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Non-Technical Abstract

In this paper we investigate economic activity of female immigrants and their husbands in Britain. We distinguish between two immigrant groups: foreign born females who belong to an ethnic minority group and their husbands, and foreign born females who are white and their husbands. We compare these to native born white women and their husbands. Our analysis deviates from the usual mean analysis and investigates employment, hours worked and earnings for males and females, as well as their combined family earnings, along the distribution of husbands' economic potential. We analyse the extent to which economic disadvantage may be reinforced on the household level. We investigate to what extent disadvantage can be explained by differences in observable characteristics. We analyse employment assimilation for all groups over the migration cycle. Our main results are that white female immigrants and their husbands are quite successful, with an overall advantage in earnings over white native born both individually and at the household level. On the other hand, minority immigrants and their husbands are less successful, in particular at the lower end of the husband's distribution of economic potential. This is mainly due to low employment of both genders, which leads to disadvantage in earnings, intensified at the household level. Only part of this differential can be explained by observable characteristics. Over the migration cycle, the data suggests that employment differentials are large at entry for white immigrant females, and even larger for minority females, but the gap to the native born closes. Assimilation is more rapid for white females.

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Gender and Ethnicity – Married Immigrants in Britain[1]

Christian Dustmann[2] and Francesca Fabbri[3]

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Abstract: In this paper we investigate the economic activity of married or cohabiting female immigrants in Britain. We distinguish between two immigrant groups: foreign born females who belong to an ethnic minority group and their husbands, and foreign born white females and their husbands. We compare these to native born white women and their husbands. Our analysis deviates from the usual mean analysis and investigates employment, hours worked and earnings for males and females, as well as their combined family earnings, along the distribution of husbands' economic potential. We analyse the extent to which economic disadvantage may be reinforced at the household level and investigate to what extent it can be explained by differences in observable characteristics. We find that white female immigrants and their husbands have an overall advantage in earnings over white native born, both individually and at the household level. Minority immigrants do less well, in particular at the lower end of the husband's economic potential distribution. This is mainly due to the low employment of both genders, which leads to a disadvantage in earnings, intensified at the household level. Only part of this differential can be explained by observable characteristics.

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1 Introduction

In Britain, unemployment in 2004 was amongst the lowest in any European country at 4.8 percent. Furthermore, employment rates (defined as the percentage of those in work over the working age) of both males and females were high, at 79 percent and 70 percent, respectively. This suggests the labour market is in a healthy state.

These aggregate numbers may however conceal adverse economic circumstances of particular groups. In a recent report, Dustmann et al. (2003) (see also Dustmann and Fabbri, 2005) suggest that, for most ethnic minorities and immigrant groups, employment rates and wages are significantly lower than those of white natives. These disadvantages seem particularly pronounced for females. Between 1981 and 2000, the unconditional participation of minority immigrant women remained below 60%, whereas that of white native women steadily increased from 66% to 76%. Even when conditioning on observable characteristics (such as age, number of children, education and region of residence), the probability of black African, Pakistani, and Bangladeshi women being out of the labour force is between 15 and 22 percent higher than it is for white native women.

In this paper, we further investigate the questions whether and why immigrant groups are more disadvantaged than native born whites. Our emphasis is on the female population, and we distinguish between white native born females, and white and ethnic minority foreign born females. Our analysis deviates from most previous work that analyses the outcomes of males and females in isolation, by concentrating on the family context. Analysis at the level of the individual may conceal reinforcement of disadvantage at the household level. Analysis of the outcomes of different female sub-populations in a family context may help to shed light on differences across these groups, in particular when comparing groups that differ in their

origin, ethnicity and cultural background. The downside is that our analysis refers not to the whole population, but only to married or co-habiting individuals.

Previous analysis of labour market fortunes of female immigrants in isolation includes papers by Long (1980), Funkhouser and Trejo (1988), Cobb-Clark (1993), Schoeni (1998), and Dustmann and Schmidt (2001). Most of these papers are in the tradition of Chiswick's (1978) seminal study and investigate assimilation of female immigrants, some implementing Borjas' (1985 and 1995) approach to take account of cohort effects. Our work is not the first to analyse immigrant and native born labour market outcomes in a family context. Earlier work by Duleep and Sanders (1993) explains patterns of labour force participation of married Asian women as the outcome of a family investment strategy. More recent work by Baker and Benjamin (1997), Cobb-Clark (2001) and Blau et al. (2003) re-examines this labour supply pattern for immigrants for Canada, Australia, and the US in a household context, testing alternative theories of labour supply behaviour. The importance of analysis of labour supply and economic activity at the household level has also been emphasised in a related literature on poverty and inequality (see recent work by Gregg and Wadsworth, 2001, and Gregg et al., 2004). These authors draw attention to the fact that individual level consideration of economic activity may obscure the true extent of disadvantage of particular groups in the labour market.[4]

