039	0.195		0.027	0.163
London		0.726	0.446		0.712	0.453
South		0.007	0.083		0.009	0.095
Wales		0.009	0.096		0.018	0.134
No children		0.422	0.494		0.281	0.450
Children		0.578	0.494		0.719	0.450

Source: UKLHS, Wave 1, 2009-2010.

Note: mean values sum to 1 and report the contribution of each variable to the total variable, age, education, employment status, marital status, tenure, UK born, region and children. Sum to approximately 1 due to rounding. This tables continues from the preceding page.

4.C Appendix

Table 4.C1 reports the income components for the White, Indian, Bangladeshi, Pakistani male and female in our sample for 2009-2010. These components consist of labour income, private benefit income, pensions, miscellaneous income, investments, and social benefits. This information is important in justifying the use of income as our dependent variable. Although it is expected that wages contribute a significant proportion to overall income, we argue that wages fail to recognise important components such as social benefit income, which is expected to play a significant role for some ethnic groups, particularly when the gender dimension is considered.

Table 4.C1 Income components 2009-2010

Income component	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Labour	72.8	58.1	78.55	59.44	65.97	23.25	60.13	26.18
private benefit	0.0	0.7	0.05	0.13	0	0.17	0	0.037
Pension	4.0	2.4	0.91	0.62	0.52	0	0	0.08
Miscellaneous	1.6	1.9	5.46	2.94	5.77	5.85	6.29	5.5
Investment	5.5	4.5	4.29	5.14	2.88	1.45	0.05	1.76
Social benefit	16.1	32.5	10.74	31.73	24.85	69.27	32.63	66.44

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the contribution of income components to total income for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups.

Over half of the income of White males comprise of labour income, which is unsurprising: a large proportion of white males are economically active and among some of the highest earners in the UK (ONS, 2019). Comparatively, incomes of women comprise of 46% of labour incomes. Social benefit is also a notable proportion for both white males and females, white male total income comprising a quarter of social benefits, this figure is larger for white females at around 41%.

Indian male income comprises of the largest share of labour income (78%) among all population groups in the sample. This figure is higher than the contribution of labour income for white males. The share of labour income attributed to total income for Indian women is approximately 59%, less than the contribution of labour income for Indian men, however more so than for White women. The social benefit income for both Indian men and women is a

smaller share of total income than for the white group. These findings indicate heterogeneity amongst the ethnic groups.

Regarding the White and Indian male groups, approximately 66% of White and Indian men's incomes comprises of labour income. Social benefit income share represents approximately 25% of total income. This figure is higher than both the white and Indian male group. For both the White and Indian female groups, labour income covers a smaller share of total income than the male group. Pakistani female total income accounts for only 23% of labour income, which is significantly less than for both the White and Indian female groups. Social benefit income (69%) comprises a significant proportion of total income, comparatively higher than both the white and Indian groups, and the highest share of social benefit income among all population groups. Although there is a significant literature documenting the economic inactivity of Pakistani and Bangladeshi women (Dale, 2008), this figure is still surprising and justifies our exploration of the income variable. Qualifying for social benefit is dependent upon a range of factors; therefore, in order to transparently identify the influences of total income inequality, we must consider, in our analysis in chapter 4, childcare responsibilities, household responsibilities, disabilities and illnesses, household size, number of dependent children, all of which may have some measurable influence upon the determinant of social benefit and subsequently prompt a possible influence upon total income inequality. The variation in the component of total income between both the Indian and Pakistani male and female population groups indicate that we may observe substantial differences in explaining inequality within each ethnic group. Within the literature these groups are often treated as homogenous groups, while these income differentials indicate this treatment is inappropriate and may lead to misrepresentation and improper application for policy purposes.

The Pakistani and Bangladeshi ethnic groups show relatively greater similarities. Labour income comprises of 60% of total income for Bangladeshi Males. Social benefits comprise of approximately 33% of labour income. This component is a higher proportion of Bangladeshi male income than for the White, Indian and Pakistani male total income. Of total Bangladeshi female income, labour income comprises of approximately 26%.

Table 4.C2 Income components 2017-2018

Income component	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Labour	75.6	66.2	78.54	63.51	68	38.35	67.91	37.51
private benefit	0.1	0.8	0.064	0.27	0.38	0.221	0	0
Pension	5.1	4.5	2.51	1.83	0.48	0.7	0.5	0
Miscellaneous	1.8	2.2	1.96	1.28	2.93	3.24	3.96	3.1
Investment	6.4	6.2	7.6	8.13	3.65	5.19	3.83	4.41
Social benefit	11.4	20.2	9.33	24.98	24.56	52.3	23.81	54.98

Source: UKLHS, Wave 9, 2017-2018

Note: This table reports the contribution of income components to total income for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups for 2017-2018.

4.D Appendix

Table 4.D1 Regression results for income by ethnic group 2009-2010

	White	Indian	Pakistani	Bangladeshi
55-64				
16-24	-0.457***	-0.414***	-0.980***	-0.471**
	(0.0293)	(0.144)	(0.175)	(0.207)
25-34	-0.118***	-0.248**	-0.409***	0.153
	(0.0247)	(0.116)	(0.153)	(0.184)
35-44	-0.0782***	0.0299	-0.345**	0.161
	(0.0229)	(0.115)	(0.153)	(0.187)
45-54	-0.0588***	0.0738	-0.387**	-0.0591
	(0.0208)	(0.109)	(0.160)	(0.187)
No qualification				
Degree	0.501***	0.486***	0.438***	0.394***
	(0.0244)	(0.102)	(0.103)	(0.102)
Higher degree	0.300***	0.312***	0.283**	0.206
	(0.0264)	(0.119)	(0.137)	(0.151)
A-level	0.168***	0.263**	0.219**	0.170
	(0.0241)	(0.111)	(0.111)	(0.104)
GCSE	0.0621***	-0.0467	0.174	-0.0196
	(0.0233)	(0.112)	(0.107)	(0.0988)
Other qualification	0.0217	-0.0477	0.0381	0.0112
	(0.0278)	(0.128)	(0.126)	(0.125)
Employed				
Self-employed	-0.214***	0.0744	-0.326***	-0.0907
	(0.0210)	(0.0868)	(0.102)	(0.116)
Unemployed	-1.185***	-1.671***	-1.124***	-0.799***
	(0.0266)	(0.122)	(0.114)	(0.113)
Retired	-0.602***	-0.972***	-2.219***	0.276
	(0.0295)	(0.203)	(0.343)	(0.289)
Observations	22,826	1,369	1,078	872
R-squared	0.374	0.431	0.335	0.351

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.D1(ctd.) Regression results for income by ethnic group 2009-2010

	White	Indian	Pakistani	Bangladeshi
Family care or home	-1.082***	-1.453***	-0.957***	-0.458***
	(0.0263)	(0.101)	(0.106)	(0.105)
Full-time student	-1.665***	-1.231***	-1.198***	-0.893***
	(0.0297)	(0.111)	(0.134)	(0.113)
LT sick or disabled	-0.578***	-0.573***	-0.431**	0.00476
	(0.0330)	(0.172)	(0.177)	(0.240)
Other	-0.779***	-0.210	-0.600***	-0.563**
	(0.0454)	(0.206)	(0.222)	(0.248)
Single				
Married	-0.0370**	0.0909	-0.162	-0.000279
	(0.0179)	(0.0895)	(0.121)	(0.124)
Divorced	0.111***	0.566**	0.0794	0.418*
	(0.0271)	(0.231)	(0.226)	(0.248)
Widowed	0.155**	0.00463	0.216	-0.712**
	(0.0639)	(0.283)	(0.316)	(0.301)
Other	0.149***	0.378	0.363*	0.255
	(0.0416)	(0.238)	(0.192)	(0.242)
Household size	-0.0445***	-0.0267	0.0438**	-0.0109
	(0.00597)	(0.0184)	(0.0183)	(0.0171)
Owned				
Rented	0.141***	0.0468	0.0930	0.218***
	(0.0148)	(0.0638)	(0.0737)	(0.0719)
Other	-0.217	-0.146	-1.401**	
	(0.132)	(0.407)	(0.655)	
UK born	0.0141	-0.115*	-0.104	-0.284***
	(0.0371)	(0.0644)	(0.0746)	(0.0773)
Observations	22,826	1,369	1,078	872
R-squared	0.374	0.431	0.335	0.351

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.D1(ctd.) Regression results for income by ethnic group 2009-2010

	White	Indian	Pakistani	Bangladeshi
London				
North	-0.166***	0.345***	-0.0828	0.236**
	(0.0259)	(0.105)	(0.0990)	(0.104)
Midlands	-0.199***	-0.0737	-0.144*	-0.0653
	(0.0246)	(0.0588)	(0.0820)	(0.0867)
East of England	-0.178***	0.284***	-0.0130	0.0391
	(0.0285)	(0.110)	(0.134)	(0.144)
South	-0.150***	0.0323	0.0261	0.361
	(0.0246)	(0.0808)	(0.126)	(0.241)
Wales	-0.212***	-0.124	-0.295	-0.204
	(0.0332)	(0.190)	(0.405)	(0.189)
Scotland	-0.140***	-0.0879	0.142	
	(0.0289)	(0.170)	(0.237)	
Northern Ireland	-0.167***	0.183	0.107	
	(0.0425)	(0.454)	(0.694)	
Children	0.353***	0.218***	0.436***	0.241**
	(0.0162)	(0.0721)	(0.0966)	(0.107)
Female	-0.291***	-0.202***	0.0583	-0.396***
	(0.0122)	(0.0533)	(0.0791)	(0.0761)
Constant	7.377***	7.054***	6.952***	6.982***
	(0.0394)	(0.179)	(0.220)	(0.223)
Observations	22,826	1,369	1,078	872
R-squared	0.374	0.431	0.335	0.351

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1.

4.D.1 Regression-based decomposition estimations: Ethnicity: 2009-2010

The regression results obtained in Table 4.D1 in Appendix 4D are used to estimate the factor inequality weights in table 4.D3. The signs of the estimated coefficients are in line with theoretical expectations and are statistically significant in influencing log income. Table 4.D3 reports the contribution of individual and household characteristics towards total income inequality among White, Indian, Pakistani and Bangladeshi ethnic groups. Our factors explain the largest variation in income among the Indian and White groups. Whilst the residual or unexplained proportion is largest for the Pakistani ethnic group.

Results in table 4.D3 show that unemployment, full-time student, family responsibilities, degree, age 16-24, dependent children and gender contribute the most to the explained proportion of total income inequality for men and women in all ethnic groups. All categories of employment status, excluding self-employment, are associated with higher inequality for the White group. Being a full-time student accounts for the largest proportion of total income inequality among employment status categories for all ethnic groups. Family responsibilities and unemployment factors accounts for a greater proportion of total income inequality for the Indian ethnic group compared to all other ethnic groups. Family responsibilities account for a larger proportion of total income inequality compared to unemployment within the Indian ethnic group, contrary to the White, Pakistani and Bangladeshi groups, for whom unemployment has a larger influence in variations in income. Among the Indian ethnic group, degree accounts for the largest proportion of explained total income inequality amongst all ethnic groups. Being female is found to have inequality increasing influence on White, Indian and Bangladeshi ethnic groups.

Table 4.D2 Regression-based decomposition by ethnic group 2009-2010

	White	Indian	Pakistani	Bangladeshi
Explained Proportion	37.43	43.12	33.54	35.08
Residual	62.57	56.88	66.46	64.92
16-24	**5.14**	**4.24**	**11.31**	**6.52**
25-34	**-0.29**	**-0.59**	**-1.99**	1.14
35-44	**-0.39**	0.21	**-2.06**	0.81
45-54	**-0.23**	0.20	**-0.42**	-0.07
Total Age	4.23	4.06	6.83	8.40
Degree	**4.20**	**4.58**	**4.15**	**3.73**
Other degree	**0.59**	**0.47**	**0.28**	-0.03
A-level	**-0.52**	**-0.89**	**-0.97**	-0.61
GCSE	**-0.26**	0.17	-0.27	0.07
Other qualification	-0.01	0.04	-0.05	0.00
Total Education	3.99	4.38	3.14	3.16
Self-employed	**-0.37**	**0.26**	**-0.81**	-0.26
Unemployed	**4.95**	**7.73**	**4.99**	**3.04**
Retired	**0.97**	**0.87**	**2.25**	0.00
Family care or home	**4.23**	**9.13**	**4.65**	**2.67**
Full-time student	**13.50**	**10.48**	**9.53**	**8.96**
LT sick or disabled	**0.46**	**0.42**	**-0.02**	0.00
Other	**0.55**	-0.03	**0.06**	**0.34**
Total Employment Status	24.29	28.85	20.65	14.75
Married	**-0.28**	0.90	-1.25	0.02
Divorced	**0.13**	**0.07**	0.03	**0.17**
Widowed	**0.01**	0.00	-0.04	**0.84**
Other	**0.08**	0.03	**0.22**	0.13
Total Marital Status	-0.05	1.00	-1.04	1.15

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports results of regression-based decomposition by ethnic group following Fields (2003). Log total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D1. This table continues to the next page.

Table 4.D2 (ctd.) Regression-based decomposition by ethnic group 2009-2010

	White	Indian	Pakistani	Bangladeshi
Household size	**0.28**	0.31	**-0.42**	0.16
Total Household Size	0.28	0.31	-0.42	0.16
Rented	**-0.55**	0.04	0.04	**-0.35**
Other	0.01	-0.01	**0.16**	0
Total Tenure	-0.54	0.03	0.2	-0.35
UK born	0	**-0.44**	-0.26	**-0.17**
Total Migrant	0	-0.44	-0.26	-0.17
North	**0.07**	**0.23**	0.14	**0.5**
Midlands	**0.27**	0.36	**0.51**	0.15
East of England	**0**	**0.68**	0	0.07
South	**-0.08**	0.04	0.03	0.27
Wales	**0.12**	-0.01	-0.03	0.36
Scotland	**-0.03**	0.01	0.04	0
Northern Ireland	**0.01**	0.02	0.01	0
Total Region	0.35	1.33	0.71	1.33
Children	**2.78**	**2.1**	**4.08**	**1.85**
Total Children	2.78	2.1	4.08	1.85
Female	**2.10**	**1.52**	-0.34	**4.79**
	2.10	1.52	-0.34	4.79
Total	100	100	100	100
Observations	22,826	1,369	1,078	872
R-squared	0.374	0.431	0.335	0.351

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports results of regression-based decomposition by ethnic group following Fields (2003). Log total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D1.

Table 4.2 indicates the contribution of our variables towards the explained proportion of income inequality. The explained proportion is weighted as 100 and the percentage contribution of each factor is shown. Employment status, age, educational factors, age, dependent children and gender are estimated to have the largest contribution to the explained proportion of total income inequality.

Table 4.D3 Regression-based decomposition by ethnic group 2009-2010: Explained proportion

	White	Indian	Pakistani	Bangladeshi
Age	11.31	9.41	20.37	23.95
Education	10.67	10.15	9.36	9.01
Employment status	64.88	66.90	61.57	42.05
Marital status	-0.14	2.31	-3.11	3.28
Household size	0.75	0.72	-1.25	0.46
Tenure	-1.44	0.07	0.60	-1.00
UK born	0.00	-1.02	-0.78	-0.48
Region	0.93	3.08	2.12	3.79
Children	7.43	4.87	12.17	5.27
Gender	5.61	3.53	-1.01	13.66
Total	100	100	100	100

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the summation of results of regression-based decomposition by ethnic group in table 4.1. We report the contribution of each factor to the explained proportion of the decomposition.

4.E Appendix

We report on OLS estimations for the ethnic-gender groups not discussed in the main body of the results.

Being married is associated with an increase in log of income for White and Indian men, while the association is is negative for White women. Being divorced or widowed is associated with increased income for White women. Living in rented accommodation has a positive association on female log of income across all female ethnic groups compared to women living in owned tenure. Tenure has no significant association with male log of income. Region has a significant negative association with male log of income compared to males living in London. Having children is associated with an increase in log of income for White men and women, Pakistani women and Bangladeshi men. Living in the Midlands, East of England and the South is associated with a significant reduction in white females log of income compared to females living in London. We observe limited influence of region across ethnic groups, exceptions being for Indian females living in the North, Pakistani men living in the Midlands, and Bangladeshi men living in wales, all observe a decrease in log of income compared to individuals living in London. Indian men living in East of England show a 0.3% increase in log of income compared to Indian males living in London.

Table 4.E1 Regression results for income by ethnic group and gender 2009-2010

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
55-64								
16-24	-0.458***	-0.286***	-0.310*	-0.356*	-1.011***	-0.284	-0.476*	0.146
	(0.0439)	(0.0385)	(0.179)	(0.215)	(0.257)	(0.255)	(0.265)	(0.299)
25-34	-0.0739**	0.114***	-0.0874	-0.177	-0.437**	0.191	0.0874	0.777***
	(0.0354)	(0.0318)	(0.137)	(0.170)	(0.211)	(0.228)	(0.231)	(0.249)
35-44	0.0673**	0.133***	0.0619	0.312*	-0.360*	0.347	-0.0490	1.112***
	(0.0311)	(0.0288)	(0.123)	(0.160)	(0.210)	(0.227)	(0.228)	(0.247)
45-54	0.0646**	0.0294	0.207*	0.0873	-0.395*	0.140	0.0151	-0.0816
	(0.0297)	(0.0271)	(0.125)	(0.161)	(0.218)	(0.242)	(0.223)	(0.275)
No qualification								
Degree	0.434***	0.499***	0.565***	0.287*	0.576***	0.246*	0.482***	0.133
	(0.0374)	(0.0313)	(0.128)	(0.154)	(0.157)	(0.135)	(0.124)	(0.178)
Higher degree	0.250***	0.313***	0.257*	0.282*	0.403*	0.0462	0.246	0.126
	(0.0418)	(0.0328)	(0.153)	(0.170)	(0.225)	(0.161)	(0.177)	(0.257)
A-level	0.108***	0.173***	0.153	0.366**	0.103	0.267**	0.250*	0.00135
	(0.0368)	(0.0310)	(0.139)	(0.165)	(0.185)	(0.131)	(0.139)	(0.152)

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.E1(ctd.) Regression results for income by ethnic group and gender 2009-2010

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
GCSE	0.0284	0.122***	0.112	-0.135	0.334*	-0.0166	0.0800	-0.0327
	(0.0369)	(0.0289)	(0.142)	(0.165)	(0.177)	(0.127)	(0.132)	(0.139)
Other qualification	-0.0165	0.0356	-0.164	0.156	0.0656	-0.0124	0.229	0.0235
	(0.0419)	(0.0361)	(0.164)	(0.185)	(0.200)	(0.157)	(0.152)	(0.199)
Employed								
Self-employed	-0.250***	-0.209***	0.0414	0.00304	-0.325**	-0.342	0.0617	-1.579***
	(0.0271)	(0.0342)	(0.0906)	(0.188)	(0.129)	(0.252)	(0.121)	(0.341)
Unemployed	-1.286***	-0.820***	-1.496***	-1.826***	-1.103***	-1.031***	-0.573***	-0.941***
	(0.0369)	(0.0382)	(0.149)	(0.189)	(0.169)	(0.156)	(0.135)	(0.180)
Retired	-0.633***	-0.551***	-1.288***	-0.687**	-2.421***	-1.597***	-0.116	0.764**
	(0.0472)	(0.0367)	(0.260)	(0.290)	(0.587)	(0.417)	(0.452)	(0.371)
Family care or home	-1.332***	-0.953***	-3.164***	-1.296***	-2.273***	-0.771***	-0.791***	-0.599***
	(0.0978)	(0.0258)	(0.386)	(0.108)	(0.825)	(0.105)	(0.261)	(0.135)
Full-time student	-1.557***	-1.136***	-0.808***	-0.869***	-0.894***	-1.075***	-0.523***	-0.762***
	(0.0524)	(0.0431)	(0.143)	(0.190)	(0.223)	(0.206)	(0.140)	(0.217)

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.E1(ctd.) Regression results for income by ethnic group and gender 2009-2010

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
LT sick or disabled	-0.703***	-0.448***	-0.548**	-0.635***	-0.470*	-0.339	-0.220	0.296
	(0.0500)	(0.0423)	(0.232)	(0.239)	(0.246)	(0.272)	(0.286)	(0.382)
Other	-1.645***	-0.447***	-0.210	0.0650	-0.330	-0.444**	-0.224	-0.434
	(0.107)	(0.0468)	(0.455)	(0.229)	(0.807)	(0.199)	(0.413)	(0.292)
Single								
Married	0.186***	-0.130***	0.394***	-0.216	0.147	0.0204	0.177	-0.0647
	(0.0264)	(0.0229)	(0.0960)	(0.137)	(0.157)	(0.132)	(0.128)	(0.189)
Divorced	0.0833*	0.185***	0.689	0.324	0.240	0.283	-0.338	0.508*
	(0.0452)	(0.0321)	(0.474)	(0.271)	(0.514)	(0.223)	(0.799)	(0.281)
Widowed	0.130	0.210***	0.148	-0.312	0.665	0.463		-0.203
	(0.118)	(0.0718)	(0.595)	(0.325)	(0.668)	(0.324)		(0.354)
Other	0.0164	0.247***	0.180	0.265	-0.156	0.774***	-0.521	0.665**
	(0.0787)	(0.0463)	(0.375)	(0.302)	(0.363)	(0.203)	(0.403)	(0.304)
Household size	0.0243***	-0.00113	-0.00878	-0.0237	0.0477*	0.0793***	-0.00497	0.0119
	(0.00796)	(0.00712)	(0.0213)	(0.0278)	(0.0285)	(0.0221)	(0.0212)	(0.0266)
Owned								
Rented	-0.00115	0.221***	-0.119	0.147	-0.116	0.273***	-0.0265	0.452***
	(0.0225)	(0.0190)	(0.0787)	(0.0983)	(0.118)	(0.0893)	(0.0933)	(0.104)

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.E1(ctd.) Regression results for income by ethnic group and gender 2009-2010

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Other	-0.518***	0.148	0.101	-0.246	-1.731**			
	(0.198)	(0.172)	(0.500)	(0.610)	(0.762)			
UK born	0.0465	-0.0350	-0.124	-0.134	0.146	-0.377***	-0.224**	-0.227*
	(0.0539)	(0.0497)	(0.0821)	(0.0942)	(0.122)	(0.0908)	(0.102)	(0.116)
London								
North	-0.285***	-0.0271	0.198	0.479***	-0.105	0.0728	0.179	0.249
	(0.0392)	(0.0331)	(0.123)	(0.170)	(0.156)	(0.124)	(0.131)	(0.158)
Midlands	-0.285***	-0.0849***	-0.127*	-0.0164	-0.244*	0.00193	-0.0543	-0.112
	(0.0372)	(0.0315)	(0.0719)	(0.0903)	(0.128)	(0.103)	(0.110)	(0.127)
East of England	-0.230***	-0.0981***	0.307**	0.215	0.00147	-0.0348	0.165	-0.311
	(0.0431)	(0.0366)	(0.134)	(0.168)	(0.197)	(0.181)	(0.159)	(0.251)
South	-0.202***	-0.0667**	-0.0802	0.247**	-0.133	0.225	0.526	0.369
	(0.0372)	(0.0316)	(0.101)	(0.121)	(0.198)	(0.154)	(0.340)	(0.324)
Wales	-0.346***	-0.0614	0.187	-0.412	-0.0287	-0.384	-0.410	0.0809
	(0.0503)	(0.0425)	(0.232)	(0.286)	(0.596)	(0.542)	(0.275)	(0.243)

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.E1 (ctd.) Regression results for income by ethnic group and gender 2009-2010

	White men	White women	Indian men	Indian women	Pakistani men	Pakistani women	Bangladeshi men	Bangladeshi women
Scotland	-0.225***	-0.0305	-0.0522	0.117	0.0569	0.305		
	(0.0440)	(0.0369)	(0.208)	(0.266)	(0.435)	(0.258)		
Northern Ireland	-0.284***	-0.0182	0.235	0.0845	0.128			
	(0.0650)	(0.0540)	(0.485)	(0.876)	(0.802)			
Children	-0.808***	-1.272***	-1.240***	-1.961***	-0.815***	-0.666***	-1.010***	-1.234***
	(0.0658)	(0.0581)	(0.213)	(0.271)	(0.311)	(0.209)	(0.229)	(0.278)
Constant	7.300***	6.820***	6.857***	7.060***	6.896***	6.351***	6.995***	6.094***
	(0.0573)	(0.0483)	(0.211)	(0.269)	(0.329)	(0.300)	(0.273)	(0.326)
Observations	9,514	13,312	695	674	511	567	431	441
R-squared	0.432	0.339	0.528	0.431	0.359	0.358	0.403	0.422

Source: UKLHS, Wave 1, 2009-2010.

Note: This table reports the first stage of the regression-based decomposition. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1.

4.F Appendix

OLS and regression-based decomposition results are reported by, 1) ethnic group in tables 4.F1 and 4.F2 for 2017-2018. 2) For White, men and women in tables 4.F3 and 4.F4 for 2017-2018. Variables in table 4.F1 are largely statistically significant for the White group only. This is likely to be a result of the very small sample sizes of Indian, Pakistani and Bangladeshi ethnic groups in data for 2017-2018 due to attrition in later wave of UKHLS data. For this reason, we conduct the gender-ethnicity decomposition for White men and women only. The results of both decompositions emphasise the role of employment status and education in explaining total income inequality, particularly unemployment, degree and higher-degree level qualifications in amplifying income inequality within the White group.