Our paper does not aim for a structural interpretation of female labour supply, such as in the papers by Baker and Benjamin (1997) and Blau et al. (2003); we leave this for future work. Our emphasis is on the differences in labour market outcomes of different immigrant groups, compared to native born whites, where we distinguish between white immigrant females and immigrant females with an ethnic minority background, with our reference group being white

[4] Other reasons to study female behaviour in a household context are disincentives created by social security systems. See for example Dilnot and Kell (1987) and Dustmann and Micklewright (1993).

native born females. We concentrate on married or cohabitating couples, allowing us to investigate economic disadvantage of particular groups in a family context.[5] We define the ethnic group according to the ethnic and immigrant status of the wife.[6]

Our analysis has several goals. Little is known about labour market activity of different female groups in general, and in Britain in particular. A first contribution is to establish some key facts about the economic achievements of female immigrants belonging to different groups, and compare them with native born white females. Rather than concentrating on means of the distribution, we investigate differences in outcomes across groups along the distribution of the husband's economic potential. Our measure for economic potential are wages, where we impute wages for husbands who do not work. We also analyse the correlation between employment outcomes for husbands and wives for each of the groups, taking random pairing as the benchmark. Furthermore, we investigate whether any group disadvantage with respect to earnings is aggravated or alleviated when we consider the household context. Finally, we analyse to what extent differences in employment across the different groups are explained by differences in own characteristics, and differences in characteristics of the partner.

The structure of the paper is as follows. Section 2 describes the data used and the sample and provides some descriptive statistics. In section 3 we investigate differences in hourly wages and weekly earnings, considering the entire wage distribution of individuals in the minority immigrant, white immigrant, and white native groups. In section 4, economic outcomes (namely employment, wages and hours worked) of the three groups are compared along the

[5] For simplicity, we will generally refer to both groups as "married"; we refer to males in the couple as "husbands" and females as "wives".
[6] Accordingly, a couple where for instance the wife is belonging to an ethnic minority group and is an immigrant, and the husband is white UK born would be classified as being in the minority immigrant sample.

distribution of the economic potential of the husband. In section 5 and 6 we investigate the differentials in employment probabilities and earnings at the household level. In section 7 we undertake some simple decompositions to analyse the potential determinants of employment differentials. Finally, in section 8, we discuss the results and provide some conclusions.

2. The Data and the Sample

2.1 The Labour Force Survey

The dataset we use for our analysis is the British Labour Force Survey (LFS). The LFS is a household survey, conducted by the Office for National Statistics (ONS). It provides a wide range of data on labour market statistics and related topics such as training, qualifications, income and disability. The LFS has been carried out in Britain since 1973. Between 1973 and 1983 it was on a biennial basis, changing into an annual survey from 1983 onwards. The sample size is about 60,000 households in each survey, or around 0.5% of the population. From 1992 onwards, the survey changed to a rotating quarterly panel, with the same individuals being interviewed for five consecutive quarters. Each quarter about 59,000 households are interviewed with about 138,000 respondents. The quarterly LFS contains information on gross weekly earnings and number of hours worked for the fifth quarter wave (1992-1996) or the first and the fifth quarter (1997 onwards).

Our sample covers the period from spring 1992 to the first two months of 2005. We choose the starting date 1992 because since that date the LFS has been a quarterly rotating panel with information on wages.

We pool the data over the entire period, and take account of time variation in estimation by including year and quarter dummies. The main reason for pooling the data is to obtain sufficient numbers of observations on some of the groups. Immigrants represent about 10% of

the working age population in Britain and minority immigrants represent about 48% of all immigrants (LFS 2004). Therefore, the size of the samples of minority and white immigrants in a survey which is representative of the entire population (such as the LFS) is fairly small. For example, the total number of observations available on wages of immigrant minority (married) women is 3930, with about 200 observations yearly from 1993 to 1996 and about 400 observations afterwards. Similar small sample sizes are available for minority immigrant males, with a total of 5422 observations on wages. For white immigrants, sample sizes are slightly larger, with 7151 observations for women and 7192 observations for men. The small sample size and the type of analysis conducted in the paper also limit the degree of further data decomposition (by ethnic group, for example).

2.2 The Sample

We restrict our analysis to individuals who are married or who are cohabiting. We distinguish between three groups, where the group definition is defined by the status of the female. In the first group we include couples where the wife is foreign born, and belongs to an ethnic minority.[7] The second group of our sample consists of couples where the wife is foreign born, but white.[8] Minority immigrant women represent 3.8 percent of our sample of women and white immigrant women 4.5 percent. The third group of our sample includes couples where the wife is born in Britain, and white. Notice that this allocation implies that we assign couples according to the wife's origin; if, for instance, the husband is white British born, and the wife is foreign born, and belongs to a minority group, the couple is assigned to the

[7] We define ethnic minority individuals as belonging to the Indian, Bangladeshi, Pakistani, Chinese, Caribbean or other smaller ethnic groups. In our sample, 34% of ethnic minority individuals are Indian, the largest ethnic group. The second largest minority group are the Pakistanis (14%). Breaking down ethnic minority individuals into subgroups may provide further inside, as there are likely to be differences in performance between these groups (see Dustmann, Fabbbr and Wadsworth 2003 for some evidence). . We leave this for future work.

[8] About 31% of the white sample comes from EU (before enlargement) countries, about 15% from Old Commonwealth countries (Australia, New Zealand, Canada and South Africa) and about 8% from the United States.

minority foreign born sample. As our focus is on females, this seems an appropriate classification.

Table 1 provides the number of endogamous marriages for women. We provide two definitions of endogamous marriage. In the first, we consider couples whose members are both from the same ethnic group. In the second, we define endogamous couples as couples where both partners are foreign born (in the case of immigrants), or both native born (in the case of British born individuals)

Table 1: Same ethnicity couples and same immigrant (or native) status couples

	Same Ethnicity	*Same Immigrant Status*
Minority Immigrants	83%	85%
White Immigrants	98%	33%
White Natives	99%	97%

In our sample, 83% of minority immigrant females are married to husbands from the same ethnic group, and 85% are married to husbands who are foreign born.By contrast, the overwhelming majority of white immigrant females (98%) are married to white men, whereas only 33% are married to foreign born husbands.

In Table 2 we describe the basic features of our data. Panel 1 contains information for immigrant couples from ethnic minority backgrounds, panel 2 for white immigrant couples, and panel 3 for white British born couples. The first column of each panel refers to wives, and the second column to their husbands. Standard deviations (where applicable) are reported in italics underneath the mean of each variable.

Table 2: Descriptive Statistics

	Minority Immigrants		White Immigrants		White Natives	
	Wives	Husbands	Wives	Husbands	Wives	Husbands
Variables	Mean	Mean	Mean	Mean	Mean	Mean
Age	38.67	42.99	39.38	41.92	40.80	43.05
	9.26	*9.83*	*10.07*	*10.59*	*10.23*	*10.59*
Years Since	17.05	20.00	21.50	15.52	-	29.04
Migration	*11.30*	*12.05*	*15.05*	*14.93*		*14.09*
Degree	11.02	21.64	17.95	28.35	11.16	15.73
A-levels	16.74	21.97	23.67	32.34	28.31	44.13
O-levels	43.15	34.31	43.29	28.52	37.83	25.64
No Qualifications	29.09	22.08	15.09	10.77	22.69	14.50
Age left Fulltime	18.13	19.04	18.56	18.58	16.83	16.81
Education	*3.44*	*3.90*	*3.37*	*3.64*	*2.17*	*2.44*
In Employment	46.79	71.74	64.39	84.14	71.34	83.89
Hours Worked	32.68	41.05	31.38	42.86	29.02	43.00
(labour force)	*11.25*	*10.89*	*11.74*	*10.50*	*11.70*	*9.62*
Hours Worked (total	14.72	29.04	19.78	35.71	20.34	35.67
population)	*17.93*	*20.80*	*17.79*	*18.63*	*16.50*	*18.39*
Log Hourly Wages	2.09	2.27	2.18	2.52	2.03	2.35
	0.52	*0.62*	*0.55*	*0.59*	*0.51*	*0.52*
Log Hourly Wages,	2.00	2.21	2.17	2.49	2.01	2.33
(imputed for all	*0.52*	*0.61*	*0.54*	*0.59*	*0.50*	*0.52*
labour force)						
Log Weekly Earnings	5.49	5.96	5.55	6.23	5.30	6.08
	0.73	*0.72*	*0.80*	*0.64*	*0.80*	*0.54*
No. Children below	1.51	1.51	0.96	0.96	0.96	0.96
19 years	*1.37*	*1.37*	*1.09*	*1.09*	*1.10*	*1.10*
London	45.15	45.18	28.01	27.92	6.16	6.15
No. Observations	36795	36378	43465	43324	882645	881392

The age structure of husbands in the three groups is fairly similar, with white natives being slightly older than the two immigrant groups. Wives are between three and four years younger than their husbands and this age difference seems to be more pronounced for ethnic minority immigrants.

White immigrant wives have on average been longer in Britain (21 years) than ethnic minority immigrant wives (17 years). Immigrant husbands of minority immigrant females have lived in Britain 3 years longer than their wives. Interestingly, immigrant husbands of white immigrant females have lived in Britain for about 15 years, on average, which is about 6 years less than the average for white immigrant women. Further decomposition (not reported in the table) shows that the average years since migration (YSM) of white immigrant

females endogamously married is also about 15 years; in contrast, white immigrant women exogamously married have lived in Britain on average for 22 years. For minority immigrant women, the difference in YSM between those in an endogamous or exogamous marriage is only one year.

There are considerable differences in educational attainments. It is notable that native whites (both wives and husbands) leave full time education the earliest, with nearly identical numbers for husbands and wives (at 16.8 years of age), while white immigrants stay on at school for more than 1½ years more. Again, figures for husbands and wives in this group are almost the same. Among minority immigrants, there is about a year of difference between husbands and wives; nevertheless, husbands of minority women stay on at school longest, and minority wives stay on more than one year longer than native born wives.