Table 4.F1 Regression results for income by ethnic group 2017-2018

	White	Indian	Pakistani	Bangladeshi
55-64				
16-24	0.245	1.931		4.164
	(0.577)	(5.525)		(4.428)
25-34	0.847	1.188	1.670	
	(0.553)	(11.00)	(2.343)	
35-44	0.975*	3.804	-0.486	
	(0.557)	(10.26)	(3.464)	
45-54	0.425			
	(0.510)			
No qualification				
Degree	0.829**	3.239	1.538	
	(0.410)	(8.486)	(2.535)	
Higher degree	1.108***			
	(0.411)			
A-level	0.654**	1.412	2.986	-3.009
	(0.318)	(4.563)	(1.865)	(1.366)
GCSE	0.341	-2.992	2.508	-6.211
	(0.277)	(2.942)	(1.298)	(5.087)
Other qualification	0.676		1.954	
	(0.591)		(2.206)	
Employed				
Self-employed	2.569***			
	(0.686)			
Unemployed	1.923***	-1.467	3.847	
	(0.427)	(6.333)	(2.818)	
Retired	2.904***			
	(0.986)			
Family care or home	-2.324*			
	(1.213)			
Full-time student	-0.0632	-1.978	5.162	-0.142
	(0.411)	(2.371)	(4.235)	(1.979)
LT sick or disabled	1.947***			3.728
	(0.651)			(5.197)
Other	1.032*			
	(0.616)			

Source: UKLHS, Wave 9, 2017-2018. Note: This table reports the first stage of the regression-based decomposition for 2017-2018. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.F1(ctd.) Regression results for income by ethnic group 2017-2018

	White	Indian	Pakistani	Bangladeshi
Single				
Married	0.276	-0.168	0.784	
	(0.416)	(8.811)	(2.243)	
Divorced	0.698			
	(0.613)			
Widowed	0.937			
	(1.345)			
Other	0.193			
	(0.865)			
UK born	-1.126	-0.163	-0.501	
	(0.716)	(6.554)	(1.539)	
London				
North	-0.188	-1.170	-2.702	2.696
	(0.532)	(3.738)	(1.819)	(4.428)
Midlands	-0.0356	-1.704	0.947	2.696
	(0.523)	(2.335)	(2.508)	(4.990)
East of England	-0.0710		-3.561	
	(0.534)		(2.249)	
South	-0.141	-0.0362	1.207	
	(0.504)	(3.176)	(3.307)	
Wales	0.760			
	(0.585)			
Scotland	0.0306			
	(0.569)			
Northern Ireland	0.286			
	(0.743)			
Constant	4.717***	5.214	0.0646	2.894
	(1.116)	(8.551)	(4.348)	(4.739)
Observations	358	17	17	9
R-squared	0.440	0.820	0.890	0.902

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports the first stage of the regression-based decomposition for 2017-2018. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1.

Table 4.F2 Regression-based decomposition by ethnic group 2017-2018

	White	Indian	Pakistani	Bangladeshi
Explained Proportion	44.0484	82.0135	89.0227	90.2156
Residual	55.9516	17.9865	10.9773	9.7844
16-24	-2.6233	-15.3663	0	-19.3846
25-34	3.7491	3.0416	14.8718	0
35-44	2.617	14.7342	-1.4492	0
45-54	0.7787	0	0	0
Total Age	4.5215	2.4095	13.4226	-19.3846
Degree	**3.0087**	21.8817	6.7961	0
Higher degree	**3.343**	0	0	0
A-level	**0.7719**	8.9444	-9.5301	42.5136
GCSE	-1.3216	46.543	9.7809	82.5474
Other qualification	-0.1618	0	5.1505	0
Total Education	5.6402	77.3691	12.1974	125.061
Self-employed	**4.7025**	0	0	0
Unemployed	**21.341**	-16.7638	56.7285	0
Retired	**1.4023**	0	0	0
Family care or home	**0.8465**	0	0	0
Full-time student	0.7741	23.4481	-68.8609	1.7407
LT sick or disabled	**1.207**	0	0	11.7669
Other	-0.1373	0	0	0
Total Employment Status	30.1361	6.6843	-12.1324	13.5076
Married	1.114	-0.8798	7.1008	0
Divorced	0.81	0	0	0
Widowed	0.1362	0	0	0
Other	0.0821	0	0	0
Total Marital Status	2.1423	-0.8798	7.1008	0
UK born	0.6098	0.2955	5.3597	0
Total Migrant	0.6098	0.2955	5.3597	0

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports results of regression-based decomposition by ethnic group following Fields (2003) for 2017-2018. Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D1. This table continues to the next page.

Table 4.F2 (ctd.) Regression-based decomposition by ethnic group 2017-2018

	White	Indian	Pakistani	Bangladeshi
North	0.1988	2.0964	41.0584	-8.1337
Midlands	-0.0291	-5.858	6.5677	-20.8347
East of England	-0.048	0	9.7861	0
South	0.0939	-0.1034	5.6624	0
Wales	0.7362	0	0	0
Scotland	-0.0359	0	0	0
Northern Ireland	0.0824	0	0	0
Total Region	0.9983	-3.865	63.0746	-28.9684
Total	100	100	100	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports results of regression-based decomposition by ethnic group following Fields (2003) for 2017-2018. Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D1.

Table 4.F3 Regression results for income for White men and women 2017-2018

	White men	White women
55-64		
16-24	0.0323	1.160
	(0.841)	(1.041)
25-34	0.508	1.406
	(0.834)	(0.953)
35-44	0.713	1.641
	(0.770)	(1.062)
45-54	0.192	1.280
	(0.679)	(1.107)
No qualification		
Degree	0.683	1.271**
	(0.655)	(0.587)
Higher degree	1.210*	1.170**
	(0.658)	(0.584)
A-level	0.704	0.642
	(0.520)	(0.426)
GCSE	-0.0741	0.698*
	(0.456)	(0.370)
Other qualification	0.669	0.679
	(0.857)	(0.891)
Employed		
Self-employed	1.950**	2.774*
	(0.951)	(1.536)
Unemployed	1.341**	2.572***
	(0.625)	(0.666)
Retired	2.016	3.699**
	(1.459)	(1.557)
Family care or home		-1.344
		(1.325)

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports the first stage of the regression-based decomposition for 2017-2018. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1. This tables continues to the next page.

Table 4.F3 (ctd.) Regression results for income for White men and women 2017-2018

	White Men	White Women
Full-time student	-1.017*	0.867
	(0.610)	(0.617)
LT sick or disabled	1.306	3.205***
	(0.887)	(1.169)
Other	0.657	1.590*
	(0.886)	(0.945)
Single		
Married	0.0682	0.577
	(0.633)	(0.582)
Divorced	0.478	1.528
	(0.851)	(1.058)
Widowed	0.183	2.224
	(2.488)	(1.782)
Other	-0.892	0.661
	(1.457)	(1.189)
UK born	-0.553	-1.402
	(1.164)	(0.959)
London		
North	-0.287	-0.173
	(0.972)	(0.674)
Midlands	-0.357	0.0915
	(0.952)	(0.668)
East of England	-0.327	0.0247
	(0.959)	(0.682)
South	-0.612	0.153
	(0.926)	(0.636)
Wales	0.168	0.948
	(1.013)	(0.805)
Scotland	0.550	-0.434
	(1.026)	(0.723)
Northern Ireland	0.147	-0.0660
	(1.217)	(1.027)
Constant	4.717***	5.214
	(1.116)	(8.551)
Observations	173	185
R-squared	0.475	0.456

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports the first stage of the regression-based decomposition for 2017-2018. OLS estimations are reported where the dependent variable is log of total monthly personal income- net of taxes. Reference categories are highlighted in bold. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, *p<0.1.

Table 4.F4 Regression-based decomposition by ethnic group and gender 2017-2018

	White Men	White Women
Explained Proportion	47.5116	45.5758
Residual	52.4884	54.4242
16-24	-0.3502	-11.3723
25-34	1.7477	8.5231
35-44	2.3221	2.6757
45-54	0.4141	1.3604
Total Age	4.1337	1.1869
Degree	2.1251	**5.8358**
Higher degree	**4.3247**	**2.5087**
A-level	2.3925	-1.3963
GCSE	0.4516	**-0.4073**
Other qualification	-0.247	-0.0989
Total Education	9.0469	6.442
Self-employed	**5.1678**	**0.9764**
Unemployed	**13.2019**	**33.3031**
Retired	0.9429	**1.8803**
Family care or home	0	1.0546
Full-time student	**12.4438**	-10.1439
LT sick or disabled	0.48	**2.7283**
Other	-0.1837	**-0.0403**
Total Employment Status	32.0527	29.7585
Married	0.2967	1.8189
Divorced	0.6849	1.0601
Widowed	0.0154	0.5812
Other	-0.1986	0.5062
Total Marital Status	0.7984	3.9664

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports results of regression-based decomposition for White men and women following Fields (2003). Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D3. This table continues to the next page.

Table 4.F4 (ctd.) Regression-based decomposition by ethnic group and gender 2017-2018

	White Men	White Women
UK born	0.4243	0.3345
Total Migrant	0.4243	0.3345
North	0.0742	0.3358
Midlands	-0.2089	0.0651
East of England	-0.1896	0.022
South	1.1837	0.153
Wales	0.0187	2.021
Scotland	0.11	1.2919
Northern Ireland	0.0671	-0.0014
Total Region	1.0552	3.8874
Total	100	100

Source: UKLHS, Wave 9, 2017-2018.

Note: This table reports results of regression-based decomposition for White men and women following Fields (2003) for 2017-2018. Total monthly personal income is used for the decomposition. Factor inequality weights are reported for each variable, estimating the contribution of factors towards total income inequality within each group. Estimations in bold are significant at the 1%, 5% or 10% level in the OLS stage reported in Appendix 4D, table 4.D3.

Chapter 5 How do women fare within the couple? Division of housework among ethnic minority couples.

5.1 Introduction

Over the past several decades, women labour participation has increased substantially, the pay gap between men and women has decreased, and while women are more educated, more employed and financially dependent than ever, they experience persistent inequalities within the household in the form of housework (Lyonette and Crompton, 2014; Cineli, 2022). This may be particularly pertinent in the case of ethnic minority households, where men and women's roles are often heavily defined by gender norms and traditions, and are more often lower-income households compared to the White majority[65] (Kan and Laurie, 2016; Lyonette and Crompton, 2014). The focus of this chapter is to identify how the share of housework responsibility for married couples in the UK vary across ethnic groups, to assess how women fare within the couple across ethnic groups. The existing literature finds inequalities within the household and women's economic empowerment are associated with women's roles in the household (Fuwa, 2004) which informs our discussion. The division of housework is a key indicators of female power and equality within couples, and as such important to understand intra-household dynamics and gender relations in society. The current literature discusses the division of domestic labour within the couple (Kan, 2008; Lyonette and Crompton, 2015; Sullivan, 2011; Bianchi et al, 2000; Baxter, 2002). Explanations for the persistent gender inequality in the division of housework within couples has centred around three main theoretical approaches: time availability, resource bargaining, and gender roles theory. [66] With few exceptions (Kan and Laurie, 2018), less emphasis has been placed on the variations in the division of housework across ethnic groups, and on explaining the potential mechanisms underpinning the division of housework in ethnic minority couples in the UK. Understanding how intra-household dynamics function with respect to the division of housework across ethnic groups, offers a substantive viewpoint on household economics and the intersectionality of gender and ethnicity in the context of married couples.

[65] Pakistani and Bangladeshi households are most likely to be low-income households compared to all ethnic groups from 2008-2020. Source: Households below average income (May 2021).
[66] Gender roles theory is used to refer to 'doing gender' theory as is referred to in the literature. (Kan and Laurie, 2016

The remainder of this thesis considers inequality in the form of intra-household bargaining, i.e., inequalities in the division of housework and financial decision-making power. In this chapter, we explore the division of housework among couples to gauge further understanding of the economic position of women and inequalities within couples, this analysis is useful in understanding household inequalities between men and women within the couple, and a useful comparison among men and women across ethnic groups, which can be informative in understanding female labour market participation rates or lower income levels (see figures 2.2 and table 3.2). Traditional theories of housework: time availability, resource bargaining and gender roles could shed more light on our current findings and identify the strength of mechanism which prosper household inequalities among couples, which is important to understanding more about inequalities by gender and ethnicity. In our analysis, we include factors such as education, employment, earnings, and male and female gender attitudes on the division of housework among our ethnic groups, in order to provide further insights in the way gender and ethnicity interact to determine unequal outcomes.

Discussion of the division of housework at couple-level has important implications for gender equality. Making use of UKHLS data for 2012-2013, with substantive links to the variables (education, employment status, age) and demographics (16-64) considered in previous chapters, we focus on White, Indian, Pakistani and Bangladeshi heterosexual married couples in the UK. We present evidence on time availability, resource bargaining and gender roles theory, and whether they apply within couples among our ethnic groups. We highlight our contributions and main findings. This chapter is among the first to shed some light on the three main theoretical approaches in the context of ethnicity and gender, and their varying influence on ethnic minority couples in the UK. Furthermore, we consider both men and women's gender attitudes around female gender roles separately; we interact both with ethnicity to present the influence of men and women's gender attitudes across ethnic groups. We find minority women do more housework than White women; minority men contribute less to housework than White women. The determinants of vary across ethnic groups. Importantly, we find differences among White and minority couples, and heterogeneity between ethnic minority couples. Generally, we observe relatively more similarities among White and Indian couples and relatively less for Pakistani and Bangladeshi couples. Analyses of female share of housework find support for the resource bargaining theory. Gender roles theory is found to be an important predictor in determining female share of housework among White couples, while this is not the case for Pakistani and Bangladeshi couples. Contrary to expectations, the analysis suggests that gender

roles theory is supported by the findings for White couples; male gender attitudes influence the female share of housework more than female gender attitudes. This is unexpected considering ethnic minority men and women tend, on average, have more traditional gender attitudes, however this finding may be a prime example of how traditional explanations of the division of labour are not a consistent fit across all ethnic groups.

Section 5.2 presents background and expectations. Section 5.3 reviews the division of housework literature. Section 5.4 details data, and section 5.5 methods. We present results for the division of housework and discuss in section 5.6. Section 5.7 concludes.

5.2 Background and contributions

In this paper we contribute to the literature in two important ways. First, few UK studies consider the role of ethnicity in the allocation of household tasks (Kan and Laurie 2018). We add to this limited pool and extend this research by providing explanation for the observed variation by comparing theories.[67] This is study among the first to examine whether different theoretical factors explain the division of labour differently for ethnic groups in the UK. Second, we interact both men, and women's gender attitudes around female gender roles with ethnicity, previous studies combine both male and female gender attitudes (Kan and Laurie, 2018). We focus our attention on Pakistani, Bangladeshi and Indian couples, based on findings from previous chapters.

There is considerable variation in the socioeconomic status, cultural backgrounds and historical experiences among white and minority ethnic groups in the UK. These differences may lead us to expect variation in gender gaps of housework time, more so for some ethnic groups relative to others. We argue that ethnic differences may influence the mechanisms through which couples determine their allocation of housework responsibility, which in turn may lead to greater discussions on ethnic differences in gender income inequality.

Differences in employment status and work hours are likely to result in varied availability to engage in household tasks. Some ethnic groups have smaller gender differentials in hours of paid work and employment status compared to others. For example, Pakistani and Bangladeshi women have consistently shown lower levels of economic activity and higher unemployment

[67] Wight, Bianchi, and Hunt, 2013 consider ethnic variation among men and women's housework in America using the American Time Use Survey 2003-2006. Kolpashnikova and Kan (2020), consider whether the influence of economic theories in the division of housework vary across ethnic groups (American Time Use Survey 2003-2018).

rates than other ethnic groups and White women in the UK (Dale, 2008). According to the Office of National statistics, in 2019 the gap between male and female employment rates were the largest for Pakistani and Bangladeshi group, where 75% of men, and 39% of women were employed (36 percentage point difference). The gender employment gap was smallest in the White British ethnic group, where 80% of men and 73% of women were employed (7 percentage point difference). Whilst 83% of Indian men were employed (3 percentage points more than white men), only 69% of Indian women were employed (the gender employment gap consisting of 14 percentage point difference). Inactivity rates among Pakistani and Bangladeshi women are substantially higher than other ethnic groups, and among men in the same ethnic group. The percentage of Pakistani and Bangladeshi women looking after the family or home were more than five times greater compared to White British women.

The bargaining power of men and women in households are often measured by their relative earnings (Kan, 2008). Here too, we observe variations between ethnic groups. According to labour market statistics, in 2018, the largest pay gap between men and women was for the Indian group, at 23%. The White British gender pay gap was 18.5%, the Pakistani gender pay gap 8.5%, and the Bangladeshi gender pay gap 10.5%, with Bangladeshi women on average earning more than Bangladeshi men (ONS, 2018). This may be a result of relatively fewer Bangladeshi women in the labour market, whom may be high earners.

Gender role attitudes vary across ethnic groups. Pakistani and Bangladeshi groups tend to hold more traditional gender role attitudes compared to White men and women. [68] Although second generation south Asian women have relatively less traditional gender attitudes compared to first generation Pakistani and Bangladeshi women (Wang, 2019). To summarise, there are enough differences across ethnic groups to question whether traditional theories in the literature are equally applicable to all ethnic groups.

First, we assess whether female share of household tasks varies across ethnic groups, with the expectation that ethnic minority females are more likely to complete a majority share of routine housework compared to white women, white and ethnic minority men. Here we expect male time and participation in routine housework to be lower among minority men than white men, given the more traditional gender attitudes.

[68] See figure 5.5

Second, we consider the relative importance of the main theoretical approaches in explaining ethnic variations in the division of household work and financial responsibility. Time availability theory is estimated using number of hours normally worked per week by men and women in their main job; resource bargaining theory is measured using net labour income per month for male and female partner, from which we construct relative earnings. We use gender role attitudes to estimate the relative importance of gender roles theory.

We control for age and dependent children as additional indirect correlates of the theories discussed. We expect older individuals to be more traditional in their division of housework compared to younger individuals (Wang, 2019). We expect couples with dependent children to be less gender egalitarian in their division of housework compared to couples with no dependent children (Halpern and Perry-Jenkins, 2016),since having dependent children may reinforce traditional gender roles within the home, more so than for couples without dependent children.

5.3 Literature review

We discuss the main mechanisms underpinning the division of household labour developed in the literature. We consider the relevance of these mechanisms in relation to ethnic groups in the UK.

5.3.1 Division of housework

The gender division of housework has received considerable attention in the UK. Researchers focus on the explanation and consequences for women as a result of the unequal division of domestic labour. The literature has persistently found women experience gender inequalities within the household through an unequal division of housework and caring responsibilities (Kolpashnikova, 2018; Kan, 2014; Kan 2008). Generally, they find women continue to do more housework than men, particularly tasks such as cooking and cleaning (Kan and Laurie, 2018; Lyonette and Crompton, 2014; Bianchi et al, 2000). This results in negative outcomes, particularly in terms of lower labour market participation (Cunningham, 2008) and lower earnings (Hersch and Stratton, 2002).

An important body of literature have considered and questioned explanations for the gender division of housework (Kolpashnikova 2018; Davis & Greenstein, 2009; Kan 2008). Kan (2008) explores the influence of relative income and gender-role attitudes on housework hours for men and women using British Household Panel Survey, (1993-2003). Kan (2008) found

men and women's housework hours decrease significantly, as income increases relative to the partner. Furthermore, women with more traditional gender attitudes do a greater number of hours of housework, whilst men with more traditional gender attitudes do fewer hours of housework.

However, what is largely missing from the literature is research on ethnic variations in housework share. Tradition theories of the division of housework are mostly considered in the context of a majority White sample, as such the validity of these mechanisms in an ethnic-gender intersectional approach is unknown (Kolpashnikova and Kan 2020).

Few studies in the UK look at the division of domestic housework by ethnic group. Kan and Laurie (2018) find the division of domestic labour varies by ethnic group and gender: ethnic minority women report spending significantly more time on housework than White British women; Indian and Pakistani women are found to have a higher share in female share of housework compared to White British women; Indian men report a fairer share of housework than white British men. Part of this chapter is closely related to the findings of Kan and Laurie (2018); similarly, we make use of UKHLS dataset to exploit gender attitude and housework related questions and find their work to be a useful reference and starting point for our analysis. Kan and Laurie (2018) interact ethnicity with education, employment, and gender-role attitude variables, interestingly, they find some differences among ethnic groups, namely Indian and Bangladeshi men with degrees do significantly more hours of housework, as do Indian women. White British, with an employed spouse do more housework hours, whilst Pakistani women with an employed spouse have lower housework hours compared to those with spouses who are not employed, they find no interaction effect between ethnicity and gender attitudes.

Research suggests the determinants of the division of labour may be similar across ethnic groups; however, this is questionable (Davis & Greenstein, 2004). Indeed, comparable research in the US suggests traditional models of housework allocation do not apply to all ethnic groups equally and are more consistent among White men and women's housework allocation. Using American Time Use Survey 2003-2006, Wight, Bianchi and Hunt, (2013) find theories do not explain the ethnic variation in the division of domestic labour for Hispanic, Black and Asian groups as well as for the White group. Similarly, Kolpashnikova & Kan (2020) question whether theories applicable to the allocation of housework can explain the gender gap in housework participation among white, Black, and Latinx women and men in the US. Using American Time Use Survey 2003-2018, Kitagawa–Oaxaca–Blinder decomposition method is

implemented, they find theories are better applicable in explaining the gender gap in housework participation when there are substantial differences in resources between the compared group, for example differences in time spent on housework by White men, and immigrant Latinx women. We attempt to explore the determinants of the division of labour in the context of UK data, for White, Indian, Pakistani and Bangladeshi couples.

5.3.2 Time availability, resource bargaining and gender roles theories

Three main competing theoretical approaches have been used to explain the persistent gender inequality in household, through which household work and decisions are made: time availability, resource bargaining, and gender roles theory (Kan and Laurie, 2016). Below, we introduce them briefly in relation to our research question. The time-availability approach describes the division of household labour as a product of the time each member of the couple has available to spend on domestic tasks and childcare after time spent in paid labour (Bianchi, 2000). Time availability theory assumes the allocation of tasks is associated with economic models of household behaviour, according to which members of the household maximise household utility by working together. Household members exploit their comparative advantage by doing paid work or carrying out housework (Becker, 1981). Women traditionally do more housework as they spend fewer hours in paid labour (Lyonette and Crompton, 2015). Women who spend more of their time in paid labour, do a smaller share of housework (Sayer, 2010). Some evidence reports findings that are consistent with time availability theory. For instance, unemployed men and women spend more time on housework than those in full or part-time employment (Bianchi et al, 2000). Women's hours of paid work are found to be negatively associated with time spent on housework, and positively associated with time spent on housework by their husband (Shelton and John, 1996).

Critics of this theoretical approach argue that the opposite causal link may be at place, whereby it is the higher responsibility of domestic labour imposed upon women that results in fewer hours of participation in paid labour, rather than women voluntarily participating in fewer hours of paid labour (Raz-Yurovich & Marx, 2019).

According to the resource bargaining approach, the allocation of domestic work is determined by relative income levels. The individual with greater financial resources will focus more of their capacity on paid work, while the individual with less financial resources will expend more of their working capacity on domestic labour (Bianchi et al, 2000). It is assumed that both individuals prefer paid to unpaid work. Therefore, the partner with higher market wages spend

less time on housework, since their financial resources give them more power to bargain out of domestic labour. As men, on average, are paid more than women in the labour market, they tend to do less domestic housework than women (Wight et al, 2013). An increase in the woman's contribution to family income will reduce her share of housework and increase the man's share (Bianchi et al, 2000). There is some empirical support for the resource bargaining approach. For instance, Lyonette and Crompton (2015) find that women who contribute more to family income have greater negotiating power within the relationship, resulting in reduced housework. The smaller the earnings gap between the men and women, the more equal the division of housework labour (Fuwa, 2004).

There is also a body of evidence that is inconsistent with this theory. When wives have higher earnings than their husbands, studies find husbands do less housework than would be expected from the time availability or resource bargaining theory (Bittman et al, 2003). Men who earn less than their wives do the same amount of housework or less than other men (Tichenor, 1999; Brines, 1994).

Studies supporting the gender roles theory argue that men and women adhere to traditional gender role models, whereby the male is considered the main earner or the 'bread winner', whilst the female is regarded the home maker who focuses on domestic tasks (Shelton and John, 1996). An explanation of this theory suggests that men and women 'do gender' by displaying their feminine and masculine identities. Women show their 'femininity' by doing domestic chores, whilst men spend more time in paid work and financially providing for the family (Kan and Laurie, 2016). This is used as an indication to one another and to society of the clear distinction between men and women. Despite greater equality in earnings and employment opportunities over the past forty years, empirical findings often reflect traditional gender roles. Some studies find that these traditional values hold some significance even in instances where the woman's relative earnings or hours worked are greater than the male counterpart (Bertrand et al, 2015). When women are earning substantially more than their male partner, some studies find a non-linear relationship, whereby women's housework share increases past a certain level of earnings (Bittman et al., 2003; Greenstein, 2000) rather than the expected linear relationship between relative income and share of housework (Evertsson and Nermo, 2004; Kan, 2008). Research of gender roles theory also demonstrates that men who earn as much or less than their wives do less housework than other men in an effort to

emphasise their masculinity and mask the perceived failure of fulfilling the breadwinner role (Lyonette and Crompton, 2015).