The figures for the different degrees suggest a slightly different educational distribution than the years of full time education. This may be due to difficulties in comparing foreign with British qualifications.[9] With the exception of minority females, the percentage of degree holders is higher among all immigrant groups than among native whites. However, a very substantial fraction of minority wives and husbands (29 percent and 22 percent) report leaving education without any degree. This is slightly higher than in the native white population where respective numbers are 23 and 14 percent. The numbers are lowest for white immigrants, at 15 and 11 percent respectively. Overall, and similar to the age of leaving full time education, the largest differences in educational attainments between males and females are in the ethnic minority immigrant group. A higher fraction is at the high end of the skill

[9] About 22 and 29 percent of foreign born husbands and wives do not fit into any of the standard British education classifications, compared to 14 and 23 percent of native born whites. We classify these individuals into the "no qualification" category. This seems roughly appropriate, as their age leaving full time educations is similar (15 years for both female groups and 16 and 15 years for minority immigrant and white native males, respectively).

distribution, but, at least for ethnic minority immigrants, a higher fraction is also without any school leaving qualification.

We define individuals as employed if they are working at the time of the survey. We define individuals as non-employed if they are unemployed or inactive (i.e., out of the labour force). We therefore define employment over the total working age population. Earnings for the self-employed are not reported in the LFS. We have therefore decided to exclude the self-employed from our analysis.

There are differences in employment rates between the groups. Among men, the employment rate of husbands of minority immigrant women is lowest, at 72 percent. In contrast, males married to native born and to white immigrants have similar employment rates of 84 percent. For females, differences are far more dramatic: among ethnic minority immigrants employment rates are only 47 percent, while they are substantially higher among white immigrants and natives (at 64 and 71 percent respectively). In the employed sample, ethnic minority females work the longest hours, on average 33 hours a week, whereas white immigrant and white native females work 31 and 29 hours, respectively. On the other hand, husbands of ethnic minority women work on average 41 hours a week, 2 hours less than husbands of white women.

The difference in employment rates can also be seen in the difference in observed weekly hours worked for the total sample (where we set hours of individuals out of work to zero). Foreign born ethnic minority women work an average of 15 hours, whereas white (immigrant and native) women work 20 hours a week. Similarly, their husbands work 30 hours, whereas husbands of white (immigrant and native) women work 36 hours.

The survey reports weekly hours of work and gross weekly earnings for those individuals who are employed. We construct hourly wages by dividing gross weekly earnings by the total amount of hours worked in a week (including overtime). As measures of wages, we use log gross hourly wages and log gross weekly earnings.

As we explain above, the LFS is a rotating panel, where individuals are interviewed in five waves in consecutive quarters. Earnings information was collected only in the last (fifth) wave until 1997, and from then onwards in the first and the last wave. Therefore our data on employment status and weekly hours worked is quarterly data, while our wage and earnings data is on a yearly basis.

We impute wages for individuals who have missing wages due to non-reporting.[10] Imputations are done separately for each ethnic (minority immigrants, white immigrants and white natives) and gender group. Wages are predicted from regressions of the log of deflated[11] hourly wages on individual characteristics (education, potential experience and potential experience squared, dummies for working part-time, region, year and quarter, and, for the immigrant samples, years since migration and its square). To our predictions, we add an error term, drawn from a normal distribution, whose variance equals the variance of the residuals from the regression of those who report earnings. We allow this variance to differ across the three groups, and between males and females.[12] We use the same procedure to predict wages for individuals who do not work, which we use for computing husband's economic potential.

[10] About 22 percent of all earnings observations are missing. The percentage of non-reporting is slightly smaller than that in the US Current Population Survey, where in 2001, 31 percent of all public and private sector wages were imputed (see Hirsch and Schumacher 2004). Other than for the UK LFS, earnings for those with missing values in the US Census or CPS are imputed by the Census, using "hotdeck" procedures. See Lillard et al (1986) for details.

[11] As deflator, we use the monthly Retail Price Index. The Retail Price Index is available on the ONS website, www.statistics.gov.uk.

[12] This procedure was suggested by Lillard et al. (1986) as an alternative to the „hot deck" procedure, which matches non-respondents with demographically similar donors.

We eliminate the time trend from our wage information by normalising wages to 2004. We report log hourly wages for those who are working and imputed wages for the whole working age population in Table 2, for those waves where individuals were interviewed about their earnings. Hourly wages (weekly earnings) for those who work include imputations for those who have missing values due to non-reporting. Log hourly wages of immigrant women are, on average, higher than for native women. In particular, immigrant white women earn 16 percent more than white native women. Minority immigrant women earn 6 percent more than native women. In contrast, husbands married to white immigrant women earn 18 percent more than those married to white native women, and husbands of minority immigrant women earn 8 percent less than husbands of white natives.