5.4 Data

We use respondent-reported data from wave 4 of the UKHLS (2012-13), which includes questions on housework and gender attitudes. The sample includes 4,267 heterosexual married couples where both partners are aged 16-64. [69] We keep couples in which men and women are of the same ethnicity.[70] We create couple level data in order to undertake within-couple analysis. Personal identifier and partners identifier are used to match couples; we report from the perspective of the woman and match partner information to each female respondent.

We utilise UKHLS data, which presents a sizable sample of ethnic minority individuals and provides information on housework and gender attitudes. We are, however, careful not to make strong inferences from this analysis, since the minority group sample is relatively small. Overall, 8% of our respondents are Indian, Pakistani or Bangladeshi. The remaining sample is White, this is due to oversampling in the ethnic minority boost, and is not consistent with UK population figures, although is useful for analysis purposes; we use population weights to prevent overestimation of results. The small sample size for Pakistani and Bangladeshi couples is explained by the restrictions of our analysis, since we use only married couples, of the same ethnicity, and as a result of missing information among the minority sample. [71] However, we argue that using the available sample we can begin to shed light about the interaction between gender and ethnicity in household work and financial decision making.

Table 5.1 reports group-specific descriptive statistics. Construction of variables are detailed in section 5.4.1 and 5.4.2. On average, women earn less and work fewer hours than their partner across all groups. On average minority couples have lower earnings and on average work less hours per week relative to white couples. Female and male gender attitudes are more traditional for minority men and women. Average age of White individuals in our sample is 45, while that

[69] We exclude unmarried couples as we expect differences between unmarried and married couples in the division of housework. Married women spend more time on housework than cohabiting women (Brickdale, 2015; Bianchi et al., 2000; Shelton and John, 1993). Furthermore, married women are found to succumb more to gender expectations and perform to gender roles in the relationship than cohabiting women (Pepin, J. R., Sayer, L. C., & Casper, L. M., 2018).

[70] Few couples in our sample had inter-ethnic marriages, for this reason focus only on couple who are married to an individual of the same ethnicity.

[71] See table 5.1

of minority groups is 36. [72] On average, there is no difference across groups for couples with dependent children.

[72] There is a higher proportion of older persons in the White population compared to the minority groups. To account for this, we control for age in estimated models. We also drop those aged above 54 to check robustness of results and find no significant difference in estimates.

Table 5.1 Summary statistics for White, Indian, Pakistani and Bangladeshi couples[73]

	Observations	Mean	Standard deviation	Min	Max
White couples					
Female housework share	3,945	0.70	0.22	0	1
Female gender attitudes	3,945	-2.04	3.01	-8	8
Male gender attitudes	3,945	-1.55	2.81	-8	8
Female hours worked	3,945	21.59	15.24	0	88
Male hours worked	3,945	29.60	18.03	0	96
Relative hours	3,652	0.44	0.32	0	1
Relative earnings	3,945	0.37	0.27	0	1
Female earnings	3,945	1070.16	884.56	0	6240
Male earnings	3,945	1852.24	1186.17	0	10800
Women's age	3,945	45.04	9.77	20	64
Dependent children	3,945	1.56	0.50	1	2
Indian couples					
Female housework share	181	0.75	0.19	0.18	1
Female gender attitudes	181	-1.01	3.06	-8	8
Male gender attitudes	181	-0.38	3.10	-8	8
Female hours worked	181	20.66	16.54	0	50
Male hours worked	181	27.92	17.55	0	60
Relative hours	161	0.43	0.33	0	1
Relative earnings	181	0.36	0.30	0	1
Female earnings	181	959.74	909.63	0	5400
Male earnings	181	1669.17	1147.84	0	6123.07
Women's age	181	39.52	8.67	23	60
Dependent children	181	1.73	0.45	1	2

Source: UKLHS, Wave 4, 2012-13.

Note: Table 5.1 includes summary statistics for White, Indian, Pakistani and Bangladeshi couples. Male and female earnings per month are reported net of tax (£). Female and male hours worked per week are reported. Relative hours, report women's paid hours per week relative to men's. Relative earnings, report women's monthly earnings relative to men.

[73] See section 5.4.1 and 5.4.2 for discussion of variables.

Table 5.1 (ctd) Summary statistics for White, Indian, Pakistani and Bangladeshi couples

	Observations	Mean	Standard deviation	Min	Max
Pakistani couples					
Female housework share	95	0.86	0.15	0.29	1
Male gender attitudes	95	1.62	2.78	-8	8
Female hours worked	95	8.73	14.43	0	43
Male hours worked	95	23.66	18.29	0	60
Relative hours	95	0.24	0.35	0	1
Relative earnings	95	0.17	0.28	0	1
Female earnings	95	375.84	715.43	0	4000
Male earnings	95	1179.40	814.33	0	4300
Women's age	95	35.89	7.31	22	57
Dependent children	95	1.93	0.26	1	2
Bangladeshi couples					
Female housework share	46	0.76	0.17	0.23	1
Female gender attitudes	46	0.87	2.77	-6	7
Male gender attitudes	46	1.15	2.40	-4	7
Female hours worked	46	9.20	13.56	0	50
Male hours worked	46	26.15	15.06	0	48
Relative hours	43	0.24	0.35	0	1
Relative earnings	46	0.19	0.31	0	1
Female earnings	46	365.89	763.16	0	4600
Male earnings	46	1181.72	956.09	0	5400
Women's age	46	32.78	6.30	21	46
Dependent children	46	1.91	0.28	1	2

Source: UKLHS, Wave 4, 2012-13.

Note: Table 5.1 includes summary statistics for White, Indian, Pakistani and Bangladeshi couples. Male and female earnings per month are reported net of tax (£). Female and male hours worked per week are reported. Relative hours, report women's paid hours per week relative to men's. Relative earnings, report women's monthly earnings relative to men.

On average, women complete the majority share of housework per week relative to their partners across all ethnic groups. [74] Pakistani (81%), Indian (74%) and Bangladeshi (69%) women complete a higher share of housework per week than the White group (67%). Figure 5.A2 in Appendix 5.A reports average hours spent on housework per week by men and women across ethnic groups. There is little difference in mean hours across men. Pakistani men on average complete less hours of housework than all other men. Minority women on average complete more hours per week on housework than white women. On average, the Indian group do a higher number of hours of housework per week (25 hours) in comparison to all other groups. Pakistani and Bangladeshi follow (23 hours per week). The White group do the least (18 hours per week).

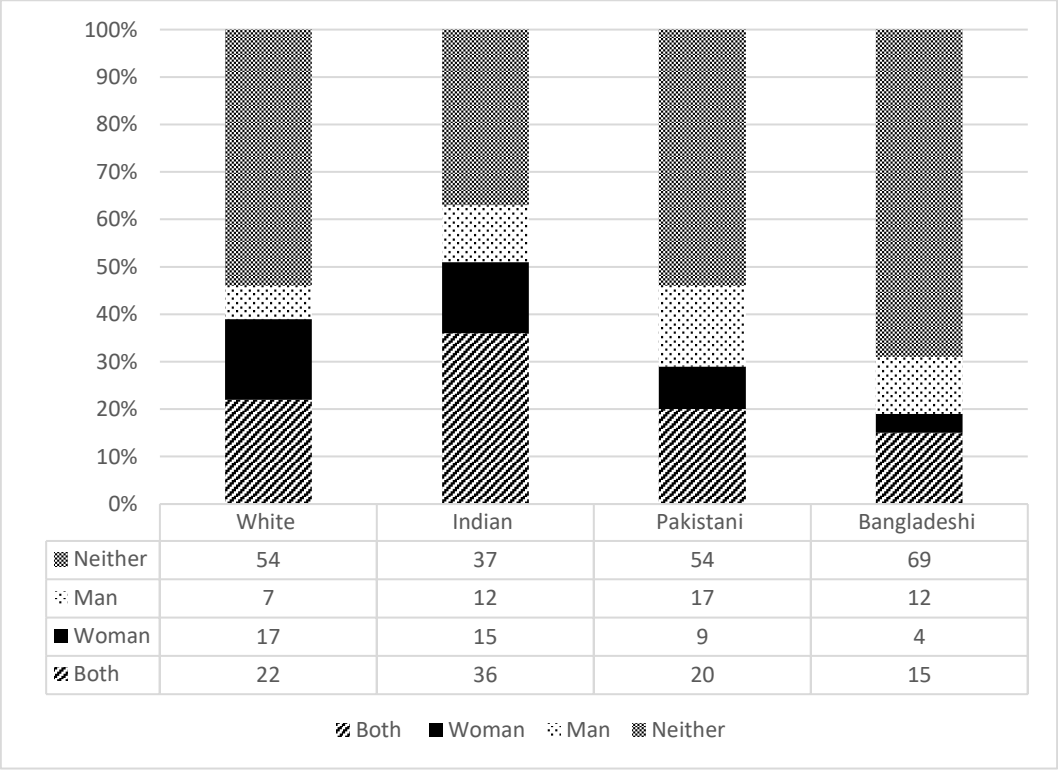
Table 5.A1. in Appendix 5.A reports descriptive results for the division of housework within couples, based on responses to the following questions: Who does the cooking, cleaning, washing/ironing, childcare, gardening, DIY, groceries? Roles such as cooking, cleaning, washing and ironing, and childcare are largely completed by the woman; this is consistent across all ethnic groups. We find that women in the Pakistani group complete the highest proportion of all chores. Men across all ethnic groups complete the smallest share of household work, particularly minority men. Gardening and DIY are generally completed by male partners across all ethnic groups, but Pakistani and Bangladeshi women complete a higher proportion of these tasks than White women. White men observe a more active role in housework than all ethnic groups. Shared responsibility is greatest for the Indian group for all household chores, except cooking where shared responsibility among White couples is greater.

The literature has found that educated individuals are more egalitarian in their views (Wight et al., 2013). As such, we may expect couple level degree status to have an important role in determining female share of housework. Figure 5.1 reports joint educational status of couple members. The largest proportion of couples in our sample do not have degrees. Indian couple members are more likely to have a degree than other groups. Among White and Indian groups, the woman only is more likely to have a degree is than the man only having a degree, whilst the opposite is true for Pakistani and Bangladeshi couples. We would expect couples in which both members have a degree to share a more equitable split of housework. Figure 5.2 reports joint employment status of couple members. Among White and Indian couples, a higher proportion of both couple members are in paid employment than is the case for Pakistani and

[74] Figure 5.A1 in Appendix 5.A

Bangladeshi couples. For all ethnic groups, a relatively small proportion of wives only are in paid employment. The difference between man only and woman only in paid employment is considerably larger for Pakistani and Bangladeshi minority groups than for White. This highlights the variation in couple level employment status among ethnic groups, and may well be related to traditional gender role attitudes in these groups. We find more similarities between Pakistani and Bangladeshi couples, where a smaller proportion of Pakistani and Bangladeshi women only are in paid employment relative to their spouse. This may have important implications in determining female share of housework among our couples, since employed individuals are more likely to have higher earnings and less available time for housework relative to unemployed partners.

Figure 5.1 Joint education status of men and women in couples, by ethnic group. Percentage of couples where both members have a degree, neither have a degree, and man or woman only has a degree.

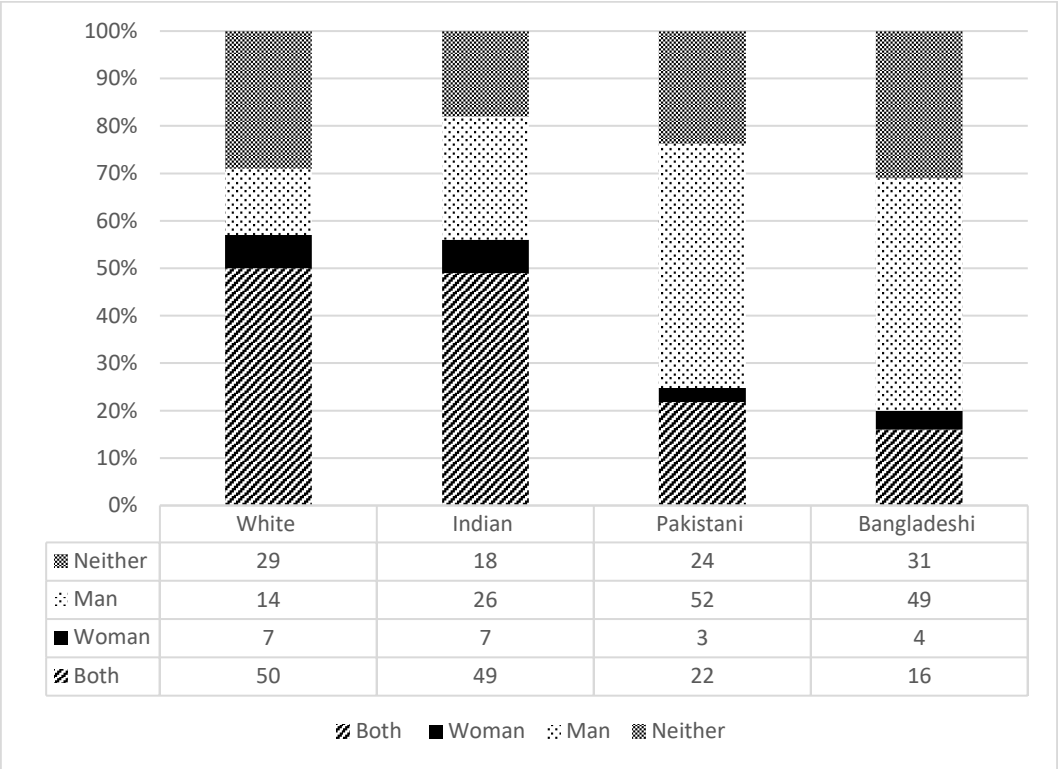


	White	Indian	Pakistani	Bangladeshi
Neither	54	37	54	69
Man	7	12	17	12
Woman	17	15	9	4
Both	22	36	20	15

Source: UKLHS, Wave 4, 2012-13.

Notes: Categories include, both couple members have a degree, man only has a degree, woman only has a degree and neither couple members have a degree.

Figure 5.2 Joint employment status of men and women in couples, by ethnic group. Percentage of couples where both members are in paid employment, neither in paid employment, and man or woman only in paid employment.



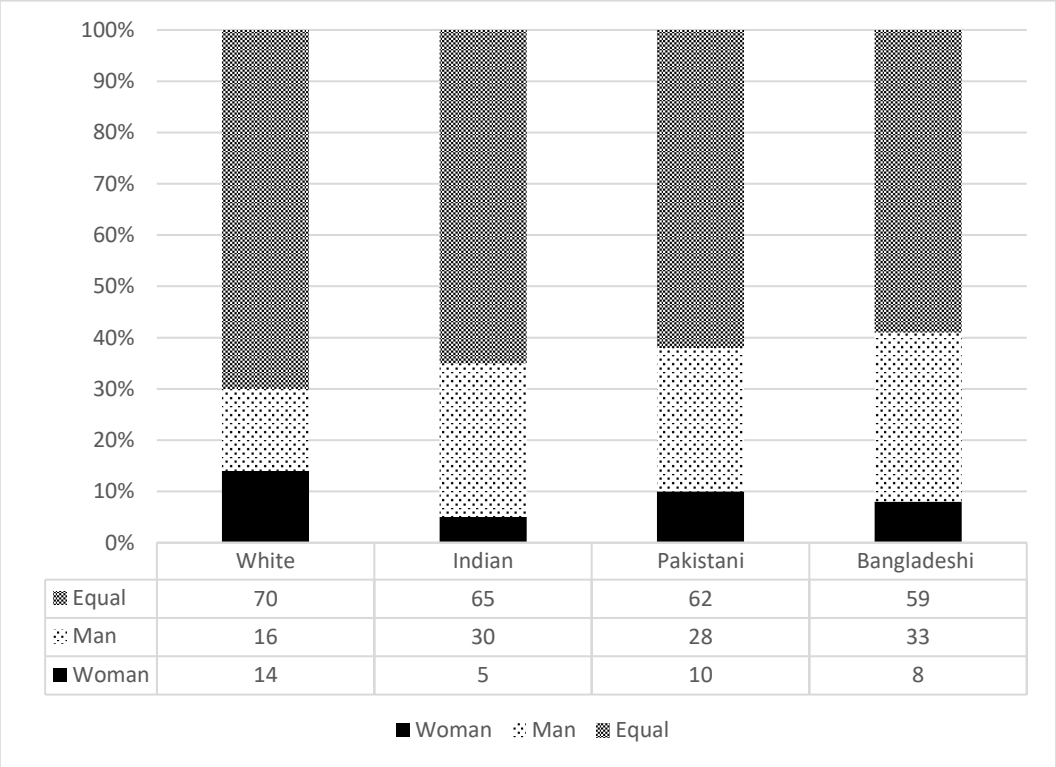
	White	Indian	Pakistani	Bangladeshi
Neither	29	18	24	31
Man	14	26	52	49
Woman	7	7	3	4
Both	50	49	22	16

Source: UKLHS, Wave 4, 2012-13.

Notes: Categories include, both couple member are in paid employment, male only is in paid employment, female only is in paid employment and neither couple members are in paid employment.

Figure 5.3 reports whether the main financial decisions are made by the woman, the man or whether they are shared. [75] It shows that in the large majority of cases, financial decisions are shared amongst all ethnic couples. This shared responsibility is largest in the case of White couples (70%), and smallest in the case of Bangladeshi couples (59%). Indian and Bangladeshi men report the highest share of financial responsibility, the share of financial decisions made by White men is approximately 50% less than the share of financial decisions made by men for other ethnic minority groups. White women have the highest share of financial decision-making responsibility compared to other minority groups. White women are approximately three times more likely to oversee the main financial decisions in the household than Indian women.

Figure 5.3 Who is responsible for main financial decisions among couples: White, Indian, Pakistani and Bangladeshi.



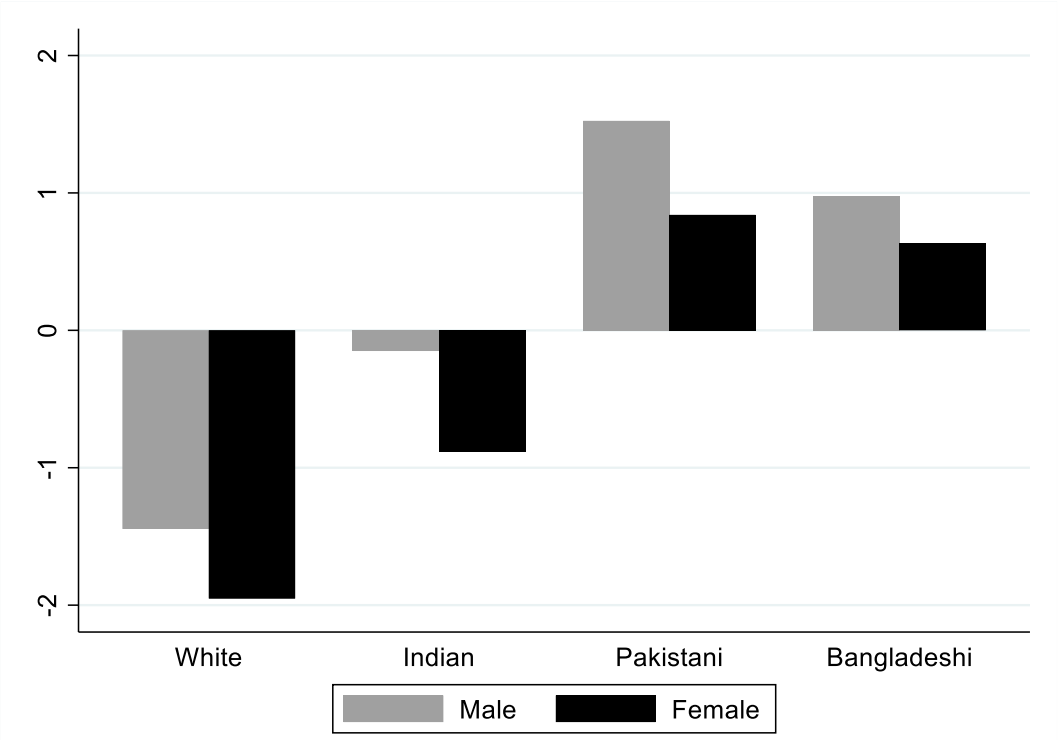
	White	Indian	Pakistani	Bangladeshi
Equal	70	65	62	59
Man	16	30	28	33
Woman	14	5	10	8

Source: UKLHS, Wave 4, 2012-13. Notes: Categories include, main financial decisions are made by the woman, man or shared equally.

[75] The information in figure 5.3 is reported from the perspective of the women. We report main financial decision-making responsibility from the perspective of the man in table 5.A2 in Appendix 5A to check for robustness and consistencies. We find, generally responses are consistent across men and women. Financial decision-making responsibility is mainly shared, assumed by the man, then women respectively.

Figure 5.4 reports gender attitude scores for men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. Here, male gender attitudes include men's attitudes towards women's roles in the household; female gender attitudes include women's attitudes towards on women's roles in the household. The scores range from -8 to +8, a negative sign indicating egalitarian attitudes, and a positive sign indicating traditional and inegalitarian gender attitudes. The scores are constructed using responses to gender attitude questions (see section 5.4.2). [76] Ethnic minority men and women express more traditional attitudes than the white group. Indian group indicates less traditional gender attitudes comparative to Pakistani and Bangladeshi women. On average, both Indian men and women express more egalitarian views. Among all groups, men on average express more traditional views than women. Pakistani and Bangladeshi women, on average, convey more traditional gender attitudes than both White men and women. On average, gender attitudes are consistent between men and women in each ethnic group. This is likely to be a result of homogamy, since individuals are likely to couple with others from similar backgrounds (Kalmijn, 1998).

Figure 5.4 Gender-role attitude by ethnic group



[76] See section 5.4.1 and 5.4.2 for discussion of variables

Source: UKLHS, Wave 4, 2012-13.

Given these differences by gender and ethnicity, we expect some variation in the influence of key theories on housework and financial responsibility. Given the large differential in earnings and employment status among couple members, we expect resource bargaining mechanisms to be an important indicator of housework share and financial decision making. Since relative income among White women are generally higher than for ethnic minority women, it may be sensible to expect resource bargaining mechanisms to hold more strength among the white group than for ethnic minority groups, particularly so in the case of Pakistani and Bangladeshi couples.

5.4.1 Dependent variable: Division of housework

The division of housework within couples is measured by the female share of housework. We use responses to the question: "how many hours do you spend on housework in an average week, such as time spent on cooking, cleaning, and doing the laundry?" to construct a variable of number of hours spent on housework per week for men and women. We match information for women respondents and their partners to generate female share of housework. We divide the number of hours spent on housework per week by women over the sum of total number of hours per week spent on housework by both couple members. We create an index between 0-1 indicating the woman share of housework within the couple, 0 meaning the man does all the housework and 1 meaning the woman does all the housework.

Following Kan and Laurie (2016), Nitsche & Grunow (2016), Greenstein (2000) a measure of female hours of housework, relative to husband's hours of housework, is likely to be more informative than an absolute measure of male and female hours of housework. Although absolute measures of housework hours can be useful, they fail to provide a complete picture of the division of housework within the couple. For example, a decrease in female's hours of housework does not imply male hours of housework is increasing relative to females. Rather, the decrease could be due to the outsourcing of domestic tasks to paid employment, resulting in no changes in the male's hours of housework. Further, absolute measures do not account for the possibility that, although there is less overall housework to be shared by the couple, the share of the woman's housework may increase despite her total housework hours decreasing.

5.4.2 Independent variables: Division of housework

We use number of hours normally worked per week in main job to capture time availability theory. [77] Men and women's average number of hours worked per week are measured as continuous variables. We create relative hours to indicate the share of hours worked by women, ranging from 0 to1. Number of hours worked by women are divided by the sum of number of hours worked by men and women.

We use net labour income per month for female and male partner to create relative earnings from paid labour. This includes: net usual pay in main job. Absolute female earnings are divided by the sum of male and female earnings, to construct a proportional share of women earnings ranging from 0 to1, closer to indicates a higher share of female earnings relative to male.

The gender attitude score is used to reflect cultural or traditional norms which may affect the share of female housework (Kan and Laurie, 2016). The score is constructed using four questions in the dataset. Respondents in the survey were asked whether: 1) A pre-school child is likely to suffer if his or her mother works; 2) Family life suffers when the woman has a full-time job; 3) Both the husband and wife should contribute to the household income; and 4) A husband's job is to earn money; a wife's job is to look after the home and family. The response set varied from strongly agree, agree, neither agree/disagree, disagree, and strongly disagree. The items are coded and added to create a scale ranging from -8 to +8. Responses to all questions excluding question 3 are reverse-coded, a positive score indicating a more traditional attitudes and a negative score indicating a more egalitarian attitudes, with higher values meaning more extreme views. We use this method to construct a summative scale which is in line with what is done in the literature (Kan and Laurie, 2016). We consider the impact of female and partners' gender attitude scores on the domestic division of labour. Female gender attitude includes women's attitudes towards women's roles in the household, and, male gender attitudes consist of men's attitudes about the women's role in the household. We distinguish between male and female gender attitudes to observe the influence on female share of housework, and whether the influence of a certain gender is stronger on female share of housework across ethnic groups.

We include a set of dummies to identify the employment status of the two partners in the household. We construct couple level employment status using current economic activity of

[77] A small number of individuals in our sample are self-employed. As such we exclude.

women and their partner. Employed include the self-employed and individuals in full-time or part-time paid employment. All others are considered unemployed at the time. Unemployed consist of retired, on maternity leave (not working), taking care of family or home, full-time student, long-term sick or disabled, or in apprenticeship. We construct a variable with four possible outcomes: 1) both couple members are employed, 2) only the woman is employed, 3) only the man is employed, and 4) neither couple members are employed.

We construct a variable of relative education level, using the highest individual qualification of the woman and her partner. The categorical variable consists of four categories: 1) both couple members have a degree, 2) only the wife has a degree, 3) only the husband has a degree and 4) neither couple member have a degree.

We also control for the age of the woman, and whether the couple has dependent children, using a dummy, 0 for no dependent children and 1 for presence of dependent children.

5.5 Methodology

5.5.1 Female share of housework

We estimate female share of housework controlling for ethnicity and other couple characteristics. To do so we consider a multivariate OLS regression model where the dependent variable y_i is the share of housework of women.

$$\begin{aligned} y_i = \beta 0 + \beta_1\, ethnicity_i + \beta_2 female\ hours\ worked_i + \beta_3 relative\ earnings_i \\ + \beta_4 female\ gender\ attitudes_i + \beta_5\ male\ gender\ attitudes_i \\ + \beta_6\ couple\ degree\ status_i + \beta_7\ couple\ employment\ status_i \\ + + \beta_8\ male\ hours\ worked_i + \beta_9 age + \beta_{10} dependent\ children_i + \varepsilon_i \end{aligned} \quad (5.1)$$

Where $y_i \in (0,1)$ is the share of hours per week spent on housework by the woman. A value closer to 1 indicates a higher share of female housework. This includes time spent on cooking, cleaning, and doing the laundry. Ethnicity includes dummies for couples belonging to Indian, Pakistani and Bangladeshi ethnicities. We include dummies for ethnicity to consider whether the female share of housework varies relative to White couples. In light of the descriptive statistics, we have shown variation in the female share of housework among our ethnic groups. We consider the importance of main theoretical approaches in the division of housework among our pooled sample and, therefore, we include measures commonly used in the literature

to estimate the effect of the three mentioned theories. We include hours worked, for men and women, commonly used to estimate the influence of time availability theory in the literature (Wight et al, 2013). Relative earnings are used to proxy the effect of resource bargaining theory among our sample (Kan, 2008; Wight et al, 2013). In the context of inequality and bargaining power among couples, income is considered a bargaining input, which allows the couple to determine housework allocation, amongst other important decisions, whilst time allocation is considered an outcome of the bargain, i.e. the allocation of housework. Male and female gender attitudes are included to consider how men and women's attitudes towards traditional roles effect women share of housework (Kan and Laurie, 2016). We use this measure to estimate effect of gender roles. Moreover, we include couple degree status, to account for differences in education within couples. We expect more educated couples to observe lower female share of housework, compared to couples where neither member have a degree. Couple employment status is included to consider whether female share of housework varies by the joint employment status of couple members. Employed men and women are likely to benefit from higher earnings and less available time to do housework. Therefore, we argue differentiating between couples where both members, either or neither are in paid employment may be important in determining the female share of housework. It is common practice in the literature to control for education and employment status (Wight et al, 2013; Kan and Laurie, 2016) . We also include the age of the woman, and whether the couple has dependent children, using a dummy (0 for no dependent children and 1 for presence of dependent children). It is sensible to assume these variables may have an effect on female share of housework given the literature (Rao, 2019; Cunningham, 2001). ε represents the error term.

Next, we consider the effect of theories within White, Indian, Pakistani and Bangladeshi couples. We estimate the influence of time availability, resource bargaining and gender roles theories on the female share of housework for these separate ethnic groups. We aim to assess whether heterogeneity between minority groups exists. We interact ethnicity with relative hours, relative earnings, gender attitudes and controls, including degree status, employment status, age and dependent children, as in equation 5.2. We estimate four OLS regression models in which we interact all explanatory variables with ethnicity. We change the ethnicity reference category in each OLS model; equation 5.2 is estimated four times where the reference category for ethnicity is either, White, Indian, Pakistani or Bangladeshi. As such, we estimate

four models and the differential effect between each ethnic group. [78] These models also estimate the overall effect of explanatory variables within each ethnic group. [79] This gives us an indication of the effect and significance of theories on female share of housework within and across our ethnic group samples. Separate β are estimated for each of the four models.

$$y_i = \beta 0 + \beta_1\, ethnicity_i * relative\ hours\ worked_i + \beta_2 ethnicity * relative\ earnings_i + \beta_3 ethnicity * female\ gender\ attitude_i + \beta_4 ethnicity * male\ gender\ attitude_i + \beta_5 ethnicity * couple\ degree\ status_i + \beta_6 ethnicity * couple\ employment\ status_i + \beta_7\ ethnicity * age_i + \beta_8 ethnicity * dependent\ children_i + \varepsilon_i \quad (5.2)$$

We test whether three theories, time availability, resource bargaining and gender roles apply to female share of housework within White, Indian, Pakistani and Bangladeshi couples, and whether there are differences among couples in each ethnic group.

[78] Indian, Pakistani and Bangladeshi relative to white. White, Pakistani, and Bangladeshi relative to Indian. White, Indian and Bangladeshi relative to Pakistani. And White, Indian and Pakistani relative to Bangladeshi.

[79] We also estimate female share of housework according to each ethnic group to observe the same effects for couples in White, Indian, Pakistani and Bangladeshi couples, controlling for the same variables: relative hours, relative earnings, gender attitudes, couple degree, couple employment status, age and dependent children. We do so as a robustness check. See table 5.B3 in Appendix 5B.

5.6 Results and discussion

5.6.1 Division of housework

Our first goal is to estimate the determinants of female share of housework, aiming to assess the extent of differences by ethnicity. We estimate a model without controls to confirm a difference among ethnic minority groups. Table 5.2 presents our findings. Indian, Pakistani and Bangladeshi women do a larger share of housework relative to white women. [80] This effect is largest for Pakistani women.

[80] The coefficients represent an increase in mean share of housework for couples, relative to the White couple.

Table 5.2 Female share of housework, effect of time availability, resource bargaining and gender roles theory for the pooled sample

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Female share of housework	Female share of housework	Female share of housework	Female share of housework	Female share of housework	Female share of housework
<u>White</u>						
Indian	0.0722***	0.0714***	0.0686***	0.0535***	0.0530***	0.0825***
	(0.0146)	(0.0146)	(0.0155)	(0.0170)	(0.0176)	(0.0188)
Pakistani	0.167***	0.122***	0.0969***	0.0744***	0.0723***	0.0935***
	(0.0144)	(0.0146)	(0.0158)	(0.0186)	(0.0203)	(0.0216)
Bangladeshi	0.0893***	0.0534***	0.0214	-0.0159	-0.0161	0.0222
	(0.0218)	(0.0189)	(0.0214)	(0.0259)	(0.0308)	(0.0312)
Female hours worked		-0.00267***	-0.00131***	-0.00108***	-0.00102***	-0.00146***
		(0.000185)	(0.000239)	(0.000244)	(0.000249)	(0.000310)
Relative earnings			-0.209***	-0.196***	-0.200***	-0.172***
			(0.0171)	(0.0172)	(0.0175)	(0.0264)
Male gender attitudes				0.00932***	0.00869***	0.00794***
				(0.00127)	(0.00134)	(0.00141)
Female gender attitudes					0.00234*	0.00245*
					(0.00134)	(0.00140)
<u>Neither have a degree</u>						
Both have degree						-0.0425***
						(0.00868)
Female only has a degree						-0.0250**
						(0.0102)

Source: UKLHS, Wave 4, 2012-13.

Note: Reference categories include White, neither have a degree, neither employed and no dependent children. Reference categories are underlined in table. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 5.2 (ctd) Female share of housework, effect of time availability, resource bargaining and gender roles theory for the pooled sample continued

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Female share of housework	Female share of housework	Female share of housework	Female share of housework	Female share of housework	Female share of housework
Male only has a degree						-0.0177
						(0.0129)
Neither employed						
Both employed						-0.0105
						(0.0355)
Female only employed						-0.0820**
						(0.0408)
Male only employed						-0.0496
						(0.0359)
Male hours worked						0.000115
						(0.000206)
Age						0.00203***
						(0.000460)
Dependent children						0.0287***
						(0.00920)
Constant	0.693***	0.740***	0.796***	0.801***	0.806***	0.734***
	(0.00361)	(0.00490)	(0.00597)	(0.00611)	(0.00603)	(0.0442)
Observations	4,881	4,881	4,432	4,111	4,011	3,620
R-squared	0.012	0.064	0.124	0.135	0.142	0.169

Source: UKLHS, Wave 4, 2012-13.

Note: Reference categories include White, neither have a degree, neither employed and no dependent children. Reference categories are underlined in table. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues from the preceding page.

Table 5.2 reports on the influence of covariates on female share of housework. [81] Additional covariates are included in the model from columns (12) to (6). We find no significant difference between Bangladeshi and White women's share of housework when relative earnings are accounted for. The size of the coefficients for Pakistani and Bangladeshi groups become smaller as additional covariates are controlled for. For the Indian group, the inclusion of controls in the final model results in an increase in the female share of housework. We find that the addition of degree status, employment status, male hours worked and age results in an increase in the size of the coefficient for the Indian group, as such some of the differences are due to characteristics.

We discuss of the relevance of the three theories: time availability, resource bargaining and gender roles, proxied by hours worked by men and women, relative earnings and gender attitudes. Column (6) reports the results. Women who spend more hours per week working, complete a smaller share of housework, although the size of the coefficient is small in magnitude. These women are likely to contribute less to housework since they have less time available to do so. Support for resource bargaining theory is found among our pooled sample, we estimate a significant reduction in women's share of housework as the women's income increases relative to the partner among all couples, as is found in Kan (2008). A 10% increase in women's share of the total earnings is associated with a reduction female share of housework by 0.02 percentage points. A higher share of income is associated with an increase in rwomen's relative earnings, although effects are marginal. The empowerment associated with higher income is utilised by individuals to negotiate or "buy" their way out of housework, or comparatively less housework. Women do a higher share of housework where men and women have traditional gender attitudes whereby women assume the position of 'home-maker' whilst men are considered the 'bread-winner' (Kan and Laurie, 2016). Male gender attitude has a relatively stronger and significant influence on female share of housework than female gender attitudes. The responsibilities assumed by the woman in the couple are influenced by the male partner, possibly a reflection of traditions, values and wider cultural traits.

Couple level education status, couple level employment status, age and dependent children are found to have significant effects on female share of housework. If both couple members or the

[81] We include whether respondent belongs to a religion. We find no significant difference in estimations or R-squared with the inclusion of this variable. Referring to specific religion decreases sample size substantially, therefore we do not control for this. See table 5.B1 in appendix 5.B

woman only has a degree, then she does a lower share of housework, comparative to couples where neither members have a degree. This is consistent with the literature suggesting higher educated individuals have a more egalitarian division of housework (Lachance-Grzela and Bouchard, 2010). Educated women may do less housework as a result of the opportunities associated with obtaining a degree, for example greater employment opportunities and higher paid jobs. If the woman only is in paid employment, she does a lower share of housework, in comparison to couples where neither member are employed. These women may do less housework as a result of time constraints or bargaining power associated with working in the labour market. Age and dependent children are positively associated with higher female share of housework. Since childcare is a responsibility often assumed by women, the direction of this effect is unsurprising. Older women do a greater share of housework.

The estimates in Table 5.2. strongly suggest that time availability, resource bargaining and gender attitude theories are important in determining female share of housework among our pooled sample. We aim to investigate whether some of the theories may better explain the behaviour of some groups. We interact all variables in the model with ethnicity, where the reference group for ethnicity is either White, Indian, Pakistani or Bangladeshi. Estimates are reported in Table 5.3[82].

[82] We interact the following variables with ethnicity: relative hours, relative earnings, female gender attitudes, male gender attitudes, degree status, employment status, dependent children and age.

Table 5.3 Female share of housework, effect of time availability, resource bargaining and gender roles theory among White, Indian, Pakistani and Bangladeshi couples

Ethnicity	Variables	White	Indian	Pakistani	Bangladeshi
Effect within group	Relative hours	-0.00712	-0.00146	**0.144*** **	0.0525
	Relative earnings	**-0.225*** **	**-0.196** **	**-0.349*** **	-0.238
	Female gender attitudes	**0.00392*** **	**-0.00989** *	-0.00650	-0.00319
	Male gender attitudes	**0.00830*** **	0.00789	-0.00164	-0.0151
White	Relative hours		-0.00566	**-0.152*** **	-0.0596
	Relative earnings		-0.0290	0.124	0.0133
	Female gender attitudes		**0.0138** **	0.0104	0.00711
	Male gender attitudes		0.000412	0.00993	**0.0234** **
Indian	Relative hours	0.00566		**-0.146*** **	-0.0539
	Relative earnings	0.0290		0.153	0.0423
	Female gender attitudes	**-0.0138** **		-0.00339	-0.00670
	Male gender attitudes	-0.000412		0.00952	**0.0230** *
Pakistani	Relative hours	**0.152*** **	**0.146*** **		0.0920
	Relative earnings	-0.124	-0.153		-0.110
	Female gender attitudes	-0.0104	0.00339		-0.00331
	Male gender attitudes	-0.00993	-0.00952		0.0134
Bangladeshi	Relative hours	0.0596	0.0539	-0.0920	
	Relative earnings	-0.0133	-0.0423	0.110	
	Female gender attitudes	-0.00711	0.00670	0.00331	
	Male gender attitudes	**-0.0234** **	**-0.0230** *	-0.0134	

Source: UKLHS, Wave 4, 2012-13.

Note: Controls include, degree status, employment status, dependent children, and age. Reference categories include White, neither have a degree, neither employed and no dependent children. See full output in Table 5.B2 in Appendix 5.B. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

Table 5.3 reports the effect of the variables proxying the three theories on the female share of housework among couples for each ethnic group.[83] We begin by reporting within group estimates, or the effect of theories on White, Indian, Pakistani and Bangladeshi couples. We find consistent support for resource bargaining theory among all couples, as shown by the relative earnings coefficients. Proxies of gender roles are significant predictors of female share

[83] Table 5.3 reports significance of coefficients within each ethnic group, and significance of coefficients across ethnic groups.

of housework for White and Indian groups. Among White couples, the effect of male gender attitudes is larger than female gender attitudes. Although the effect is marginal and small in magnitude, it is significant at 1% level. The signs of coefficients are in line with expected theory. For Indian couples, traditional female gender attitudes are associated with a smaller share of housework for women. [84] This might be because the expectation that men should contribute to housework may increase as females gender attitudes become more egalitarian. A higher share of hours worked outside the home by Pakistani women relative to Pakistani men is associated with an increase in the female share of housework. [85] The estimated sign of the coefficient is contrary to what we might expect and have observed among other ethnic groups. This might be because Pakistani women may complete a higher share of housework to compensate for their time spent away from the home. On average, Pakistani women work fewer number of hours than White and Indian women. Therefore, they may want to conform to housework traditions practiced by the "average" Pakistani women. As such, they attempt to make up for their absence by doing a larger share of housework. As with White and Indian women, an increase in relative earnings, is associated with a reduction in the female share of housework for Pakistani women. Among Pakistani couples, the magnitude of the effect associated with the resource bargaining theory is larger than that associated with time availability theory.

We find that Indian women do a lower share of housework than White women where women have traditional gender attitudes. Bangladeshi women do a lower share of housework compared to White women when men have traditional gender attitudes. Pakistani women do a higher share of housework than White women as relative earnings increase. We find theories are more pronounced in the White group relative to ethnic minority groups. The estimates in Table 5.3. identify theories of time availability, resource bargaining and gender roles are more prominent in our White sample comparative to ethnic minority. When the reference category is Indian women, we find that Pakistani women complete a higher share of housework than Indian

[84] We estimate OLS regression for the Indian sample to check robustness. We find results are consistent with estimates of interaction. We estimate the model introducing each variable separately to the model. Once we control for relative earnings, we find the effect of female gender attitudes becomes negative as reported in results.

[85] We estimate OLS regression for the Pakistani sample to check robustness. We find results are consistent with estimates of interaction. We estimate the model introducing each variable separately to the model. Once we control for gender attitudes, we find the effect of relative hours becomes negative as reported in results.

women as relative earnings increase. This suggests that resource bargaining theory is more prominent in determining the female share of housework for Indian women than for Pakistani women. Bangladeshi women are found to do a lower share of housework than Indian women when men have traditional gender attitudes. This suggests that male gender attitudes have a larger influence in determining Indian women's than Bangladeshi women's share of housework. We find no significant differences in estimations between Pakistani and Bangladeshi women. This suggests that theories hold greater strength among Indian women, than among other ethnic minority groups, as was the case among White couples. These estimates are interesting in that they report heterogeneity among women from different ethnic minority groups.

We summarise sign and significance of coefficients in Table 5.4. [86]

[86] We estimate separate OLS regression models for White, Indian, Pakistani and Bangladeshi ethnic group. We report the overall effect of time availability, resource bargaining and gender attitudes within each ethnic group table 5.B3 in Appendix 5.B. We control for degree status, employment status, dependent children and age. Betas are estimated for each of the population samples. The estimates of the covariates are consistent with the estimations reported in table 5.3 and 5.4, we do so as a robustness check We prefer to present results of model in equation 5.2 and table 5.3, since this method allows us to make inference between ethnic groups, using interactions.

Table 5.4 Female share of housework, effect of time availability, resource bargaining and gender roles theory among White, Indian, Pakistani and Bangladeshi couples: Summary

	White	Indian	Pakistani
	Female share of housework	Female share of housework	Female share of housework
Time availability			*** (+)
Resource bargaining	*** (-)	** (-)	** (-)
Female gender attitudes	*** (+)	* (-)	
Male gender attitudes	*** (+)		

Source: UKLHS, Wave 4, 2012-13. We find no statistical significance for the Bangladeshi group, therefore they are excluded from this table.

Note: Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

We draw three main conclusions from these estimations. We observe similarities among White, Indian and Pakistani ethnic groups. Proxy for resource bargaining theory is a consistent predictor among all three groups, although we do not find significance among Bangladeshi couples. Second, we observe heterogeneity among our couples. Support for all theories is particularly strong among White couples. Gender attitudes is a significant predictor of female share of housework for White couples; the effect of male gender attitudes is larger than female gender attitudes. This effect is not found among Indian or Pakistani couples. Third, we find that support for theories differ among ethnic minority couples, in particular, among Indian and Pakistani couples. We suggest potential explanations for these differences. Regardless of the attitudes expressed by men and women, there may be traditional or cultural expectations among Pakistani couple members that housework is done by women. Therefore, Pakistani women may do a larger share of housework, even when they spend more time in paid work. Amongst White couples, those who do associate with more traditional gender attitudes actively do a larger share of housework compared to couples with less traditional gender attitudes.

5.7 Conclusion

In this chapter we have looked at the effect of the interaction between gender and ethnicity on an issue that has traditionally received attention in the gender literature: the division of housework. We have done so through the lens of three main theoretical approaches: time availability, resource bargaining and gender roles. We have contributed to the literature in two important ways. First, we have explored whether the three main theoretical approaches explain the division of labour among ethnic minority couples in the UK differently, a discussion which has been limited in the context of gender and ethnicity in the UK.[87] Second, men and women's gender attitudes towards female roles within the couple, are considered as two separate explanatory variables, we do so to understand whether the ideologies of one gender is more influential in the division of household decisions.

The interaction between ethnicity and gender results in some overall homogenous and more detailed, heterogenous patterns for the division of housework. Overall, the homogenous result is that our analysis conforms confirms what is well known, namely that women complete a majority share of household tasks, such as cooking, cleaning, washing and ironing, whilst men take charge of DIY and financial decision making. We find that this is also the case for ethnic minority women compared to White women, and men of the same ethnicity. Minority women do more housework than white women and minority men contribute less to housework than white men. When assessing the gender-ethnicity interaction through the lens of the three theoretical approaches adopted here, we find that time availability, resource bargaining and gender roles theories seem to be important predictors of housework. Support for resource bargaining theory is found among all couples, we estimate a significant reduction in women's share of housework as the women's income increases relative to the partner among all ethnic couples.

In analysing the contribution of key theoretical mechanisms among minority groups, we find that support for time availability, resource bargaining and gender roles mechanism among couples varies. We find heterogeneity among White and minority couples, and across ethnic minority couples, theoretical mechanisms sighted in the literature appear to have a more profound effect among White couples than among ethnic minorities in determining the female housework share. Our theoretical proxies explain the least variation in female share of

[87] Exceptions being those reviewed in the literature (Kolpashnikova & Kan, 2020; Kan and Laurie, 2018; Wight, Bianchi, and Hunt, 2013).

housework for Bangladeshi couples, although the small sample size of the Bangladeshi couples is a likely contributor. The effect of gender roles is consistent among White couples in determining the share of housework. We find male gender attitudes have a larger influence on female housework share. These findings suggest that the ideologies and attitudes held by the man have an important impact on the dynamics within the couple, more so than those shared by the woman. This theory is less consistent among ethnic minority couples, which may be surprising, given ethnic minority men and women report more traditional gender attitudes on average. However, since ethnic minority men and women begin with more traditional gender attitudes, we may not be picking up the variation due to small sample sizes of ethnic minority couples. Among Pakistani women, we find evidence conflicting with expectations of time availability proxies in determining the female share of housework.

The analysis leads to the following implications. Although we find support for key mechanisms across ethnic groups in determining housework share, we find variation in the direction and influence of the sighted theories. The theories appear to have most significance for the white group. As such it is important to develop a better understanding than currently available of the factors influencing housework share among minority groups. Furthermore, we observe heterogeneity among ethnic minority groups. As such, it is important not to consider minority groups as one overall group, as is done too often, but rather develop an understanding of the differences among ethnic minority groups. Differences in the division of housework share across ethnic groups may have important implications for conversations on ethnic differences in gender income inequality.

It is important to note there may be cultural or other unobserved differences influencing the dependent variables, which we have not been able to capture with the available data. Given our findings, it may be sensible to expect cultural practices and influences not identified by gender attitudes questions to play an important role in determining female housework share. Despite the inclusion of the ethnic minority boost, our analysis is limited by a small number of cases for some of the ethnic minority groups. Due to small sample size of ethnic minority couples, we may observe little variation among couples in each ethnic minority group, this may be one potential reason why support for theories are found more consistently among the White group. However, we believe the disaggregation of the data gives us a good indication of the heterogeneity experienced among white and ethnic minority women and starting point for future analysis in exploration of gender and ethnicity in the context of the wider household.

The existing literature has found inequalities within the household and women's economic empowerment are associated with women's roles in the household (Fuwa, 2004), however this is not limited to only housework related tasks. Access to household finances and financial decision-making responsibility (Guvuriro and Booysen, 2019) can be an important indicator of female power and equality within couples, as such an exploration of financial decision-making power is important to understand intra-household dynamics and gender relations in society, and complementary to the analysis in this chapter.

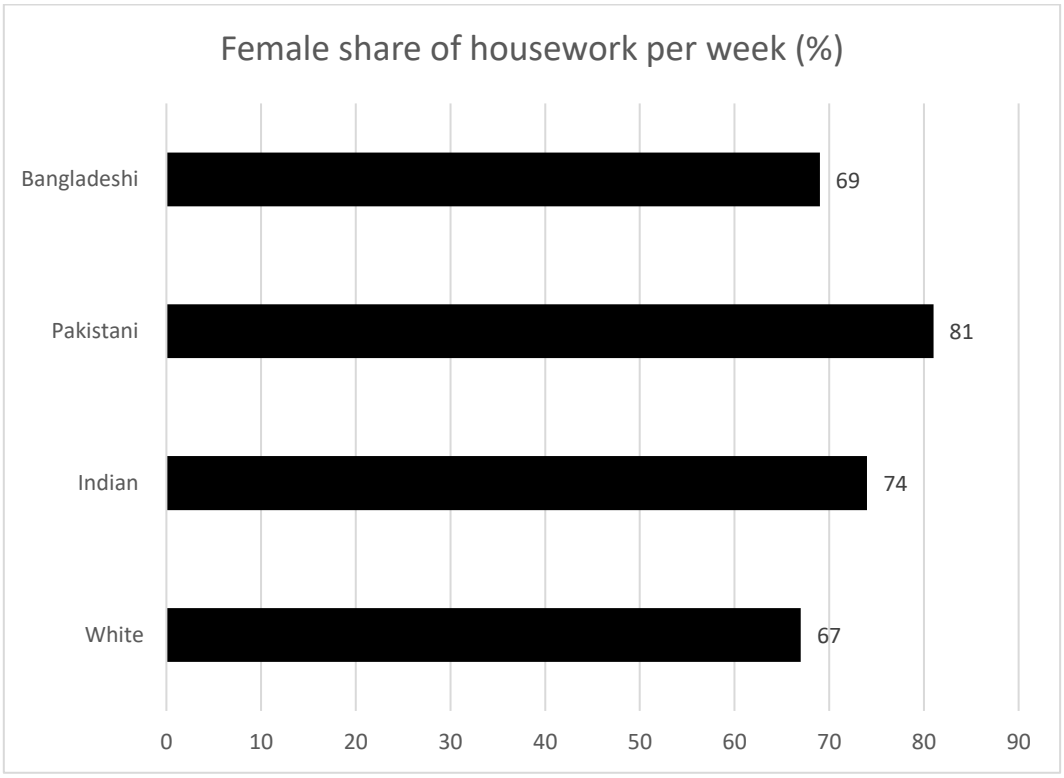
5.A Appendix

On average female share of housework for the White (67%), Indian(74%), Pakistani (81%), Bangladeshi (69%) women (Figure 5.A1). On average White couples do 18 hours of housework per week: 12 hours completed by women, and 6 by men. Pakistani couples do 23 hours of housework per week: 19 hours completed by women, and 4 hours completed by men. On average, female share of housework is 14% higher for Pakistani women compared to White women. Indian women do 18 hours of housework per week (0.74 female share of housework) and Bangladeshi women do 17 hours of housework (0.69 female share of housework).