Mean log hourly wages including individuals who are not in employment are lower for minority females than for females of the other two groups, which reflects the lower employment rate and stronger selection on observables among minority females who work. The larger difference between minority and native women in weekly earnings than in hourly wages reflects the fact that minority women who work, work for longer hours than natives. In contrast, husbands of minority women earn less than husbands of native women. Husbands of white immigrant women earn more than the other two groups.

Ethnic minority women and men have, on average, more dependent children (below age 19) than white immigrants and natives (1.51 against 0.96 for immigrants and natives, respectively), and these differences are quite pronounced in each of the children's age groups that we consider.

The strong concentration of immigrants in the Greater London area is noteworthy, in particular that of ethnic minority immigrants. While only around 6 percent of the native born white couples live in Greater London, nearly 28 percent of the white immigrants, and nearly 45 percent of the ethnic minority immigrants do so.

3. Wages and Weekly Earnings

We proceed to inspect differences in wages and weekly earnings between minority and white immigrants on the one hand, and native born whites on the other. The simple means we have displayed in the tables above may give insufficient evidence of the differences in economic conditions between the different groups. Rather than concentrating on means, we consider the entire distribution of individuals in particular groups. A good summary of the individual's economic potential is the wage, and we rank individuals in each of these groups, distinguishing between husbands and wives, according to their position in the group and gender specific wage distribution, splitting the overall distribution into deciles. To avoid distortion of this measure, we need to take account of the fact that we observe individuals at different stages of their labour market career. To determine the individual's percentile position, we therefore follow Juhn and Murphy (1997) and rank individuals for each year of potential experience based on their percentile position in the hourly wage distribution.[13] This maps and compares the advantage and disadvantage of the two immigrant groups across the group specific distributions of economic potential.

Figures 1 and 2 report results for log hourly wages (including only individuals who work and imputing wages for missing wage observations due to non-response) for husbands and wives respectively, where the left panel compares minority immigrants and the white native born, and the right panel white immigrants and the white native born. Figure 1 suggests different

[13] As mentioned before, we also normalise wages and earnings to eliminate time trend.

patterns for the two groups of husbands. The difference in log wages between husbands of white natives and husbands of minority immigrants in the bottom deciles is about 0.27, which translates into a 31 percent wage difference. This difference diminishes over the decile rank, and turns into an advantage from the 8th decile onwards.

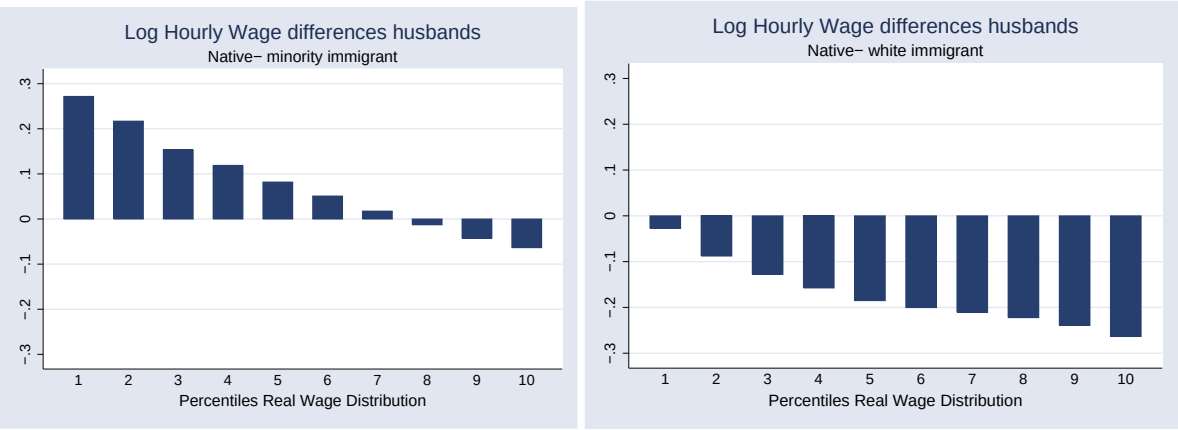

Figure 1: Log hourly wage differentials, husbands

Comparing native born white immigrants with white immigrants provides a different picture. The mean wage advantage of 18 percent, which we report in Table 2, is mainly driven by wage advantages in the upper part of the distribution. In comparison to white native born, both immigrant populations have a relative advantage at the top end of the respective wage distributions.

Figure 2: Log hourly wage differentials, wives

As Figure 2 illustrates, minority immigrant women have a wage advantage over the entire range of the wage distribution which is slightly larger in the middle deciles and towards the top end of the distribution. This advantage, together with the very low employment rate, suggests high selection into work of this immigrant group. White immigrant females have again an advantage throughout the wage distribution, which is slightly more pronounced in the middle deciles, and smallest in the lowest deciles range.