We report the average number of hours spent on housework per week by couple degree status. On average, for couples in which both members have a degree, women do 13. 5 hours of housework. Where the woman only has a degree, women do 13.6 hours of housework. If the man has a degree, women do 16.4 hours of housework, and where neither members have a degree women do 16.8 hours of housework. Female share of housework is greatest where the man only has a degree (0.75), neither members have a degree (0.73), both have a degree (0.67) and women only has a degree (0.67).

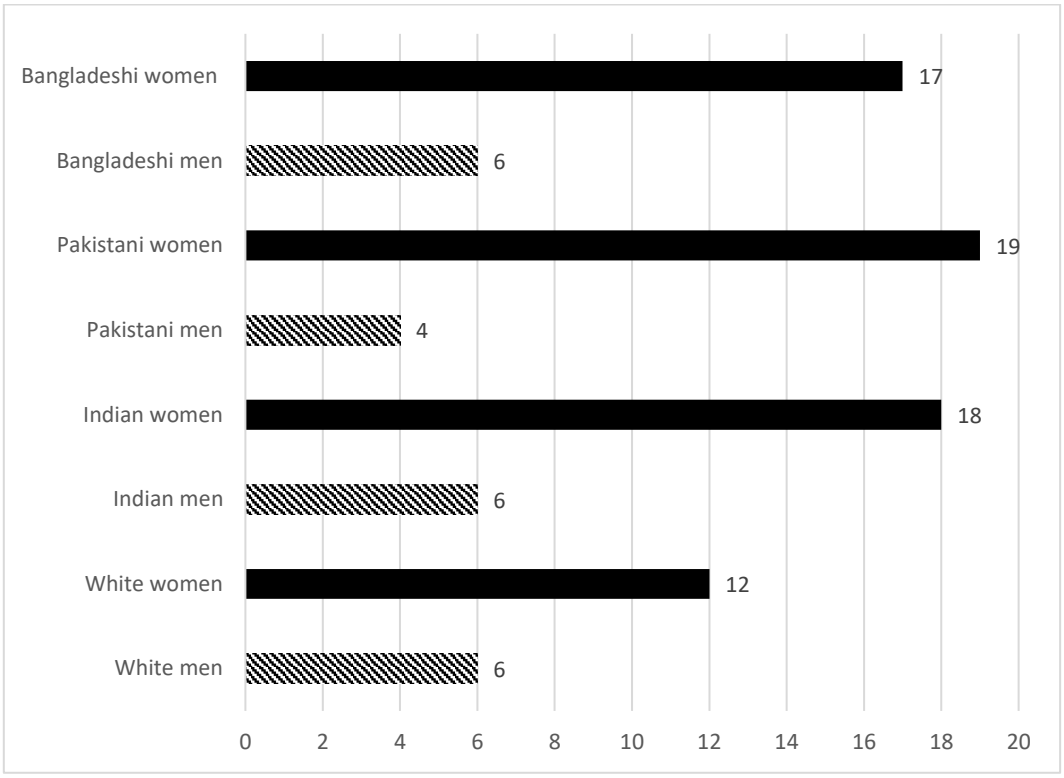
We report the average number of hours spent on housework per week by couple employment status. On average, for couples in which both members are employed, women do 13. 3 hours of housework. Where the women only is employed, women do 11.7 hours of housework. If the man only is employed, women do 21.1 hours of housework, and where neither member are employed women do 17.6 hours of housework. Female share of housework is greatest where the man only is employed (0.79), neither members are employed (0.71), both are employed (0.69) and women only is employed (0.55).

Figure 5.A1 Female share of housework per week



Source: UKLHS, Wave 4, 2012-13.

Figure 5.A2 Hours spent on housework per week: Ethnic minority men and women



Source: UKLHS, Wave 4, 2012-13.

Table 5.A1 Who does the housework?

House chores	House chore responsibility %	White	Indian	Pakistani	Bangladeshi
Grocery shopping	Woman	49	34	40	26
	Man	11	19	15	30
	Shared	40	47	45	44
Cooking	Woman	60	79	83	81
	Man	15	3	5	6
	Shared	25	18	12	13
Cleaning	Woman	61	55	68	63
	Man	9	8	7	5
	Shared	30	37	25	32
Washing/ironing	Woman	74	62	74	66
	Man	5	4	5	5
	Shared	21	34	21	29
Gardening	Woman	23	15	24	33
	Man	45	56	51	43
	Shared	32	29	25	24
DIY	Woman	9	6	12	16
	Man	75	75	71	64
	Shared	16	19	17	20
Childcare	Woman	57	43	65	45
	Man	3	4	4	6
	Shared	40	53	31	49

Source: UKLHS, Wave 4, 2012-13.

Note: Table 5.A1 reports the percent of women, man and shared responsibility of household chores for each ethnic group. These responses are from the perspective of the women.

5.B Appendix

Table 5.B1 Female share of housework including religion for the pool sampled

VARIABLES	Female share of housework
Indian	0.0819***
	(0.0193)
Pakistani	0.0907***
	(0.0224)
Bangladeshi	0.0217
	(0.0314)
Both have degree	-0.0421***
	(0.00870)
Female only has a degree	-0.0251**
	(0.0103)
Male only has a degree	-0.0176
	(0.0129)
Both employed	-0.00838
	(0.0358)
Female only employed	-0.0807**
	(0.0410)
Male only employed	-0.0485
	(0.0361)
Female gender attitudes	0.00249*
	(0.00142)
Male gender attitudes	0.00783***
	(0.00142)
Female hours worked	-0.00141***
	(0.000334)
Male hours worked	2.34e-05
	(0.000250)
Relative hours	-0.00209
	(0.00806)
Relative earnings	-0.176***
	(0.0265)
Age	0.00207***
	(0.000468)
Dependent children	0.0286***
	(0.00925)
Religion	-0.000331
	(0.00753)
Constant	0.735***
	(0.0456)
Observations	3,598
R-squared	0.169

Source: UKLHS, Wave 4, 2012-13. Note: Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. Note: Reference categories include White, neither have a degree, neither employed and no dependent children.

Table 5.B2 Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups. Variables are interacted with ethnicity

VARIABLES	Reference: White Female share of housework	Reference: Indian Female share of housework	Reference:Pakistani Female share of housework	Reference:Bangladeshi Female share of housework
Indian	0.542***		-0.115	0.635**
	(0.159)		(0.133)	(0.280)
Pakistani	0.390***	0.0269		0.662**
	(0.0805)	(0.129)		(0.271)
Bangladeshi	-0.272	-0.635**	-0.746***	
	(0.261)	(0.280)	(0.284)	
Relative hours	-0.00712	-0.00146	0.144***	0.0525
	(0.00693)	(0.0320)	(0.0417)	(0.0984)
Indian*relative hours	0.00566		-0.146***	-0.0539
	(0.0327)		(0.0525)	(0.103)
Pakistani*relative hours	0.152***	0.146***		0.0920
	(0.0422)	(0.0525)		(0.107)
Bangladeshi*relative hours	0.0596	0.0539	-0.0920	
	(0.0986)	(0.103)	(0.107)	
Relative earnings	-0.225***	-0.196**	-0.349***	-0.238
	(0.0248)	(0.0825)	(0.130)	(0.175)
Indian*relative earnings	0.0290		0.153	0.0423
	(0.0862)		(0.154)	(0.194)
Pakistani*relative earnings	-0.124	-0.153		-0.110
	(0.133)	(0.154)		(0.218)
Bangladeshi*relative earnings	-0.0133	-0.0423	0.110	
	(0.177)	(0.194)	(0.218)	
Female gender attitudes	0.00392***	-0.00989*	-0.00650	-0.00319
	(0.00145)	(0.00530)	(0.00623)	(0.00972)
Indian*female gender attitudes	-0.0138**		-0.00339	-0.00670
	(0.00550)		(0.00818)	(0.0111)
Pakistani*female gender attitudes	-0.0104	0.00339		-0.00331
	(0.00639)	(0.00818)		(0.0115)
Bangladeshi*female gender attitudes	-0.00711	0.00670	0.00331	
	(0.00982)	(0.0111)	(0.0115)	

Source: UKLHS, Wave 4, 2012-13.

Note: Controls include, degree status, employment status, dependent children and age. Reference categories include White, neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 5.B2 (ctd) Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups. Variables are interacted with ethnicity

VARIABLES	White Female share of housework	Indian Female share of housework	Pakistani Female share of housework	Bangladeshi Female share of housework
Male gender attitudes	0.00830***	0.00789	-0.00164	-0.0151
	(0.00148)	(0.00558)	(0.00640)	(0.0105)
Indian*male gender attitudes	-0.000412		0.00952	0.0230*
	(0.00577)		(0.00849)	(0.0119)
Pakistani*male gender attitudes	-0.00993	-0.00952		0.0134
	(0.00657)	(0.00849)		(0.0123)
Bangladeshi*male gender attitudes	-0.0234**	-0.0230*	-0.0134	
	(0.0107)	(0.0119)	(0.0123)	
Both have degree	-0.0405***	-0.0701	-0.102**	-0.0927*
	(0.00904)	(0.0456)	(0.0462)	(0.0515)
Female only has a degree	-0.0259**	-0.0363	-0.0869	-0.00594
	(0.0105)	(0.0586)	(0.0564)	(0.0526)
Male only has a degree	-0.0194	-0.00762		-0.00320
	(0.0139)	(0.0478)		(0.0583)
Indian*Both have degree	-0.0296		0.0394	0.0226
	(0.0465)		(0.0612)	(0.0688)
Indian*Female only has a degree	-0.0104		0.0582	-0.0303
	(0.0595)		(0.0789)	(0.0788)
Indian*Male only has a degree	0.0118			-0.00442
	(0.0498)			(0.0754)
Pakistani*Both have degree	0.0196	0.0492		0.0718
	(0.0450)	(0.0634)		(0.0678)
Pakistani*Female only has a degree	0.0200	0.0303		
	(0.0536)	(0.0788)		
Pakistani*Male only has a degree	0.100**	0.0885		0.0841
	(0.0427)	(0.0626)		(0.0710)
Bangladeshi*Both have degree	-0.0522	-0.0226	0.0124	
	(0.0523)	(0.0688)	(0.0747)	
Bangladeshi*Female only has a degree	0.0162	0.00442		
	(0.0600)	(0.0754)		
Bangladeshi*Male only has a degree	-0.0384	-0.270***	-0.207**	-0.299**
	(0.0377)	(0.0662)	(0.103)	(0.127)

Source: UKLHS, Wave 4, 2012-13. Note: Controls include, degree status, employment status, dependent children and age. Reference categories include White, neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1 This table continues to the next page.

Table 5.B2 (ctd) Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups. Variables are interacted with ethnicity

VARIABLES	White Female share of housework	Indian Female share of housework	Pakistani Female share of housework	Bangladeshi Female share of housework
Both employed	-0.0895**	-0.219**	-0.165	-0.378***
	(0.0444)	(0.0889)	(0.183)	(0.124)
Female only employed	-0.0600	-0.239***	-0.239***	-0.239***
	(0.0387)	(0.0919)	(0.0919)	(0.0919)
Indian*Both employed	-0.232***		-0.0633	0.0285
	(0.0762)		(0.0629)	(0.0983)
Indian*Female only employed	-0.130		-0.0540	0.159
	(0.0994)		(0.185)	(0.127)
Indian*Male only employed	-0.179*			
	(0.0997)			
Pakistani*Both employed	0.0105	0.0633		0.0918
	(0.0473)	(0.0629)		(0.0994)
Pakistani*Female only employed	0.103	0.0540		0.213
	(0.161)	(0.185)		(0.179)
Pakistani*Male only employed	-0.0812	-0.0285	-0.0918	
	(0.0891)	(0.0983)	(0.0994)	
Bangladeshi*Female employed	-0.110	-0.159	-0.213	
	(0.0882)	(0.127)	(0.179)	
Age	0.00252***	-0.00146	-0.00378*	0.00916
	(0.000473)	(0.00215)	(0.00197)	(0.00595)
Indian*Age	-0.00398*		0.00232	-0.0106*
	(0.00221)		(0.00292)	(0.00633)
Pakistani*Age	-0.00630***	-0.00232		-0.0129**
	(0.00203)	(0.00292)		(0.00627)
Bangladeshi*Age	0.00664	0.0106*	0.0129**	
	(0.00597)	(0.00633)	(0.00627)	
Children	0.0371***	-0.121***	-0.0671	0.176*
	(0.00949)	(0.0358)	(0.0572)	(0.0899)
Indian*children	-0.158***		-0.0536	-0.296***
	(0.0370)		(0.0675)	(0.0968)
Pakistani*children	-0.104*	0.0536		-0.243**
	(0.0580)	(0.0675)		(0.107)
Bangladeshi*children	0.138	0.296***	0.243**	
	(0.0904)	(0.0968)	(0.107)	
White		-0.542***	-0.670***	0.0926
		(0.159)	(0.136)	(0.280)

Source: UKLHS, Wave 4, 2012-13. Note: Controls include, degree status, employment status, dependent children and age. Reference categories include White, neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1 This table continues to the next page.

Table 5.B2 (ctd) Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups. Variables are interacted with ethnicity

VARIABLES	White Female share of housework	Indian Female share of housework	Pakistani Female share of housework	Bangladeshi Female share of housework
Indian*children	-0.158***		-0.0536	-0.296***
	(0.0370)		(0.0675)	(0.0968)
Pakistani*children	-0.104*	0.0536		-0.243**
	(0.0580)	(0.0675)		(0.107)
Bangladeshi*children	0.138	0.296***	0.243**	
	(0.0904)	(0.0968)	(0.107)	
White		-0.542***	-0.670***	0.0926
		(0.159)	(0.136)	(0.280)
White*Relative hours		-0.00566	-0.152***	-0.0596
		(0.0327)	(0.0422)	(0.0986)
White*Relative earnings		-0.0290	0.124	0.0133
		(0.0862)	(0.133)	(0.177)
White*female gender attitudes		0.0138**	0.0104	0.00711
		(0.00550)	(0.00639)	(0.00982)
Bangladeshi*female gender attitudes		0.000412	0.00993	0.0234**
		(0.00577)	(0.00657)	(0.0107)
White*Both have degree		0.0296	0.0808*	0.0522
		(0.0465)	(0.0485)	(0.0523)
White*Female only has a degree		0.0104	0.0804	-0.0200
		(0.0595)	(0.0585)	(0.0536)
White*Male only has a degree		-0.0118		-0.0162
		(0.0498)		(0.0600)
White*Both employed		0.232***	0.168	0.260*
		(0.0762)	(0.109)	(0.133)
White*Female only employed		0.130	0.0756	0.289**
		(0.0994)	(0.188)	(0.132)
White*Male only employed		0.179*	0.179*	0.179*
		(0.0997)	(0.0997)	(0.0997)
White*age		0.00398*	0.00630***	-0.00664
		(0.00221)	(0.00203)	(0.00597)
White*children		0.158***	0.104*	-0.138
		(0.0370)	(0.0580)	(0.0904)

Source: UKLHS, Wave 4, 2012-13.

Note: Controls include, degree status, employment status, dependent children and age. Reference categories include White, neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1 This table continues to the next page.

Table 5.B2 (ctd) Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups. Variables are interacted with ethnicity

VARIABLES	White Female share of housework	Indian Female share of housework	Pakistani Female share of housework	Bangladeshi Female share of housework
Neither have degree			-0.0809**	
			(0.0404)	
White*Neither have degree			0.100**	
			(0.0427)	
Indian*Neither have degree			0.0885	
			(0.0626)	
Pakistani*Neither have degree			0.0841	
			(0.0710)	
Constant	0.732***	1.274***	1.382***	0.639**
	(0.0468)	(0.152)	(0.127)	(0.276)
Observations	3,610	3,610	3,610	3,610
R-squared	0.171	0.171	0.171	0.171

Source: UKLHS, Wave 4, 2012-13.

Note: Controls include, degree status, employment status, dependent children and age. Reference categories include White, neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 5.B3 Female share of housework for White, Indian, Pakistani and Bangladeshi ethnic groups

VARIABLES	White Female share of housework	Indian Female share of housework	Pakistani Female share of housework	Bangladeshi Female share of housework
Relative hours	-0.00712	-0.00146	0.144***	0.0525
	(0.00690)	(0.0333)	(0.0449)	(0.114)
Relative earnings	-0.225***	-0.196**	-0.349**	-0.238
	(0.0247)	(0.0858)	(0.141)	(0.203)
Male gender attitudes	0.00830***	0.00789	-0.00164	-0.0151
	(0.00147)	(0.00580)	(0.00690)	(0.0122)
Female gender attitudes	0.00392***	-0.00989*	-0.00650	-0.00319
	(0.00144)	(0.00551)	(0.00671)	(0.0113)
Both have degree	-0.0405***	-0.0701	-0.0210	-0.0927
	(0.00900)	(0.0474)	(0.0475)	(0.0598)
Female only has a degree	-0.0259**	-0.0363	-0.00594	
	(0.0104)	(0.0609)	(0.0567)	
Male only has a degree	-0.0194	-0.00762	0.0809*	-0.00320
	(0.0139)	(0.0497)	(0.0435)	(0.0677)
Both employed	-0.0384	-0.270***	0.0322	-0.0596
	(0.0375)	(0.0688)	(0.0492)	(0.102)
Female only employed	-0.0895**	-0.219**	0.0739	-0.139
	(0.0442)	(0.0924)	(0.171)	(0.0968)
Male only employed	-0.0600	-0.239**		
	(0.0385)	(0.0955)		
Age	0.00252***	-0.00146	-0.00378*	0.00916
	(0.000471)	(0.00224)	(0.00212)	(0.00691)
Dependent children	0.0371***	-0.121***	-0.0671	0.176
	(0.00944)	(0.0372)	(0.0617)	(0.104)
Constant	0.732***	1.274***	1.062***	0.400
	(0.0466)	(0.158)	(0.0817)	(0.302)
Observations	3,340	149	80	41
R-squared	0.162	0.192	0.244	0.539

Source: UKLHS, Wave 4, 2012-13.

Note: For Pakistani and Bangladeshi groups some categories of degree status, employment status are omitted due to sample size. Reference categories include neither have a degree, neither employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Chapter 6 How do women fare within the couple? Financial decision-making responsibility among ethnic minority couples.

6.1 Introduction

The main aim of this chapter is to consider, how do White and South Asian (Indian, Pakistani and Bangladeshi) ethnic minority couples in the UK determine financial decision-making responsibilities? We examine whether financial decision-making responsibilities vary across ethnic groups and by gender. Financial decision-making responsibility can be an important indicator of how women fare in the couple, particularly since it can be indicative of financial control, and women's bargaining power (Guvuriro and Booysen, 2019). Understanding how intra-household dynamics function with respect to important financial decisions offers a unique perspective on household economics and gender relations among couples, across ethnic groups.

The study of how couples allocate financial decision-making responsibility is not a new phenomenon in the economic literature. Studies have discussed how traditional resource bargaining theories and relative income within couples, influence power in the household (Dema-Moreno, 2009). Whilst the literature considers theoretical models of household bargaining to explain financial decision-making behaviours of married couples, such as resource bargaining and gender roles theory (Dema-Moreno, 2009; Lyons et al., 2007), to our knowledge, there is a substantial gap which fails to consider differences across ethnic groups, in the allocation of financial decision-making responsibility for married couples in the UK. Making use of UKHLS data for 2012-2013, we focus on financial decision-making responsibility among White, Indian, Pakistani, and Bangladeshi heterosexual, married couples in the UK. We present evidence on, resource bargaining and gender roles theory, and whether the resource bargaining and gender theories apply within couples among our ethnic groups, in the allocation of main financial decision-making responsibility. In our analysis, we also include factors such as education, employment, earnings, and male and female gender attitudes on financial decision-making responsibility among our ethnic groups.

While it may be a possibility that the mechanisms which effect the financial decision-making process for ethnic groups are no different to Whites and the majority, we argue there is a need to highlight similarities or differences among ethnic groups, if they exist. As such we suggest an exploration of financial decision-making responsibility among couples in White, Indian,

Pakistani, and Bangladeshi couples in the UK, would contribute to this literature and provide a greater understanding of inequality and bargaining power within couples. This chapter offers both, a comparison of White and South Asian groups, but also looks closer at the different experiences across Indian, Pakistani, and Bangladeshi couples, which are often homogenised in the literature.

We begin in section 6.2 which reviews the financial decision-making literature, although other studies have analysed financial decision-making responsibility, there is less, if any, direct evidence of the mechanisms at play in financial decision-making responsibility across South Asian couples. Given the literature, section 6.3 considers the data and justifies use of the relevant variables, section 6.4 presents the methodology and 6.5 discusses the results. We offer conclusions in section 6.5.

6.2 Literature review

6.2.1 Financial decision-making

The study of financial decision making, is not new to the economic literature, and stems from research on the dynamics of family living (Blood and Wolfe, 1960). Substantial research on intra-household dynamics focuses on the division of housework among couple (see section 5.3) however little of this research considers how members of these households divide important financial decisions. The gender division of financial decision making among couples has received much attention, and correctly so (Murshid, 2018; Antonides, 2015; Yusof, 2015; Bernasek & Bajtelsmit, 2002; Vogler, Lyonette and Wiggins, 2008; Volger and Pahl, 1994). In the last decades we have observed significant movements towards gender equality, equal opportunities in the labour market and improved economic outcomes between genders, therefore it is not surprising that there has been an increased interest in the division of important household decisions such as financial decision-making. A body of literature has suggested that control over household financial decisions are associated with power within the household (Volger and Pahl, 1994); the management of finances and assets can be a key indication of equality and bargaining power within a couple, an unequal control or access of said resources can lead to dependence of one spouse upon another, which can have substantial consequences (Cineli, 2022). Studies have explored the influence of couple members, variables, and mechanisms through which financial decision-making is made among couples (Dema-Moreno, 2009; Vogler, Lyonette and Wiggins, 2008; Lee & Beatty, 2002; Volger and Pahl, 1994; Munsinger, Weber & Hansen, 1975). Volger and Pahl, (1994) find an association between

control of monetary finances and inequalities among married couples, they find gender equality was greater within households in which monetary finances are pooled and control of money joint, compared to low-income households or households in which finances were controlled by the man (Volger and Pahl, 1994). Vogler, Lyonette and Wiggins (2008) find that when either the man or woman in the couple makes autonomous financial decisions, both men and women are less satisfied with family life compared to couples making joint financial decisions. As such we have reason to believe financial decision-making responsibility among couples can have an important impact on gender inequalities within the couple; limited access to finances has also been linked to unequal allocation of housework, and limited power and influence on other important decision making within the household (Blumstein and Schwartz, 1991). Mechanisms such as, resource bargaining and gender roles theories are found in the financial decision-making literature.

6.2.2 Resource bargaining and gender roles theory

Resource theories are well established in the literature. Becker (1981) proposed a model of the household in which one altruistic individual assumes the role of household head, responsible for making utility maximising decisions. In this model, the household is viewed as a single economic unit, with all members contributing resources towards the functioning of the entire unit. This model assumes all resources are pooled regardless of the income contributions made by household members. This decision is based on joint preferences of all household members. In Becker's model, financial decisions will be made reflecting the best interest of household members in order to maximise utility as a whole. The basic assumption for this approach is Pareto efficiency: beyond the decision made by the household, no alternative is preferred by all household members. As such, the individual with the greatest financial literacy or capacity will oversee the allocation of financial resources in the interest of maximising household utility. However, since the household unit is composed of various individuals, conflicts in interests may arise. Such conflicts give rise to the important role of bargaining and potentially varied intra-household dynamics (Johnston et al, 2016). Most of the empirical evidence is in favour of the bargaining power explanation (Bertocchi et al, 2014; Friedberg and Webb, 2006; Elder and Rudolph, 2003). The individual who brings in the highest income into the household assumes the responsibility of financial decision maker and maintains greater bargaining power within the unit (Bertocchi and Brunetti, 2014). Education, employment and wages are found to have the greatest weight in the decision-making process (Luehrmann and Maurer, 2008). Both economic theories suggest household roles are managed based on the relative economic

positions of household members rather than gender. We find evidence of this in the literature. Hitczenco (2016) find relative income is more important in defining household roles than gender, where higher earners are likely to have a larger share of the financial decision-making responsibility.

Traditional resource theories make strong links between income from paid work and intra-household dynamics, more specifically on household power and bargaining among couples (Dema-Moreno, 2009; Blood and Wolfe, 1960). More often the research finds, higher earnings are linked to greater financial decision-making responsibility (Cineli, 2022; Blood and Wolfe, 1960). However, studies have compared differences in decision making between heterosexual couples in which the woman works in paid employment and those who do not, housewives (Stamp, 1985). Following this literature, a number of studies have explored financial decision-making among couples in which women have a higher paid income compared to their partners (Tichenor, 1999). The findings indicate, that unlike the traditional literature suggests, women with higher relative earnings compared to their partners are not necessarily in control of financial decision-making within the couple, as such the relationship between earnings and financial decision-making responsibility is not as straight forward as one would expect.

Gender ideology is an important mechanism through which couples determine financial decision-making responsibility. When the gender perspective is considered in the context of financial decision making, researchers have found men and women's decision-making responsibility is not merely a result of arbitrary allocation, rather closely follows traditional gender roles (Dema-Moreno, 2009; Vogler, Brockmann & Wiggins, 2006). Three systems of financial management are considered in the literature (Cineli, 2022). The three systems of money management considered are: 1) Traditional, where one partner, mainly the man manages financial responsibility, and provides an allowance for household expenditures, this framework follows the perspective of the man being the 'breadwinner' whilst the women assumes the role of 'home-maker', 2) joint, where financial-decision making responsibilities are managed jointly, and lastly 3) individualised, where financial decision-making is a pooled responsibility, with each spouse also making independent financial decisions. Cineli (2022) found where stronger gender-egalitarian beliefs are present, couples increase the likelihood of choosing non-traditional systems of financial decision-making management such as joint system or individualised system, rather than traditional systems.

This chapter makes substantive contributions to the current literature. Although a number of studies have considered the role of resource theory, fewer have considered gender theories, in financial decision-making responsibility among couples, to date, the literature fails to consider whether the patterns observed in determining financial decision-making among couples are consistent across ethnic groups. Decision-making research has pointed towards the importance of exploring decision-making in a wider context, however, is limited by data; other studies using interview data are constrained by data of only one member of the couple (Dema-Moreno, 2009), this study uses interview data by both couple members. We explore whether resource bargaining theory and gender role theory influence financial decision-making responsibility across couples differently, across White, Indian, Pakistani, and Bangladeshi couples.

6.3 Data

6.3.1 Dependent variable Financial decision-making responsibility

We use respondent-reported data from wave 4 of the UKHLS (2012-13), which includes questions on financial decision-making responsibility and gender attitudes[88]. The sample includes 4,267 heterosexual married couples where both partners are aged 16-64[89]. We model financial decision-making responsibility within couples and across ethnic groups. We use responses to the question: "who in the household, has the final say in big financial decisions?" which includes the options: 1) respondent, 2) partner/spouse, 3) both have equal say and 4) other. The responses modelled are from the perspective of the woman. As such, it may be sensible to check for disparities in the responses between the female and the male partner, exploration of this variable indicates that men and women provide similar responses to the question (See table 6.A1 in appendix). The "other" category is dropped as exploration of the sample indicates that few minority groups outsource financial decisions to the "other" group categories.

Figure 6.1 reports whether the main financial decisions are made by the woman, the man or whether they are shared. [90] It shows that in most cases, financial decisions are shared amongst

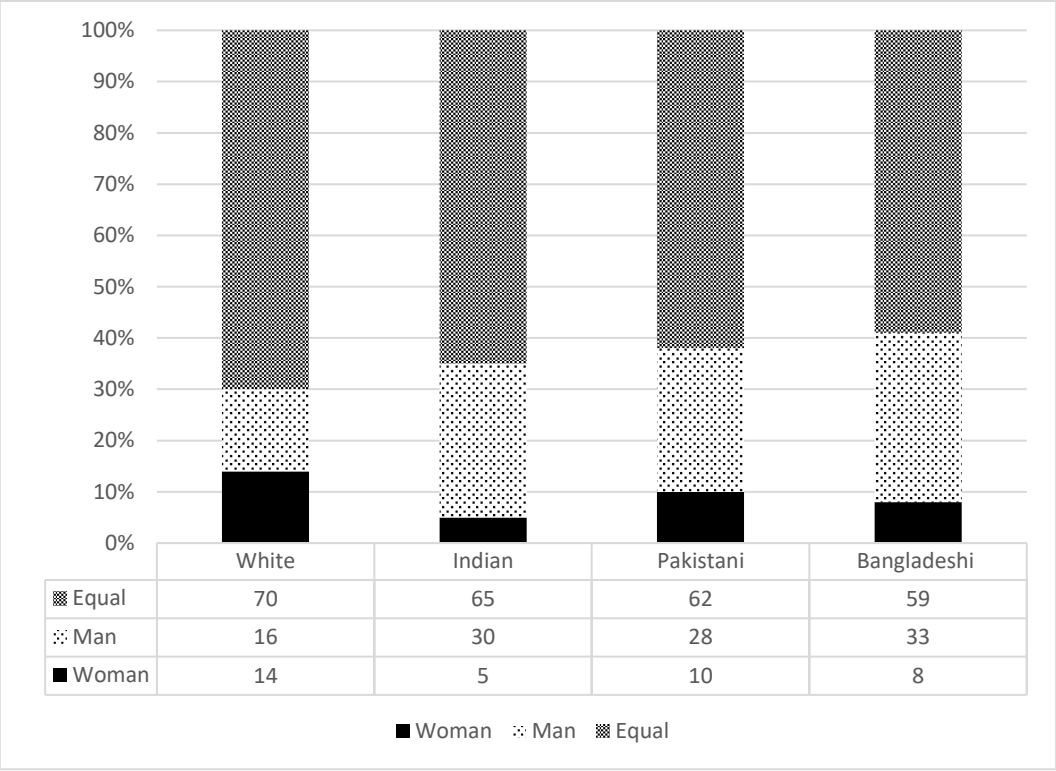
[88] We use the same data described in section 5.4.

[89] Following most of the current literature, we focus on married heterosexual couples (Dema-Moreno, 2009)

[90] The information in figure 6.1 is reported from the perspective of the women. We report main financial decision-making responsibility from the perspective of the man in table 6.A1 in Appendix 6A to check for robustness and consistencies. We find, generally responses are consistent across men and women. Financial decision-making responsibility is mainly shared, assumed by the man, then women respectively.

all ethnic couples. This shared responsibility is largest in the case of White couples (70%), and smallest in the case of Bangladeshi couples (59%). Indian and Bangladeshi men report the highest share of financial responsibility, the share of financial decisions made by White men is approximately 50% less than the share of financial decisions made by men for other ethnic minority groups. White women have the highest share of financial decision-making responsibility compared to other minority groups. White women are approximately three times more likely to oversee the main financial decisions in the household than Indian women.

Figure 6.1 Who is responsible for main financial decisions among couples: White, Indian, Pakistani, and Bangladeshi.



	White	Indian	Pakistani	Bangladeshi
Equal	70	65	62	59
Man	16	30	28	33
Woman	14	5	10	8

Source: UKLHS, Wave 4, 2012-13. Notes: Categories include, main financial decisions are made by the woman, man or shared equally.

6.3.2 Independent variables Financial decision-making responsibility

Relative earnings and a gender attitude score are used to proxy measures of resource bargaining theory and gender roles theories respectively[91]. Bernasek and Bajtelsmit (2015) find female share of total household income to be a suitable measure of bargaining power and an influence on female participation in the financial decision-making process. They find the higher a women's income relative to her husband, the greater her participation in the financial decision-

[91] See section 5.4.2 for construction of variables. Variables are constructed as in chapter 5.

making process. Traditional gender roles are found to represent one such method in which households allocate important tasks and decisions, such as financial decision-making (Hitczenko, 2016; Cunningham, 2001). Çineli, (2022) construct a gender-egalitarian ideology to explore the influence of more gender-egalitarian ideology on use of traditional and non-traditional money management schemes in intimate relationships across countries. Similarly, we make use of a gender attitude score (see section 5.4.2 for construction of the gender attitude score) to explore the influence of gender ideology on financial decision making within married couples, across ethnic groups.

We include relative hours worked in paid labour, to account for the viewpoint that financial responsibility may be viewed as a time-consuming household task, rather than a bargaining approach. If financial decision-making responsibility is considered a time-consuming task, then the more relative time spent in the labour market, the more likely the financial decision-making responsibility is transferred to the spouse, although this approach has garnered less support compared to bargaining theories in the literature (Johnston, Kassenboehmer, & Shields, 2016). We include relevant control variables discussed in the financial decision-making literature (Cineli, 2022; Ke, 2017). Employment status describes current economic activity including, employed (reference category), self-employed, unemployed, retired, maternity leave, taking care of family or home, full-time student, long-term sick or disabled, government training scheme, unpaid family business, or in apprenticeship. Education describes highest qualification level, including degree, Higher degree, A-level, GCSE, Other, and no qualifications (reference category). We also control for age, and dependent children[92].

6.4 Methodology

6.4.1 Financial decision-making responsibility

Using multinomial logit regression, we estimate financial decision-making responsibility controlling for ethnicity and other couple characteristics. We estimate average marginal effects for interpretation of the results. This gives us an indication of the influence of explanatory variables in determining main financial decision-making responsibility among couples.

[92] Variables: relative earnings, gender attitude, relative hours in paid labour, age, and dependent children constructed as described in section 5.4.2.

Namely whether this responsibility is more likely to be overseen by the woman, by the man or whether it is shared among both members and the magnitude of the effect.

$$y_{ifinancial} = \beta 0 + \beta_1\, ethnicity_i + \beta_2 relative\ earnings_i + \beta_3\, female\ gender\ attitudes_i + \beta_4\, male\ gender\ attitudes_i + \beta_5 degree_i + \beta_6 employment\ status_i + \beta_7\ female\ hours\ worked_i + \beta_8\, male\ hours\ worked_i + \beta_9 relative\ hours\ worked_i + \beta_{10} age_i + \beta_{11} dependent\ children_i + \varepsilon_i \quad (6.1)$$

$y_{ifinancial}$, is main financial decision maker: wife (female respondent), husband, or shared responsibility; measured using the respondent's reported data. Degree: is a measure of the woman's education. Employment status: indicates woman's participation in the labour market. Reference categories are where the woman has a degree, and the woman is in paid employment.

Next, we consider whether the influence of resource bargaining and gender attitudes vary across ethnic groups. Couple's ethnicity is interacted with, relative earnings, gender attitudes, hours worked by men and women, relative hours and age. [93] We estimate four multinomial logit models as in equation 6.2. In each model, the ethnicity reference category is varied to report estimates relative to White, Indian, Pakistani or Bangladeshi couples; the estimates report the differentials between each of our ethnic group and the ethnicity reference category. β are estimated for each model. We report the average marginal effects to interpret the magnitude of the effects.

$$y_i = \beta 0 + \beta_1 ethnicity * relative\ earnings_i + \beta_2 ethnicity * female\ gender\ attitude_i + \beta_3 ethnicity * male\ gender\ attitude_i + \beta_4 ethnicity * female\ hours\ worked + \beta_5\ ethnicity * male\ hours\ worked_i + \beta_6\ ethnicity_i * relative\ hours\ worked_i + \beta_7 ethnicity * age + \varepsilon_i \quad (6.2)$$

[93] We are unable to control for education and employment status in this model due to the interaction terms. To overcome this problem, we estimate model in equation 6.3 including education and employment as controls for each ethnic group.

We also estimate separate models for each ethnic group to test the influence of predictors of financial decision-making responsibility within ethnic groups. [94] We estimate equation 6.3 for White, Indian, Pakistani and Bangladeshi couples. We include additional controls for education, employment status, age and dependent children. β are estimated for each of the samples. We estimate marginal effects for interpretation.

$$y_{ifinancial} = \beta 0 + \beta_1\, relative\ earnings_i + \beta_2 female\ gender\ attitude_i + \beta_3 male\ gender\ attitudes_i + \beta_4 female\ hours\ worked + \beta_5\, male\ hours\ worked_i + \beta_6 education_i + \beta_7\, employment\ status_i + \beta_8\, relative\ hours\ worked_i + \beta_9 age_i + \beta_{10}\, dependent\ children_i + \varepsilon_i \quad (6.3)$$

We test whether, resource bargaining and gender roles apply to financial decision-making responsibility within White, Indian, Pakistani and Bangladeshi couples, and whether there are differences among couples in each ethnic group.

[94] In the model in equation 6.3 we control for education and employment status.

6.5 Results and discussion

6.5.1 Financial decision-making responsibility

We estimate the determinants of main financial decision-making responsibility among our pooled sample. We consider a model with and without additional covariates. Table 6.1 reports the marginal effects, controlling for ethnicity only. Ethnicity is significant for all categories of financial decision making. Indian, Pakistani and Bangladeshi women are less likely to oversee main financial decisions compared to white women. [95] Conversely, ethnicity increases the association of the husband being the main financial decision maker. These effects are strongest among the Indian group. Financial decision-making responsibility is less likely to be shared among minority couples.

Table 6.1 Financial responsibility: Ethnicity, marginal effects

VARIABLES	Wife	Husband	Shared
Indian	-0.0768***	0.160***	-0.0834***
	(0.0152)	(0.0299)	(0.0312)
Pakistani	-0.0439**	0.136***	-0.0922**
	(0.0223)	(0.0356)	(0.0380)
Bangladeshi	-0.0458*	0.167***	-0.121***
	(0.0243)	(0.0403)	(0.0424)
Observations	5,210	5,210	5,210

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for ethnicity only. Reference category is White couples. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

We include additional covariates in table 6.2.[96] The signs of the marginal effects are in line with expectations. The inclusion of controls reduces the size and significance of estimated

[95] We report multinomial logit estimation for the pooled sample in table 6.B1, in Appendix 6B. Controlling for ethnicity only (first two columns).

[96] We report multinomial logit estimation for the pooled sample in table 6.B1, in Appendix 6B. Controlling for, ethnicity, hours worked, relative earnings, education, employment status, age, and dependent children (last two columns).

effects. The marginal effect for Bangladeshi women increases in both size and significance. Financial decision-making responsibility remains significantly different for Indian couples relative to White couples for all categories.

Relative earnings, and female gender attitudes have a significant influence on financial decision-making responsibility for women. As previously, these measures are used as proxies resource bargaining and gender roles theory. The sign of the marginal effects are in line with expectations and the related literature. As women's share of earnings increase, the likelihood of women being responsible for financial decision-making increases while it decreases for men. These results are consistent with our expectations. [97] We would expect that, as women become more financially independent, financial decision-making responsibilities are likely to increase, whether this be at the expense of financial decision-making responsibility of the man, or an equal share. Traditional female gender attitudes are associated with a reduction in the likelihood of women overseeing main financial decisions, and an increase for men. Given financial decision-making is traditionally the responsibility of men, we expect individuals with traditional gender attitudes to accept these roles. We later look at whether these may be more prevalent in some ethnic groups. The signs of the marginal effects associated with male gender attitude covariate is in line with these expectations, although the marginal effect is insignificant.

We control for education and employment status, number of hours worked by men and women, age and dependent children. Women obtaining a formal qualification, such as postgraduate education, a degree or A-levels decreases the association of the husband being the main financial decision maker. These categories are associated with an increase in shared responsibility among our couples. Relative to women in paid employment, women who are unemployed, retired, on maternity leave, and those working in family businesses, are associated with a decrease in financial responsibility. Less financial decision-making responsibility is overseen by older women; whilst shared and partner responsibility is greater as women age. The size of the marginal effect is largest for the shared category. Greater financial decision-making responsibility is associated with the woman as hours worked by women increase; less is shared among our couples. A possible explanation is, as a result of time constraints, women

[97] We test the robustness of these potential explanations by including covariates in the model independently, controlling for ethnicity and relative earnings. See table 6.B2 in Appendix 6.B for marginal effects. The latter is a better theoretical fit considering the signs and significance of marginal effects and pseudo R-squared estimated for the covariates. The marginal effects of relative earnings are significant for men and women.

oversee the main financial decisions, substituting away from domestic housework. Alternatively, this mechanism could be indicative of the bargaining power associated with spending greater time in paid work. Among couples with dependent children, women are more likely to oversee financial decision-making responsibility.

Table 6.2 Financial responsibility: Ethnicity and additional covariates. Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Indian	-0.0679***	0.109***	-0.0410
	(0.0183)	(0.0335)	(0.0358)
Pakistani	-0.0206	0.0292	-0.00858
	(0.0333)	(0.0388)	(0.0480)
Bangladeshi	-0.113***	0.254***	-0.141*
	(0.0202)	(0.0749)	(0.0762)
Male gender attitudes	-0.000311	0.00511**	-0.00480*
	(0.00202)	(0.00228)	(0.00277)
Female gender attitudes	-0.00488**	0.00863***	-0.00376
	(0.00191)	(0.00219)	(0.00265)
Relative earnings	0.141***	-0.143***	0.00197
	(0.0294)	(0.0354)	(0.0418)
Relative hours	0.00217	0.00372	-0.00589
	(0.00967)	(0.00990)	(0.0126)
Degree	-0.0667*	-0.0391	0.106**
	(0.0359)	(0.0332)	(0.0422)
Higher degree	-0.0331	-0.0357	0.0688
	(0.0373)	(0.0346)	(0.0440)
A-level	-0.0361	-0.0313	0.0673
	(0.0369)	(0.0340)	(0.0433)
GCSE	-0.0194	-0.0208	0.0402
	(0.0365)	(0.0332)	(0.0425)
Other	-0.0311	0.00380	0.0273
	(0.0403)	(0.0378)	(0.0477)
Self employed	0.0511	-0.0633**	0.0121
	(0.0314)	(0.0263)	(0.0375)
Unemployed	0.119*	-0.0847**	-0.0344
	(0.0700)	(0.0385)	(0.0730)

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for, ethnicity only. Ethnicity, hours worked, relative earnings, education, employment status, age, and dependent children. Reference categories include White, no qualifications, employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.2 (ctd) Financial responsibility: Ethnicity and additional covariates. Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Retired	0.0466	-0.0703**	0.0238
	(0.0554)	(0.0345)	(0.0583)
Maternity leave	-0.0419*	-0.0375	0.0793*
	(0.0249)	(0.0413)	(0.0461)
Family care	0.0516*	-0.0790***	0.0274
	(0.0313)	(0.0222)	(0.0357)
Student	0.181*	-0.126**	-0.0555
	(0.102)	(0.0503)	(0.107)
LT sick/disabled	0.0890	-0.162***	0.0730
	(0.0623)	(0.0237)	(0.0642)
Government training scheme	-0.116***	-0.212***	0.328***
	(0.00621)	(0.0107)	(0.0113)
Unpaid family business	-0.116***	-0.0299	0.146
	(0.00621)	(0.165)	(0.165)
Apprenticeship	0.884***	-0.212***	-0.672***
	(0.00620)	(0.0107)	(0.0113)
Other	0.0147	-0.0907	0.0761
	(0.117)	(0.0808)	(0.133)
Age	-0.00341***	-0.00289***	0.00630***
	(0.000651)	(0.000762)	(0.000907)
Dependent children	0.0310***	-0.00703	-0.0240
	(0.0118)	(0.0147)	(0.0173)
Female hours worked	0.000198	-0.00125*	0.00105
	(0.000570)	(0.000656)	(0.000788)
Male hours worked	0.000396	-0.000636*	0.000240
	(0.000345)	(0.000369)	(0.000459)
Observations	4,246	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for, ethnicity only. Ethnicity, hours worked, relative earnings, education, employment status, age, and dependent children. Reference categories include White, no qualifications, employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues from the preceding page.

Overall, the results suggest that resource bargaining and gender attitude theories are important in determining financial decision-making responsibility among our pooled sample. We aim to investigate whether these theories have significantly different effects across ethnic groups. We estimate the influence of relative earnings and gender attitudes among couples relative to each ethnic group. We interact ethnicity with the proxy measures for each theory. The estimated marginal effects are reported in table 6.3.[98]

[98] Multinomial logit results are reported in Appendix 6.B. Where reference couples are White, see table 6.B3. Reference couples are Indian, see table 6.B5. Reference couples are Pakistani, see table 6.B7.

Table 6.3 Financial decision-making responsibility for White, Indian, Pakistani and Bangladeshi couples: Marginal effect of relative hours, relative earnings and gender attitude interactions

	White			Indian			Pakistani		
	Wife	Husband	Shared	Wife	Husband	Shared	Wife	Husband	Shared
White									
Relative earnings				0.0482*	-0.107***	0.0587	0.00804	-0.0591	0.0511
Male gender attitudes				0.0632***	-0.110***	0.047	0.00736	-0.0107	0.00334
Female gender attitudes				0.0626***	-0.109**	0.0467	-0.0166	-0.0108	0.0273
Female hours worked				0.0542*	-0.115***	0.0611	-0.028	0.0122	0.0158
Male hours worked				0.0601**	-0.111***	0.0512	-0.0114	-0.00675	0.0182
Relative hours				0.0586**	-0.107***	0.0482	-0.0127	-0.00472	0.0174
Indian									
Relative earnings	-0.0482*	0.107***	-0.0587				-0.0402	0.0479	-0.00768
Male gender attitudes	-0.0632***	0.110***	-0.047				-0.0558	0.0995	-0.0437
Female gender attitudes	-0.0626***	0.109**	-0.0467				-0.0792	0.0986	-0.0194
Female hours worked	-0.0542*	0.115***	-0.0611				-0.0822	0.128	-0.0454
Male hours worked	-0.0601**	0.111***	-0.0512				-0.0715	0.105	-0.0331
Relative hours	-0.0586**	0.107***	-0.0482				-0.0713	0.102	-0.0308

Source: UKLHS, Wave 4, 2012-13.

Note: Multinomial regression estimations are reported in Appendix 6.B. See table 6.B3, 6.B5 and 6.B7 for full output. Ethnicity is interacted with hours worked by men and women, relative hours, relative earnings, male and female gender attitudes and age, see full output in tables 6.B4, 6.B6, 6.B8 and 6.B9 in Appendix 6.B for marginal effects. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.3 (ctd) Financial decision-making responsibility for White, Indian, Pakistani and Bangladeshi couples: Marginal effect of relative hours, relative earnings and gender attitude interactions continued

	White			Indian			Pakistani		
	Wife	Husband	Shared	Wife	Husband	Shared	Wife	Husband	Shared
Pakistani									
Relative earnings	-0.0080	0.0591	-0.0511	0.0402	-0.0479	0.00768			
Male gender attitudes	-0.0074	0.0107	-0.00334	0.0558	-0.0995	0.0437			
Female gender attitudes	0.0166	0.0108	-0.0273	0.0792	-0.0986	0.0194			
Female hours worked	0.028	-0.0122	-0.0158	0.0822	-0.128	0.0454			
Male hours worked	0.0114	0.00675	-0.0182	0.0715	-0.105	0.0331			
Relative hours	0.0127	0.00472	-0.0174	0.0713	-0.102	0.0308			
Bangladeshi									
Relative earnings	-0.0826	0.145	-0.0623	-0.0344	0.0379	-0.00351	-0.0746	0.0858	-0.0112
Male gender attitudes	-0.0704	0.12	-0.0492	-0.00719	0.00939	-0.00219	-0.063	0.109	-0.0459
Female gender attitudes	-0.119	0.161	-0.0421	-0.0565	0.0519	0.00463	-0.136	0.151	-0.0148
Female hours worked	-0.0876	0.132	-0.044	-0.0335	0.0163	0.0172	-0.116	0.144	-0.0282
Male hours worked	-0.0823	0.134	-0.0514	-0.0222	0.0224	-0.000158	-0.0937	0.127	-0.0332
Relative hours	-0.0881	0.169	-0.0807	-0.0295	0.062	-0.0325	-0.101	0.164	-0.0632

Source: UKLHS, Wave 4, 2012-13. Note: Multinomial regression estimations are reported in Appendix 6.B. See table 6.B3, 6.B5 and 6.B7 for full output. Ethnicity is interacted with hours worked by men and women, relative hours, relative earnings, male and female gender attitudes and age, see full output in tables 6.B4, 6.B6, 6.B8 and 6.B9 in Appendix 6.B for marginal effects. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues from the preceding page.

The estimated marginal effects for relative earnings, male gender attitudes, female gender attitudes, number of hours worked by men and women and relative hours, are significant for financial decision-making responsibility categories for Indian men and women, relative to White couples. For a higher share of earnings, Indian women are less likely to oversee main financial decisions, whilst men are more likely to oversee them. Traditional gender attitudes is associated with an increase in the likelihood that main financial decision-making responsibility is overseen by the man; conversely women are less likely to oversee main financial decision-making comparative to White couples. Male gender attitudes have a greater influence in financial decision-making responsibility compared to female gender attitudes women. A higher share of hours worked by Indian women estimate a reduction in financial decision-making responsibility for the women, relative to White couples. Conversely, a higher share of hours worked by women is associated with an increase in the likelihood of main financial decisions being overseen by Indian men. This may be because Indian women may focus less of their available time on financial decision-making responsibilities, and more on other domestic duties than White women. In response to this, Indian men are more likely to take charge of main financial decisions compared to White couples.