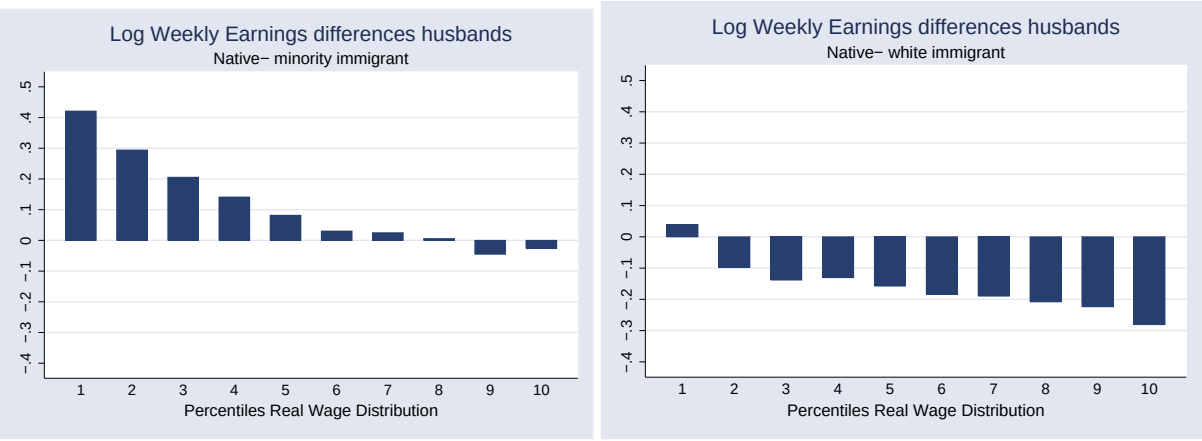

Figure 3: Log weekly earnings differentials, husbands

Figures 3 and 4 display differentials in log weekly earnings. As for wages, we include only individuals who work and impute wages for missing wage observations due to non-response. The difference in earnings between husbands of minority immigrants and white natives is now increasing even further, in particular in the bottom deciles, which is due to husbands of white natives working more hours, as compared to husbands of minority immigrants. In the bottom decile, the difference in weekly earnings is around 52 percent. For white immigrants, differences remain roughly similar across the distribution to those in log wages.

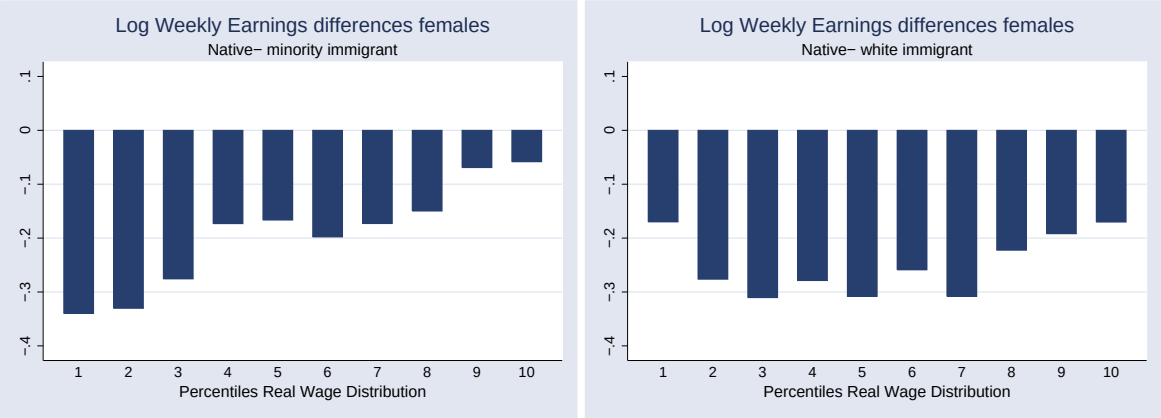

Figure 4: Log weekly earnings differentials, wives

For wives, the wage differential in favour of immigrants increases substantially (especially for the minority group) when considering log weekly earnings, in particular at the low end of the distribution. Earnings differentials here are around 40 percent in favour of minority immigrants. Unlike their husbands, minority female immigrants who do work, work substantially more hours than native whites at the bottom parts of the wage distribution. Similarly, the positive differences in log weekly earnings increase for white immigrant females but resemble roughly the distribution of hourly wage differences, which is due to a similar distribution of hours worked.

The figures suggest that white immigrant women (as well as their husbands) are at a significant advantage regarding their wages and earnings on average, and that this advantage is increasing towards the middle and top deciles of the respective distributions. For minority immigrants who work, there seems to be a divide between husbands and wives. Females have slightly higher wages, and a large advantage in weekly earnings (due to their higher labour supply). In contrast, their husbands are particularly disadvantaged at the bottom end of the earnings distribution, due both to lower wages, as well as lower working hours. This disadvantage disappears and turns to an advantage at the top end of the distribution.

4. Comparing outcomes along the male imputed wage distribution

In the previous section, we compared wages and earnings considering only those who are in work. However, the figures in Table 2 suggest that there are large differences in employment between the different groups, in particular for female minority immigrants. Consideration of the total population may change conclusions about economic advantage. Furthermore, analysis of economic advantage at the level of the individual may be misleading. At the household level, relative disadvantage of particular groups of individuals may well be reinforced, or mitigated, depending on how males and females are paired.

4.1 Matching of wives and husbands

We commence by comparing women in the different groups along the distribution of economic potential of their husbands. As a first step, we relate women's economic potential (measured as their observed or imputed wage) along the distribution of husband's economic potential (likewise measured as observed or imputed wage). We do not attempt to control for selection of those who work when computing these predictions, which may lead to underestimating the economic potential of those who are not in work.

We follow Juhn and Murphy (1997) and use imputed wages for individuals who do not work, computed by the imputation method we describe above. For each year of potential experience, we then rank individuals according to the husband's percentile distribution in the (imputed) wages in each survey year. We compute the decile differences in the respective distributions in the various outcomes between the two immigrant groups, and white native born individuals.

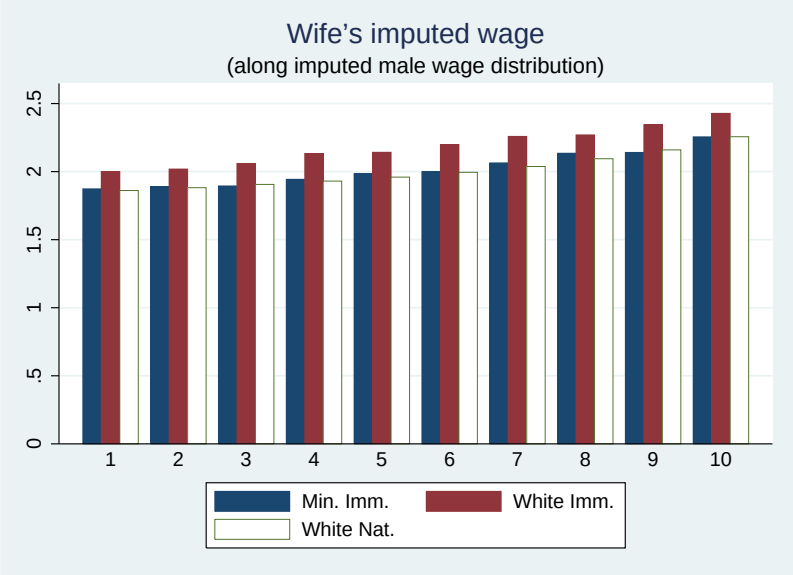

Figure 5: Female imputed wages and employment along the male wage distribution

In Figure 5, we display wages of wives along their husband's imputed wage distribution. Several interesting facts emerge from this figure. The differences across the husband's distribution tend to increase slightly between white immigrant and ethnic minority and native women. The figure also suggests that wives with higher wage potential tend to be married to husbands with higher wage potential.[14] This sorting is also observed for other countries (see for instance Juhn and Murphy, 1997). These patterns are similar across the different groups, suggesting that changes in the economic potential of women across the distribution of their husband's potential are comparable across groups.

4.2 Hours worked

In Figures 6 and 7 we display the difference in the number of hours worked per week between minority immigrants (left panel) and white immigrants (right panel), and white natives. We set hours worked to zero for those individuals who do not work. Again, we rank decile differences along the male imputed wage distribution.

[14] The same diagram with only working wives who report wages looks almost identical.

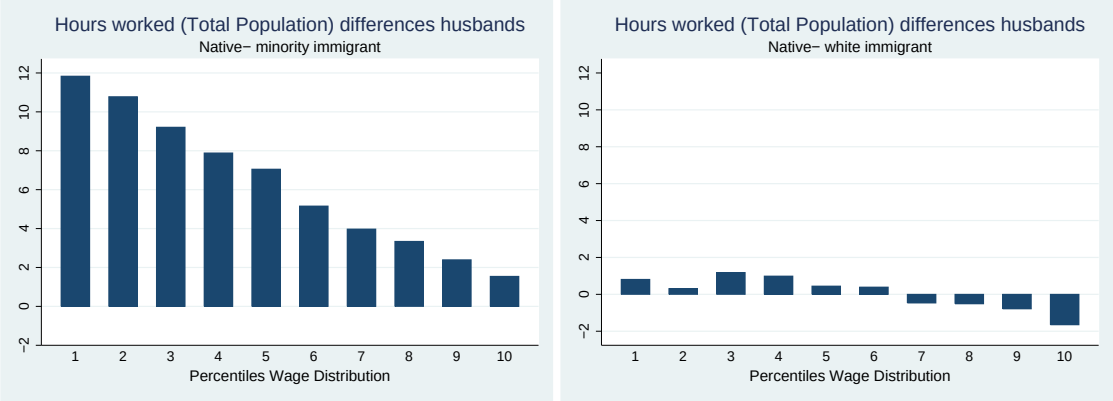

Figure 6: Husbands' weekly hours worked differentials along their imputed wage distributions, total population

Figure 6 refers to husbands, and suggests considerable overall differences in weekly hours worked at the low end of the imputed wage distribution for those married to minority females, relative to those married to white natives. In contrast, total hours worked are very similar between those married to white immigrants, and to white natives.