Overall, we find that traditional theoretical explanation for financial decision-making such as resource bargaining theory, seem to hold more strength among White couples relative to Indian couples. The only proviso applies to the gender roles theory, which appears to have a greater application to Indian than to white couples. Moreover, male gender attitudes have a stronger influence on financial decision-making responsibility than female gender attitudes. Possible explanations are, first, since Indian men and women agree to more traditional gender attitudes in comparison to white couples, it may be sensible to expect that financial decision-making is taken up less by Indian women and more by men, when compared with white couples. Second, earnings on average are higher among White women than Indian women, and this may give white women more leverage to increase financial responsibility.

In light of the above estimations, we display separate models for White, Indian and Pakistani ethnic groups. We report the effects of time resource bargaining and gender attitudes within each ethnic group, as in equation 6.3, in tables 6.B11-6.B14, in Appendix 6B.[99] We control for education, employment status, hours worked by men and women, age and dependent children. We summarise sign and significance of estimated coefficients in table 5.4 below.

[99] Multinomial logit regression results are reported in table 6.B10 in Appendix 6B.

Table 6.B.11 in appendix 6.B reports the effect of proxy measures for theories and controls for White couples. Estimated marginal effects suggest support resource bargaining and gender attitudes among White couples. Relative earnings are associated with an increase in the likelihood of White women in our sample overseeing main financial decision, while the opposite is true for White men. These estimates show support for resource bargaining theory. We suggest that, among White couples, resource bargaining theory plays a larger role in determining financial decision-making responsibility, since the size and significance of marginal effect associated with relative earnings is larger than the one associated with time availability theory. Female gender attitudes is associated with a reduction in the likelihood that financial decision-making responsibility is overseen by the women. In light of the significance of gender attitudes among White couples in determining female share of housework, we expect the influence to be present in financial decision-making also. Higher hours worked by women are associated with a reduction in the likelihood of women overseeing main financial decision-making among White couples. We expect financial decision-making responsibility to diminish as hours worked increase as the women has less time available, which is consistent with time availability theory

Among ethnic minority couples we find support relative earnings and gender roles theory, although this varies among ethnic minority groups. Table 6.B12 in Appendix 6.B, reports estimate for Indian couples. Relative earnings is associated with an increase in the likelihood Indian women are responsible for main financial decision-making within the couple. Traditional female gender is associated with an increase in the likelihood that Indian men oversees main financial decision-making. The estimated signs of marginal effects are similar to those observed among White couples. We expect explanations to be consistent across White and Indian couples. A higher number of hours worked by Indian women is associated with a reduction in the likelihood that women oversee main financial decisions within the household, the opposite is true for Indian men.

Table 6.B13 in appendix 6.B, report estimates for Pakistani couples. Traditional male gender attitudes is associated with a reduction in the likelihood that Pakistani women are responsible for main financial decision-making, as with White and Indian couples. Higher relative earnings are associated with Pakistani men overseeing main financial decision-making responsibility, while shared responsibility among Pakistani couple members is less likely. These finding are contrary to what we may expect and have observed among other ethnic groups, however in-

line with some of the literature (Dema-Moreno, 2009; Tichenor, 1999). One reason may be that Pakistani men may be likely to take charge of financial decision-making to define their role as the main breadwinner. Alternatively, among Pakistani couples, a higher share of relative earnings may not necessarily indicate more financial contribution to the running of the household. This may be a role Pakistani men continue to undertake regardless of the woman's earnings. An increase in hours worked by Pakistani women is associated with a reduction in the likelihood of men overseeing main financial decisions. This differs from the effect observed among Indian couples. As Pakistani women spend more time away from the home and in paid labour, men are less likely to oversee main financial decision-making, whilst shared financial responsibility increases. Table 6.B14 in Appendix 6.B reports the marginal effects of proxy measure among Bangladeshi couples. Estimates reported for Bangladeshi couples are in line with those reported among Pakistani couples. We find Bangladeshi men are likely to oversee main financial decision-making responsibility when a higher share of relative hours among the couple are worked by women, whilst shared responsibility is less likely.

We draw two general conclusions from these estimations. First, we find support for the presence of resource bargaining and gender roles theories among White, Indian, Pakistani and Bangladeshi couples. Resource bargaining theory seems to be the most consistent predictor of financial decision-making responsibility among couples. This is consistent with the literature (Johnston et al, 2016). Second, not only do we observe heterogeneity among White and ethnic minority couples, but we also observe differences among ethnic minority couples. This pattern is consistent for both female share of housework and financial decision-making responsibility among our couples.

Table 6.4 Financial decision-making responsibility among White, Indian, Pakistani and Bangladeshi couples: Summary

	White			Indian			Pakistani		
Financial decision-making responsibility	Wife	Husband	Shared	Wife	Husband	Shared	Wife	Husband	Shared
Resource bargaining	*** (+)	*** (-)		* (+)	* (-)			* (+)	* (-)
Male gender attitudes		* (+)							
Female gender attitudes	*** (-)	*** (+)			* (+)				

Source: UKLHS, Wave 4, 2012-13.

Note: Full output for table 6.4 can be found in table 6.B11-6.B14 in Appendix 6.B. We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. We find no significant influence of theories among Bangladeshi couples.

6.5 Conclusion

We explore differences in financial decision-making responsibility among ethnic minority groups. We have used multinomial logistic regressions to answer how White and South Asian ethnic minority couples in the UK determine financial decision-making responsibilities? We have found significant evidence that White, and South Asian (Indian, Pakistani, and Bangladeshi) couples determine financial decision-making responsibility somewhat similar and differently. We have reflected on two main theories of financial decision making considered in the literature: Resource bargaining and gender theories.

The main conclusions are as follows. Resource bargaining theory seems to be an important predictor of how White, Indian, and Pakistani ethnic groups share financial decision-making responsibility. This is not the first study to suggest resource bargaining theory is an important indicator of how couples determine financial decision-making responsibility (Dema-Moreno, 2009), however, it is the first to explore the presence of this mechanism across White and South Asian couples. Higher female earnings relative to their husband increases the likelihood of the wife making main financial decisions and reduces the likelihood of the husband for White and Indian couples. For Pakistani ethnic groups, higher female earnings relative to their husband increases the likelihood of the husband to be the main financial decision maker and reduces shared responsibility. This finding is not uncommon in the literature. An important literature has maintained that the correlation between income and decision-making power is not as simple as first thought in Blood and Wolfe, 1960 (Dema-Moreno, 2009; Tichenor, 1999), these studies have found, women's whose income is relatively higher than their partners, do not necessarily enjoy greater decision-making power, therefore the findings observed among Pakistani couples are justified based on the literature. We suggest the findings observed among Pakistani couples may be a result of cultural and traditional aspects which tend to be stronger among Pakistani ethnic groups (Dale, 2008).

The effect of gender roles is consistent among White and Indian couples in determining financial decision-making, although gender roles theory appears to have a greater implication on Indian than on white couples. Generally, we observe more consistencies among White and Indian couples, less so between White and Pakistani and Bangladeshi couples, for analysis of financial decision-making among couples. These findings are important, not only do they point towards the differences among White and (some) South Asian groups, but also highlights the heterogeneity in financial decision-making among South Asian couples, namely between

Indian, Pakistani, and Bangladeshi couples. Our theoretical proxies explain the least variation in financial decision-making for Bangladeshi couples, although the small sample size of the Bangladeshi couples is a likely contributor.

6.A Appendix

Table 6.A1 Male and female responses to "who in the household, has the final say in big financial decisions?"

Household financial decisions	Women		Men	
	Frequency	Percent	Frequency	Percent
Pooled				
Woman	652	12.58	596	11.5
Man	936	18.06	855	16.5
equal	3,594	69.36	3,731	72
Total	5,182	100	5,182	100
White				
Woman	612	13.23	550	11.89
Man	757	16.36	689	14.89
equal	3,258	70.41	3,388	73.22
Total	4,627	100	4,627	100
Indian				
Woman	14	5.58	24	9.56
Man	82	32.67	75	29.88
equal	155	61.75	152	60.56
Total	251	100	251	100
Pakistani				
Woman	15	8.98	16	9.58
Man	51	30.54	53	31.74
equal	101	60.48	98	58.68
Total	167	100	167	100
Bangladeshi				
Woman	11	8.03	6	4.38
Man	46	33.58	38	27.74
equal	80	58.39	93	67.88
Total	137	100	137	100

Source: UKLHS, Wave 4, 2012-13.

Table 6.A1 reports the percent of women, man and shared financial decision-making responsibility for each ethnic group. These responses are from the perspective of the women and men.

6.B Appendix

Table 6.B1 Financial decision-making responsibility among our pooled sample: Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband
Indian	-0.744***	0.808***	-0.672**	0.573***
	(0.282)	(0.142)	(0.304)	(0.179)
Pakistani	-0.263	0.745***	-0.161	0.175
	(0.28)	(0.176)	(0.352)	(0.258)
Bangladeshi	-0.236	0.891***	-1.707*	1.187***
	(0.312)	(0.189)	(1.037)	(0.328)
Male gender attitudes			0.00443	0.0369**
			(0.0191)	(0.0165)
Female gender attitudes			-0.0342*	0.0560***
			(0.0181)	(0.0158)
Relative earnings			1.143***	-0.840***
			(0.277)	(0.256)
Relative hours			0.0262	0.0303
			(0.0912)	(0.0713)
Degree			-0.677**	-0.376*
			(0.280)	(0.219)
Higher degree			-0.331	-0.303
			(0.288)	(0.230)
A-level			-0.352	-0.275
			(0.285)	(0.224)
GCSE			-0.190	-0.174
			(0.278)	(0.217)
Other			-0.255	-0.0237
			(0.319)	(0.244)

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for, ethnicity only. Ethnicity, hours worked, relative earnings, education, employment status, age, and dependent children. Reference categories include White, no qualifications, employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B1 (ctd) Financial decision-making responsibility among our pooled sample:

Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband
Self employed			0.365	-0.409*
			(0.249)	(0.217)
Unemployed			0.796*	-0.511
			(0.429)	(0.369)
Retired			0.319	-0.478
			(0.433)	(0.296)
Maternity leave			-0.568	-0.323
			(0.370)	(0.311)
Family care			0.346	-0.552***
			(0.250)	(0.193)
Student			1.082**	-0.897
			(0.539)	(0.684)
LT sick/disabled			0.501	-1.659***
			(0.413)	(0.460)
Government training scheme			-14.21	-15.11
			(2,882)	(2,412)
Unpaid family business			-12.95	-0.357
			(1,325)	(1.191)
Apprenticeship			20.55	0.942
			(12,085)	(26,496)
Other			0.0210	-0.716
			(1.074)	(0.813)
Age			-0.0369***	-0.0261***
			(0.00618)	(0.00554)
Dependent children			0.293**	-0.00690
			(0.116)	(0.105)
Female hours worked			8.42e-05	-0.00883*
			(0.00537)	(0.00472)
Male hours worked			0.00287	-0.00407
			(0.00325)	(0.00266)
Constant			-0.533	0.849**
			(0.472)	(0.405)
Observations			4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for, ethnicity, hours worked, relative earnings, education, employment status, age, and dependent children. Reference categories include White, no qualifications, employed and no dependent children. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B2 Effect of relative hours and relative earnings on ethnicity: Marginal effects

VARIABLES	Wife	Husband	Shared	VARIABLES	Wife	Husband	Shared
Indian	-0.0691***	0.150***	-0.0807**	Indian	-0.0768***	0.160***	-0.0832***
	(0.0162)	(0.0306)	(0.0321)		(0.0152)	(0.0299)	(0.0312)
Pakistani	-0.0234	0.0930***	-0.0696*	Pakistani	-0.0410*	0.138***	-0.0970**
	(0.0279)	(0.0353)	(0.0405)		(0.0230)	(0.0359)	(0.0385)
Bangladeshi	-0.0439	0.160***	-0.116**	Bangladeshi	-0.0445*	0.163***	-0.119***
	(0.0308)	(0.0467)	(0.0504)		(0.0247)	(0.0402)	(0.0424)
Relative earnings	0.0814***	-0.151***	0.0699***	Relative hours	0.00637	-0.00971	0.00334
	(0.0169)	(0.0216)	(0.0251)		(0.00638)	(0.00760)	(0.00901)
Observations	4,727	4,727	4,727	Observations	5,199	5,199	5,199

Source: UKLHS, Wave 4, 2012-13.

Note: Controlling for, ethnicity only. Reference categories include White. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B3 Financial decision-making responsibility for Indian, Pakistani and Bangladeshi couples (Reference group, White couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit Interactions

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
Indian	-1.264	-0.430
	(1.866)	(0.963)
Pakistani	1.438	0.237
	(2.302)	(1.619)
Bangladeshi	-74.09	1.767
	(50,834)	(3.002)
Male gender attitudes	0.0128	0.0351**
	(0.0193)	(0.0173)
Indian*Male gender attitudes	-0.0766	0.00557
	(0.115)	(0.0636)
Pakistani*Male gender attitudes	-0.299**	-0.0408
	(0.147)	(0.103)
Bangladeshi*Male gender attitudes	-5.242	0.160
	(2,391)	(0.197)
Female gender attitudes	-0.0363**	0.0579***
	(0.0183)	(0.0165)
Indian*Female gender attitudes	-0.0704	0.0394
	(0.116)	(0.0679)
Pakistani*Female gender attitudes	0.0795	-0.0797
	(0.132)	(0.0976)
Bangladeshi*Female gender attitudes	10.18	-0.0511
	(857.2)	(0.177)
Relative earnings	0.836***	-0.823***
	(0.261)	(0.255)
Indian*Relative earnings	1.643	-0.193
	(1.682)	(1.004)
Pakistani*Relative earnings	3.361	6.177**
	(2.842)	(2.634)
Bangladeshi*Relative earnings	49.45	1.484
	(15,765)	(3.881)
Relative hours	0.0244	0.0809
	(0.0890)	(0.0715)
Indian*Relative hours	0.0378	-0.468
	(0.837)	(0.437)
Pakistani*Relative hours	-0.00698	-0.227
	(1.529)	(0.931)
Bangladeshi*Relative hours	9.806	3.917**
	(11,590)	(1.844)

Source: UKLHS, Wave 4, 2012-13. Note: Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B3 (ctd) Financial decision-making responsibility for Indian, Pakistani and Bangladeshi couples (Reference group, White couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit Interactions

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
Age	-0.0377***	-0.0235***
	(0.00525)	(0.00465)
Indian*Age	-0.00737	0.0187
	(0.0443)	(0.0213)
Pakistani*Age	-0.0386	-0.0159
	(0.0553)	(0.0389)
Bangladeshi*Age	0.491	-0.0343
	(925.7)	(0.0706)
Female hours worked	-0.00729*	0.000394
	(0.00394)	(0.00368)
Indian*Female hours worked	-0.0471*	0.0207
	(0.0270)	(0.0167)
Pakistani*Female hours worked	-0.0443	-0.105**
	(0.0483)	(0.0464)
Bangladeshi*Female hours worked	-0.572	-0.148**
	(442.9)	(0.0713)
Male hours worked	0.00155	-0.00354
	(0.00324)	(0.00275)
Indian*Male hours worked	0.0276	0.00442
	(0.0250)	(0.0125)
Pakistani*Male hours worked	-0.0193	-0.00611
	(0.0327)	(0.0197)
Bangladeshi*Male hours worked	0.0812	0.0284
	(705.5)	(0.0383)
Constant	-0.308	0.112
	(0.281)	(0.247)
Observations	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Note: Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B4 Financial decision-making responsibility for Indian, Pakistani and Bangladeshi couples (Reference group, White couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
Indian*Female hours worked	-0.0542*	0.115***	-0.0611
	(0.0280)	(0.0401)	(0.0455)
Pakistani*Female hours worked	0.0280	-0.0122	-0.0158
	(0.0806)	(0.0690)	(0.0835)
Bangladeshi*Female hours worked	-0.0876	0.132	-0.0440
	(25.26)	(7.196)	(18.52)
Indian*Male hours worked	-0.0601**	0.111***	-0.0512
	(0.0244)	(0.0408)	(0.0451)
Pakistani*Male hours worked	0.0114	0.00675	-0.0182
	(0.0727)	(0.0595)	(0.0818)
Bangladeshi*Male hours worked	-0.0823	0.134	-0.0514
	(38.02)	(26.26)	(12.79)
Indian*Relative hours	-0.0586**	0.107***	-0.0482
	(0.0259)	(0.0412)	(0.0452)
Pakistani*Relative hours	0.0127	0.00472	-0.0174
	(0.0687)	(0.0595)	(0.0791)
Bangladeshi*Relative hours	-0.0881	0.169	-0.0807
	(13.16)	(3.447)	(10.16)
Indian*Relative earnings	-0.0482*	0.107***	-0.0587
	(0.0255)	(0.0407)	(0.0444)
Pakistani*Relative earnings	-0.00804	0.0591	-0.0511
	(0.0662)	(0.0582)	(0.0769)
Bangladeshi*Relative earnings	-0.0826	0.145	-0.0623
	(25.15)	(6.283)	(19.50)

Source: UKLHS, Wave 4, 2012-13.

Note: Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B4 (ctd) Financial decision-making responsibility for Indian, Pakistani and Bangladeshi couples (Reference group, White couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
Indian*Male gender attitudes	-0.0632***	0.110***	-0.0470
	(0.0221)	(0.0418)	(0.0444)
Pakistani*Male gender attitudes	-0.00736	0.0107	-0.00334
	(0.0604)	(0.0599)	(0.0740)
Bangladeshi*Male gender attitudes	-0.0704	0.120	-0.0492
	(32.63)	(7.133)	(25.84)
Indian*Female gender attitudes	-0.0626***	0.109**	-0.0467
	(0.0221)	(0.0427)	(0.0450)
Pakistani*Female gender attitudes	0.0166	0.0108	-0.0273
	(0.0714)	(0.0561)	(0.0790)
Bangladeshi*Female gender attitudes	-0.119	0.161	-0.0421
	(9.386)	(4.972)	(4.906)
Observations	4,246	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Note: Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B5 Financial decision-making responsibility for White, Pakistani and Bangladeshi couples (Reference group, Indian couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
White	1.264	0.430
	(1.866)	(0.963)
Pakistani	2.701	0.666
	(2.937)	(1.851)
Bangladeshi	-72.83	2.197
	(50,834)	(3.133)
Male gender attitudes	-0.0638	0.0407
	(0.113)	(0.0613)
White*Male gender attitudes	0.0766	-0.00557
	(0.115)	(0.0636)
Pakistani*Male gender attitudes	-0.223	-0.0463
	(0.184)	(0.118)
Bangladeshi*Male gender attitudes	-5.166	0.155
	(2,391)	(0.206)
Female gender attitudes	-0.107	0.0973
	(0.114)	(0.0659)
White*Female gender attitudes	0.0704	-0.0394
	(0.116)	(0.0679)
Pakistani*Female gender attitudes	0.150	-0.119
	(0.174)	(0.117)
Bangladeshi*Female gender attitudes	10.25	-0.0906
	(857.2)	(0.188)
Relative earnings	2.478	-1.016
	(1.662)	(0.971)
White*Relative earnings	-1.643	0.193
	(1.682)	(1.004)
Pakistani*Relative earnings	1.718	6.370**
	(3.281)	(2.795)
Bangladeshi*Relative earnings	47.81	1.677
	(15,765)	(3.992)
Relative hours	0.0622	-0.387
	(0.832)	(0.431)
White*Relative hours	-0.0378	0.468
	(0.837)	(0.437)
Pakistani*Relative hours	-0.0448	0.241
	(1.738)	(1.023)
Bangladeshi*Relative hours	9.768	4.385**
	(11,590)	(1.892)

Source: UKLHS, Wave 4, 2012-13. Note: age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B5 (ctd) Financial decision-making responsibility for White, Pakistani and Bangladeshi couples (Reference group, Indian couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
Age	-0.0451	-0.00480
	(0.0440)	(0.0208)
White*Age	0.00737	-0.0187
	(0.0443)	(0.0213)
Pakistani*Age	-0.0313	-0.0347
	(0.0704)	(0.0438)
Bangladeshi*Age	0.498	-0.0531
	(925.7)	(0.0734)
Female hours worked	-0.0544**	0.0211
	(0.0267)	(0.0163)
White*Female hours worked	0.0471*	-0.0207
	(0.0270)	(0.0167)
Pakistani*Female hours worked	0.00278	-0.125**
	(0.0551)	(0.0490)
Bangladeshi*Female hours worked	-0.525	-0.168**
	(442.9)	(0.0730)
Male hours worked	0.0291	0.000878
	(0.0248)	(0.0122)
White*Male hours worked	-0.0276	-0.00442
	(0.0250)	(0.0125)
Pakistani*Male hours worked	-0.0469	-0.0105
	(0.0409)	(0.0230)
Bangladeshi*Male hours worked	0.0537	0.0240
	(705.5)	(0.0401)
Constant	-1.571	-0.318
	(1.845)	(0.931)
Observations	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B6 Financial decision-making responsibility for White, Pakistani and Bangladeshi couples (Reference group, Indian couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
White*Female hours worked	0.0542*	-0.115***	0.0611
	(0.0280)	(0.0401)	(0.0455)
Pakistani*Female hours worked	0.0822	-0.128	0.0454
	(0.0850)	(0.0793)	(0.0945)
Bangladeshi*Female hours worked	-0.0335	0.0163	0.0172
	(25.26)	(7.196)	(18.52)
White*Male hours worked	0.0601**	-0.111***	0.0512
	(0.0244)	(0.0408)	(0.0451)
Pakistani*Male hours worked	0.0715	-0.105	0.0331
	(0.0763)	(0.0716)	(0.0928)
Bangladeshi*Male hours worked	-0.0222	0.0224	-0.000158
	(38.02)	(26.26)	(12.79)
White*Relative hours	0.0586**	-0.107***	0.0482
	(0.0259)	(0.0412)	(0.0452)
Pakistani*Relative hours	0.0713	-0.102	0.0308
	(0.0730)	(0.0718)	(0.0905)
Bangladeshi*Relative hours	-0.0295	0.0620	-0.0325
	(13.16)	(3.448)	(10.16)
White*Relative earnings	0.0482*	-0.107***	0.0587
	(0.0255)	(0.0407)	(0.0444)
Pakistani*Relative earnings	0.0402	-0.0479	0.00768
	(0.0706)	(0.0705)	(0.0882)
Bangladeshi*Relative earnings	-0.0344	0.0379	-0.00351
	(25.15)	(6.283)	(19.50)

Source: UKLHS, Wave 4, 2012-13.

Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B6 (ctd) Financial decision-making responsibility for White, Pakistani and Bangladeshi couples (Reference group, Indian couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
White*Male gender attitudes	0.0632***	-0.110***	0.0470
	(0.0221)	(0.0418)	(0.0444)
Pakistani*Male gender attitudes	0.0558	-0.0995	0.0437
	(0.0639)	(0.0725)	(0.0857)
Bangladeshi*Male gender attitudes	-0.00719	0.00939	-0.00219
	(32.63)	(7.133)	(25.84)
White*Female gender attitudes	0.0626***	-0.109**	0.0467
	(0.0221)	(0.0427)	(0.0450)
Pakistani*Female gender attitudes	0.0792	-0.0986	0.0194
	(0.0743)	(0.0699)	(0.0903)
Bangladeshi*Female gender attitudes	-0.0565	0.0519	0.00463
	(9.386)	(4.972)	(4.906)
Observations	4,246	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B7 Financial decision-making responsibility for White, Indian and Bangladeshi couples (Reference group, Pakistani couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
White	-1.438	-0.237
	(2.302)	(1.619)
Indian	-2.701	-0.666
	(2.937)	(1.851)
Bangladeshi	-75.53	1.531
	(50,834)	(3.393)
Male gender attitudes	-0.286**	-0.00563
	(0.145)	(0.101)
White*Male gender attitudes	0.299**	0.0408
	(0.147)	(0.103)
Pakistani*Male gender attitudes	0.223	0.0463
	(0.184)	(0.118)
Bangladeshi*Male gender attitudes	-4.943	0.201
	(2,391)	(0.221)
Female gender attitudes	0.0432	-0.0218
	(0.131)	(0.0962)
White*Female gender attitudes	-0.0795	0.0797
	(0.132)	(0.0976)
Pakistani*Female gender attitudes	-0.150	0.119
	(0.174)	(0.117)
Bangladeshi*Female gender attitudes	10.10	0.0285
	(857.2)	(0.201)
Relative earnings	4.196	5.354**
	(2.830)	(2.621)
White*Relative earnings	-3.361	-6.177**
	(2.842)	(2.634)
Pakistani*Relative earnings	-1.718	-6.370**
	(3.281)	(2.795)
Bangladeshi*Relative earnings	46.09	-4.693
	(15,765)	(4.676)
Relative hours	0.0174	-0.146
	(1.526)	(0.928)
White*Relative hours	0.00698	0.227
	(1.529)	(0.931)
Pakistani*Relative hours	0.0448	-0.241
	(1.738)	(1.023)
Bangladeshi*Relative hours	9.813	4.144**
	(11,590)	(2.063)

Source: UKLHS, Wave 4, 2012-13. Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B7 (ctd) Financial decision-making responsibility for White, Indian and Bangladeshi couples (Reference group, Pakistani couples). Effect of relative hours, relative earnings and gender attitude interactions: Multinomial logit

VARIABLES	Financial responsibility Wife	Financial responsibility Husband
Age	-0.0764	-0.0395
	(0.0550)	(0.0386)
White*Age	0.0386	0.0159
	(0.0553)	(0.0389)
Pakistani*Age	0.0313	0.0347
	(0.0704)	(0.0438)
Bangladeshi*Age	0.529	-0.0184
	(925.7)	(0.0803)
Female hours worked	-0.0516	-0.104**
	(0.0482)	(0.0462)
White*Female hours worked	0.0443	0.105**
	(0.0483)	(0.0464)
Pakistani*Female hours worked	-0.00278	0.125**
	(0.0551)	(0.0490)
Bangladeshi*Female hours worked	-0.528	-0.0430
	(442.9)	(0.0849)
Male hours worked	-0.0178	-0.00966
	(0.0325)	(0.0195)
White*Male hours worked	0.0193	0.00611
	(0.0327)	(0.0197)
Pakistani*Male hours worked	0.0469	0.0105
	(0.0409)	(0.0230)
Bangladeshi*Male hours worked	0.101	0.0345
	(705.5)	(0.0429)
Constant	1.130	0.349
	(2.285)	(1.600)
Observations	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Source: UKLHS, Wave 4, 2012-13. Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B8 Financial decision-making responsibility for White, Indian and Bangladeshi couples (Reference group, Pakistani couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
White*Female hours worked	-0.0280	0.0122	0.0158
	(0.0806)	(0.0690)	(0.0835)
Indian*Female hours worked	-0.0822	0.128	-0.0454
	(0.0850)	(0.0793)	(0.0945)
Bangladeshi*Female hours worked	-0.116	0.144	-0.0282
	(25.26)	(7.197)	(18.52)
White*Male hours worked	-0.0114	-0.00675	0.0182
	(0.0727)	(0.0595)	(0.0818)
Indian*Male hours worked	-0.0715	0.105	-0.0331
	(0.0763)	(0.0716)	(0.0928)
Bangladeshi*Male hours worked	-0.0937	0.127	-0.0332
	(38.02)	(26.26)	(12.79)
White*Relative hours	-0.0127	-0.00472	0.0174
	(0.0687)	(0.0595)	(0.0791)
Indian*Relative hours	-0.0713	0.102	-0.0308
	(0.0730)	(0.0718)	(0.0905)
Bangladeshi*Relative hours	-0.101	0.164	-0.0632
	(13.16)	(3.448)	(10.16)
White*Relative earnings	0.00804	-0.0591	0.0511
	(0.0662)	(0.0582)	(0.0769)
Indian*Relative earnings	-0.0402	0.0479	-0.00768
	(0.0706)	(0.0705)	(0.0882)
Bangladeshi*Relative earnings	-0.0746	0.0858	-0.0112
	(25.15)	(6.284)	(19.50)

Source: UKLHS, Wave 4, 2012-13.

Source: UKLHS, Wave 4, 2012-13. Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B8 (ctd) Financial decision-making responsibility for White, Indian and Bangladeshi couples (Reference group, Pakistani couples). Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

VARIABLES	Wife	Husband	Shared
White*Male gender attitudes	0.00736	-0.0107	0.00334
	(0.0604)	(0.0599)	(0.0740)
Indian*Male gender attitudes	-0.0558	0.0995	-0.0437
	(0.0639)	(0.0725)	(0.0857)
Bangladeshi*Male gender attitudes	-0.0630	0.109	-0.0459
	(32.63)	(7.133)	(25.84)
White*Female gender attitudes	-0.0166	-0.0108	0.0273
	(0.0714)	(0.0561)	(0.0790)
Indian*Female gender attitudes	-0.0792	0.0986	-0.0194
	(0.0743)	(0.0699)	(0.0903)
Bangladeshi*Female gender attitudes	-0.136	0.151	-0.0148
	(9.387)	(4.973)	(4.907)
Observations	4,246	4,246	4,246

Source: UKLHS, Wave 4, 2012-13.

Source: UKLHS, Wave 4, 2012-13. Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B9 Financial decision-making responsibility for Bangladeshi couples: Effect of relative hours, relative earnings and gender attitude interactions: Marginal effects

	Wife	Husband	Shared
White			
Female hours worked	0.0876	-0.132	0.0440
Male hours worked	0.0823	-0.134	0.0514
Relative hours	0.0881	-0.169	0.0807
Relative earnings	0.0826	-0.145	0.0623
Male gender attitudes	0.0704	-0.120	0.0492
Female gender attitudes	0.119	-0.161	0.0421
Indian			
Female hours worked	0.0335	-0.0163	-0.0172
Male hours worked	0.0222	-0.0224	0.000158
Relative hours	0.0295	-0.0620	0.0325
Relative earnings	0.0344	-0.0379	0.00351
Male gender attitudes	0.00719	-0.00939	0.00219
Female gender attitudes	0.0565	-0.0519	-0.00463
Pakistani			
Female hours worked	0.116	-0.144	0.0282
Male hours worked	0.0937	-0.127	0.0332
Relative hours	0.101	-0.164	0.0632
Relative earnings	0.0746	-0.0858	0.0112
Male gender attitudes	0.063	-0.109	0.0459
Female gender attitudes	0.136	-0.151	0.0148

Source: UKLHS, Wave 4, 2012-13.

Source: UKLHS, Wave 4, 2012-13. Age, relative earnings, relative hours, male and female gender attitudes, male and female hours worked are interacted with ethnicity. Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B10 Financial decision-making responsibility for White, Indian, Pakistani and Bangladeshi couples: Multinomial logit

	White		Indian		Pakistani		Bangladeshi	
VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband
Female gender attitudes	-0.0350*	0.0558***	-0.158	0.127*	0.0263	0.0280	-2.066	0.0387
	(0.0185)	(0.0167)	(0.140)	(0.0707)	(0.164)	(0.115)	(9,223)	(0.211)
Male gender attitudes	0.00953	0.0331*	-0.0793	0.0375	-0.185	0.00661	1.828	0.172
	(0.0196)	(0.0176)	(0.141)	(0.0651)	(0.194)	(0.126)	(3,125)	(0.264)
Female hours worked	0.00328	-0.00859*	-0.0982**	0.0101	-0.0674	-0.102*	-0.819	-0.286
	(0.00552)	(0.00500)	(0.0469)	(0.0206)	(0.0639)	(0.0605)	(1,641)	(0.198)
Male hours worked	0.00239	-0.00484*	0.0289	-0.00479	-0.0457	-0.0254	-0.233	0.0404
	(0.00333)	(0.00280)	(0.0316)	(0.0144)	(0.0402)	(0.0227)	(1,498)	(0.0617)
Relative hours	0.0235	0.0352	-0.167	-0.660	-0.830	-0.926	2.829	4.219
	(0.0930)	(0.0726)	(0.649)	(0.597)	(1.798)	(1.059)	(41,712)	(2.598)
Relative earnings	1.064***	-0.837***	4.240*	-1.653	3.951	5.933*	31.47	9.106
	(0.286)	(0.273)	(2.506)	(1.115)	(3.235)	(3.224)	(81,304)	(10.96)
Degree	-0.830***	-0.570**	-1.384	17.19	15.76	-0.492	-4.994	-2.234
	(0.291)	(0.242)	(1.571)	(2,217)	(2,220)	(0.991)	(45,784)	(1.952)
Higher degree	-0.518*	-0.433*	-0.145	16.76	15.60	-16.15	11.09	-2.493
	(0.299)	(0.250)	(1.453)	(2,217)	(2,220)	(2,738)	(45,349)	(2.229)
A-level	-0.533*	-0.510**	-0.828	17.01	16.79	1.186	-30.51	-3.272
	(0.296)	(0.247)	(1.945)	(2,217)	(2,220)	(1.023)	(34,019)	(3.631)

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B10 (ctd) Financial decision-making responsibility for White, Indian, Pakistani and Bangladeshi couples: Multinomial logit

	White		Indian		Pakistani		Bangladeshi	
VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband
GCSE	-0.351	-0.325	0.139	16.37	16.07	-0.164	-4.351	-0.621
	(0.288)	(0.238)	(1.596)	(2,217)	(2,220)	(0.902)	(28,541)	(1.219)
Other	-0.447	-0.170	1.114	17.04	15.79	-1.701	17.74	19.33
	(0.333)	(0.267)	(1.510)	(2,217)	(2,220)	(1.286)	(55,304)	(19,130)
Self employed	0.460*	-0.468**	-1.635	-0.0541	-16.52	1.168		
	(0.254)	(0.231)	(1.855)	(0.844)	(5,131)	(1.959)		
Unemployed	0.779	-0.159	0.159	-18.94	-18.67	-17.73	-25.82	-4.384
	(0.475)	(0.386)	(1.678)	(4,862)	(7,108)	(4,460)	(166,179)	(38,694)
Retired	0.362	-0.461						
	(0.436)	(0.302)						
Maternity leave	-0.656*	-0.367	-16.61	-0.0748	23.47	1.491		
	(0.390)	(0.333)	(5,003)	(0.960)	(80,328)	(136,624)		
Family care	0.489*	-0.481**	-2.395	-0.828	-1.159	-0.361	-19.95	-2.687
	(0.258)	(0.208)	(1.784)	(0.791)	(1.869)	(1.639)	(51,461)	(3.013)
Student	0.956*	-1.152	27.01	0.605			14.55	14.52
	(0.572)	(0.787)	(779,882)	(1.343e+06)			(163,179)	(33,634)
LT sick/disabled	0.444	-1.752***	1.290	-17.54	0.242	19.43		
	(0.433)	(0.499)	(2.184)	(4,465)	(18,630)	(7,724)		

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B10 (ctd) Financial decision-making responsibility for White, Indian, Pakistani and Bangladeshi couples: Multinomial logit

	White		Indian		Pakistani		Bangladeshi	
VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Wife	Financial responsibility Husband
Government training scheme	-14.07	-15.30						
	(2,841)	(2,509)						
Unpaid family business	-12.90	-0.307						
	(1,318)	(1.192)						
Apprenticeship	20.46	0.791						
	(10,847)	(24,670)						
Other	0.0480	-1.293	-0.809	17.65				
	(1.074)	(1.075)	(27,149)	(8,826)				
Age	-0.0362***	-0.0281***	-0.103	0.0157	-0.0506	-0.0588	-0.843	-0.104
	(0.00630)	(0.00583)	(0.0725)	(0.0257)	(0.0627)	(0.0502)	(3,017)	(0.0933)
Dependent children	0.314***	0.00102	0.705	0.0819	-2.020	16.13	-3.164	-4.130
	(0.118)	(0.111)	(1.146)	(0.458)	(1.469)	(2,658)	(35,676)	(2.981)
Constant	-0.444	1.105**	0.670	-17.10	-12.30	-14.43	27.67	9.069
	(0.484)	(0.432)	(3.805)	(2,217)	(2,220)	(2,658)	(139,872)	(5.729)
Observations	3,929	3,929	179	179	92	92	46	46

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1. This table continues to the next page.

Table 6.B11 Financial decision-making responsibility among White couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Female gender attitudes	-0.00507**	0.00830***	-0.00323
	(0.00201)	(0.00222)	(0.00274)
male gender attitudes	0.000349	0.00428*	-0.00463
	(0.00213)	(0.00234)	(0.00288)
Female hours worked	0.000546	-0.00123*	0.000687
	(0.000603)	(0.000668)	(0.000814)
Male hours worked	0.000368	-0.000706*	0.000338
	(0.000363)	(0.000373)	(0.000473)
Relative hours	0.00185	0.00427	-0.00612
	(0.0101)	(0.00968)	(0.0127)
Relative earnings	0.136***	-0.136***	0.000379
	(0.0312)	(0.0364)	(0.0435)
Degree	-0.0850**	-0.0611	0.146***
	(0.0409)	(0.0376)	(0.0468)
Higher degree	-0.0552	-0.0491	0.104**
	(0.0421)	(0.0388)	(0.0484)
A-level	-0.0554	-0.0588	0.114**
	(0.0418)	(0.0382)	(0.0478)
GCSE	-0.0378	-0.0382	0.0760
	(0.0413)	(0.0375)	(0.0470)
Other	-0.0534	-0.0126	0.0660
	(0.0451)	(0.0423)	(0.0525)

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B11 (ctd) Financial decision-making responsibility among White couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Self employed	0.0666*	-0.0691***	0.00253
	(0.0347)	(0.0256)	(0.0395)
Unemployed	0.108	-0.0421	-0.0664
	(0.0762)	(0.0469)	(0.0799)
Retired	0.0526	-0.0664**	0.0138
	(0.0583)	(0.0336)	(0.0602)
Maternity leave	-0.0484*	-0.0404	0.0889*
	(0.0253)	(0.0413)	(0.0465)
Family care	0.0711**	-0.0711***	-2.41e-05
	(0.0355)	(0.0229)	(0.0391)
Student	0.163	-0.133***	-0.0308
	(0.106)	(0.0450)	(0.111)
LT sick/disabled	0.0813	-0.155***	0.0736
	(0.0647)	(0.0219)	(0.0662)
Government training scheme	-0.119***	-0.194***	0.314***
	(0.00635)	(0.0105)	(0.0113)
Unpaid family business	-0.119***	-0.0214	0.140
	(0.00636)	(0.163)	(0.163)
Apprenticeship	0.881***	-0.194***	-0.686***
	(0.00634)	(0.0105)	(0.0113)
Other	0.0238	-0.130**	0.106
	(0.126)	(0.0641)	(0.136)
Age	-0.00341***	-0.00303***	0.00643***
	(0.000682)	(0.000769)	(0.000930)
Dependent children	0.0341***	-0.00635	-0.0277
	(0.0124)	(0.0149)	(0.0177)
Observations	3,929	3,929	3,929

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B12 Financial decision-making responsibility among Indian couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Female gender attitudes	-0.00964	0.0247**	-0.0151
	(0.00730)	(0.0121)	(0.0136)
male gender attitudes	-0.00457	0.00762	-0.00305
	(0.00734)	(0.0117)	(0.0130)
Female hours worked	-0.00527**	0.00288	0.00239
	(0.00251)	(0.00367)	(0.00408)
Male hours worked	0.00157	-0.00118	-0.000395
	(0.00164)	(0.00256)	(0.00298)
Relative hours	-0.00167	-0.117	0.119
	(0.0308)	(0.103)	(0.117)
Relative earnings	0.240*	-0.344*	0.104
	(0.133)	(0.194)	(0.219)
Degree	-0.0833	0.375	-0.292
	(14.62)	(13.36)	(10.08)
Higher degree	-0.0288	0.282	-0.254
	(14.62)	(13.36)	(10.08)
A-level	-0.0649	0.335	-0.270
	(14.62)	(13.36)	(10.08)
GCSE	-0.00483	0.214	-0.209
	(14.62)	(13.36)	(10.08)
Other	0.0701	0.307	-0.377
	(14.62)	(13.36)	(10.08)
Self employed	-0.0700	0.0127	0.0573
	(0.0661)	(0.162)	(0.166)
Unemployed	0.0540	-0.355***	0.301**
	(0.138)	(0.0576)	(0.137)
Maternity leave	-0.0964*	0.0172	0.0792
	(0.0506)	(0.189)	(0.190)
Family care	-0.0804	-0.122	0.202
	(0.0590)	(0.124)	(0.128)

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B12 (ctd) Financial decision-making responsibility among Indian couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Student	0.904***	-0.355***	-0.548***
	(0.0506)	(0.0576)	(0.0612)
LT sick/disabled	0.183	-0.355***	0.173
	(0.263)	(0.0576)	(0.263)
Other	-0.0936	0.618	-0.524
	(63.12)	(99.18)	(110.7)
Age	-0.00559	0.00395	0.00164
	(0.00382)	(0.00458)	(0.00550)
Dependent children	0.0317	0.00826	-0.0399
	(0.0456)	(0.0822)	(0.0902)
Observations	179	179	179

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B13 Financial decision-making responsibility among Pakistani couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Male gender attitudes	0.00132	0.00355	-0.00487
	(0.0129)	(0.0173)	(0.0181)
Female gender attitudes	-0.0150	0.00619	0.00881
	(0.0152)	(0.0189)	(0.0199)
Female hours worked	-0.00255	-0.0137*	0.0162*
	(0.00423)	(0.00813)	(0.00939)
Male hours worked	-0.00294	-0.00262	0.00556
	(0.00307)	(0.00323)	(0.00383)
Relative hours	-0.0404	-0.119	0.159
	(0.135)	(0.149)	(0.184)
Relative earnings	0.150	0.798*	-0.948*
	(0.207)	(0.427)	(0.494)
Degree	0.112	-0.116	0.00437
	(1.469)	(1.136)	(0.960)
Higher degree	0.140	-0.358	0.218
	(3.385)	(8.177)	(7.659)
A-level	0.141	0.145	-0.286
	(1.470)	(1.138)	(0.961)
GCSE	0.130	-0.0726	-0.0573
	(1.470)	(1.135)	(0.959)
Other	0.140	-0.258	0.118
	(1.473)	(1.134)	(0.963)
Self employed	-0.184	0.269	-0.0843
	(0.137)	(0.315)	(0.329)
Unemployed	-0.184	-0.305	0.489**
	(0.137)	(0.194)	(0.209)
Maternity leave	0.815	-0.304	-0.511
	(66.56)	(64.57)	(16.80)
Family care	-0.0973	-0.0171	0.114
	(0.172)	(0.243)	(0.267)
LT sick/disabled	-0.173	0.662	-0.488
	(138.2)	(94.85)	(120.1)
Age	-0.00240	-0.00760	0.0100
	(0.00477)	(0.00726)	(0.00747)
Dependent children	-0.329	0.311	0.0181
	(28.12)	(25.50)	(9.940)
Observations	92	92	92

Source: UKLHS, Wave 4, 2012-13. Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1.

Table 6.B14 Financial decision-making responsibility among Bangladeshi couples: Marginal effects

VARIABLES	Financial responsibility Wife	Financial responsibility Husband	Financial responsibility Shared
Male gender attitudes	2.15e-09	0.0222	-0.0222
	(9.39e-06)	(0.0336)	(0.0336)
Female gender attitudes	-2.61e-09	0.00502	-0.00502
	(1.55e-05)	(0.0272)	(0.0272)
Female hours worked	-8.10e-10	-0.0370	0.0370
	(3.85e-06)	(0.0233)	(0.0233)
Male hours worked	-3.21e-10	0.00523	-0.00523
	(2.25e-06)	(0.00784)	(0.00784)
Relative hours	4.00e-10	0.546*	-0.546*
	(5.19e-05)	(0.295)	(0.295)
Relative earnings	3.25e-08	1.179	-1.179
	(0.000164)	(1.380)	(1.380)
Degree	-0.00956	-0.306	0.316
	(673.8)	(676.4)	(61.73)
Higher degree	0.0505	-0.391	0.341
	(402.2)	(180.3)	(255.8)
A-level	-0.0875	-0.349	0.437
	(105.6)	(106.9)	(17.93)
GCSE	-0.0175	-0.0667	0.0842
	(728.6)	(730.2)	(49.03)
Other	-0.00374	0.265	-0.262
	(312.8)	(336.4)	(123.9)
Unemployed	-0.0355	-0.410	0.445
	(769.7)	(3,260)	(3,180)
Family care	-0.0192	-0.251	0.270
	(837.0)	(784.5)	(53.27)
Students	0.00152	0.207	-0.209
	(2,191)	(2,179)	(53.26)
Age	-9.76e-10	-0.0134	0.0134
	(5.41e-06)	(0.0114)	(0.0114)
Dependent children	-2.66e-10	-0.335***	0.335***
	(6.90e-05)	(0.0973)	(0.0973)
Observations	46	46	46

Source: UKLHS, Wave 4, 2012-13.

Note: We include male and female gender attitudes, hours worked, relative hours, relative earnings, degree (reference category: no qualification), employment status (reference category: paid employment), age and dependent children (reference category: no dependent children). Robust standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

Chapter 7 Conclusion

This thesis, composed of four main empirical chapters, presents an exploration of economic inequalities experienced by men and women in White, Indian, Pakistani and Bangladeshi ethnic groups. We have identified four important research questions which we have explored in this thesis. In chapter 3, we revisited an old question in the context of gender and ethnicity: is total income inequality in the UK explained by income differences between ethnic-gender groups, or a result of income differences within each group? Income inequalities are found to be primarily driven by income variations within each group, although income differences between men and women within each ethnic group, contributes more to total inequality, comparative to income differences between ethnic groups only. Exploration of the income data demonstrated the largest inequalities are seen within the White, Indian, Pakistani and Bangladeshi ethnic groups. Furthermore, the large variations observed within each group, indicate average incomes for men and women in the White and ethnic minority group are not well reflective of the income disparities faced within each group.

In chapter 4 we questioned to what extent can socio-demographic variables such as age, education, employment status, dependent children, marital status, housing, and regional differences contribute to income inequality within each ethnic-gender group identified in chapter 3. Differences in employment status, such as variations between the employed and full-time students or unemployed accounted for a significant proportion of income inequality. Differences in educational attainment such as those with a degree and no formal education were also found to be a key driver of income equality. Findings indicate, younger adults (16-24) and individuals with dependent children also exacerbate income inequality within each ethnic-gender group. We found socio-demographic factors explained (in most cases) less than half of the income inequality within each ethnic-gender group, we suggested traditional influences may in some part explain a proportion of the unexplained income inequality, we attempted to explore this idea in the proceeding chapter.

In chapter 5, we explored the division of housework among ethnic minority couples. Despite ethnic minority women making greater strides in the labour market over the past years, they still do a larger share of housework than White women and minority men. We explored three theories: time availability, resource bargaining and gender role theories, which gave us some insight into the influence of traditional attitudes on inequalities in the division of housework and financial decision-making responsibility among White, Indian, Pakistani, and Bangladeshi

married couples. We found some differences in the application of three theories to White, Indian and Pakistani couples in determining the division of housework, the evidence was strongest among White couples where we find evidence of resource bargaining and gender roles theories.

In chapter 6 we explore financial decision-making among ethnic minority couples in the UK. We found, ethnic minority women are less involved in main financial decision making than White women and minority men. In determining the allocation of main financial decision-maker among couples, we found some theories apply to some ethnic group more so than others. For example, evidence of resource bargaining theory is found among all couples, although evidence of gender attitudes among White and Indian couples only.

This point brings us to a very important observation in this exploration of economic inequalities by ethnicity and gender. We have come across important differences among White and ethnic minority men and women, whether this be higher average incomes for White men and women then (most) ethnic minority groups, larger income inequalities for ethnic minority men and women than White, or a more equal division of housework and financial decision-making responsibility among White couple than ethnic minority couples. However, we have also found evidence of important heterogeneity among ethnic minority couples. For example, average incomes for Indian men and women are found to be larger than Pakistani, and Bangladeshi men and women. When average incomes for Indian men and women are pooled, these are found to be greater than the White group. Exploration of the income data by ethnic group and gender illustrated greater similarities in the distribution of income for Pakistani and Bangladeshi ethnic groups, whilst we observed more similarities among White and Indian groups; benefit income accounted for a larger proportion of total income for Pakistani and Bangladeshi ethnic groups; labour income contributed far less, this was particularly the case for women in these groups. In some parts of our analysis, we found the Bangladeshi ethnic group to observe differences compared to all other groups, for example women in Bangladeshi ethnic groups indicated larger within group inequalities than Bangladeshi men. Furthermore, education factors we found to be particularly small in contributing towards income inequality for Bangladeshi women. We found less evidence of the three theories explored in the context of the division of labour and financial decision-making responsibility among Bangladeshi couples. These findings indicate it is important not to consider minority groups as one overall group, as is done too often, but

rather develop an understanding of the differences among ethnic minority groups in different domains.

We suggest some potential policy implications from our findings. In order to reduce total income inequality among ethnic groups, more must be done to reduce income variations within group. We do not suggest that income inequalities between ethnic and gender groups are redundant, large scale income inequalities between men and women and among ethnic group can lead to animosities which are neither socially nor economically desirable. Rather we aim to highlight that greater consideration of income inequalities within each gender-ethnic group should be taken. To reduce total inequality within each ethnic group, consideration towards employment opportunities and educational attainment is relatively more important than other factors, based on our findings in chapters 4. In Chapter 4, employment status is found to be an important driver of income inequality, exacerbating income inequality within each ethnic-gender group. We find in chapter 5 and chapter 6, higher earnings for women, are associated with a more equitable share of housework and financial decision-making responsibilities among couples. As such it is important to target policy to incentivise labour market participation and better opportunities towards men and women who are economically inactive and absent from the labour market to reduce income inequality; improve earnings potential for women to tackle inequalities among couples.

Areas for future research, our findings in chapters 3 and 4 suggest space for further exploration of determinants of income inequality for men and women within White and ethnic minority groups. We suggest exploring in more detail the influence of cultural and traditional values and gender attitudes in influencing total income inequality within ethnic minority groups as an extension of chapters 3 and 4. Due to data limitations, we were unable to explore this in depth, although primary data collection in the form of surveys and interviews may help to shed greater light on this matter. Our attempt to further explore gender roles and traditions in chapter 5 and 6, led us to considered female share of housework and financial decision-making in the context of couples. To our knowledge, an exploration of these in the context of the wider household in lacking. This may be particularly interesting for ethnic minority groups, who tend to live in larger and extended households.

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