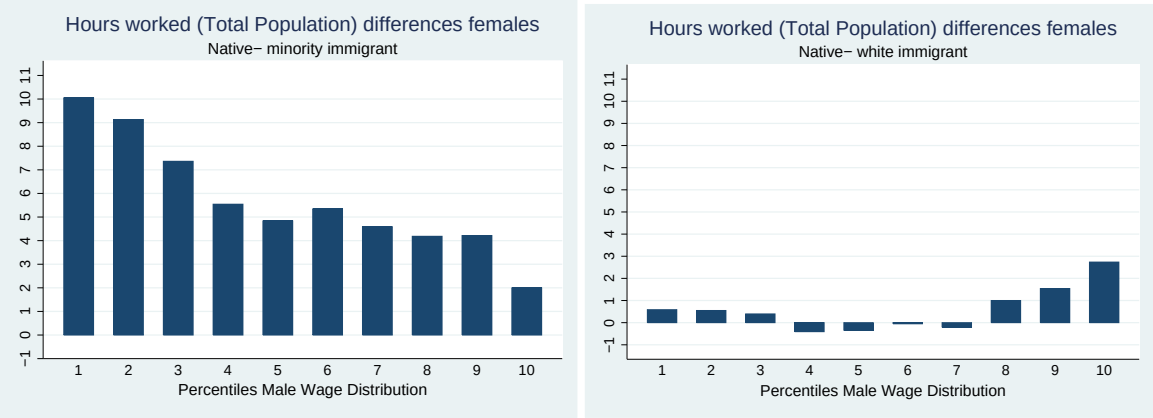

Figure 7: Female weekly hours worked differentials along the husbands' imputed wage distributions, total population

Figure 7 refers to wives. Similar to their husbands, there is a considerable disadvantage in hours worked for minority females along the whole distribution, which is particularly large at the bottom end. Hours worked for white foreign born females and native born females are very similar.

Combined with our findings in section 3, these figures suggest that female minority immigrants who are at the bottom of the wage distribution and who work, compensate for their wage disadvantage relative to native born females, by working longer hours. This leads to an overall earnings advantage at the lower deciles. However, when considering the entire population, the low employment rate of minority immigrant females leads to lower total hours worked. Along the distribution of their husband's economic potential, this disadvantage seems to be particularly pronounced at the bottom percentiles.

4.3 Weekly Earnings

How does this translate into weekly earnings differences? In Table 3 we display percentage differences in mean weekly earnings across the male wage distribution for wives and husbands where earnings of those who do not work are set to zero. For husbands of female minority immigrants, the average difference is 31 percent, implying that on average they earn 31% less; however, differentials are very large at the bottom end of the distribution, and decrease when we move to the top end of the distribution. In the top decile, the difference is only 6 percent, compared to 77 percent in the first decile. For those married to white immigrants, the difference to natives is negative on average (at 16 percent), suggesting an overall advantage, in particular at the top end of the distribution.

The first and third columns report figures for females. The disadvantage for female minority immigrants remains on average higher and in the husband's lowest decile is even larger than for their husbands (where white women earn more than twice as much as ethnic minority women). The disadvantage is most pronounced in the bottom deciles of the husband's economic potential. Comparing native born wives to white immigrants, the differentials are overall in favour of immigrants, with stronger advantage in the middle of the distribution.

Table 3: Percentage Differential in Weekly Earnings (Total Population)

	Minority immigrants		*White immigrants*	
Deciles	Wives	Husbands	Wives	Husbands
1	117.59	76.56	-6.96	-6.52
2	81.13	63.79	-6.82	-10.15
3	61.66	43.66	-9.90	-10.13
4	38.62	38.54	-18.89	-14.09
5	24.33	30.95	-18.57	-16.73
6	37.20	23.56	-19.38	-17.96
7	26.75	16.33	-17.84	-19.36
8	10.13	23.12	-12.92	-19.76
9	7.77	13.24	-10.39	-21.91
10	2.16	6.16	-3.80	-25.28
Average over total sample	43.60	31.35	-12.55	-16.19

For robustness, we replicated our descriptive analysis in sections 3 and 4 on the sub-samples of same ethnicity couples and same immigrant status only. In the first case, results are very similar to those deriving from the total sample. In the second case, we find that couples in endogamous relationships perform worse than couples in exogamous relationships. This evidence is stronger for white immigrant couples. In particular, with respect to white natives, wage and earnings disadvantages for ethnic minority couples are slightly higher than those found in the main analysis. In contrast, wage and earnings advantages for white immigrant couples are lower. This evidence suggests that there is a potential premium for intermarried immigrants. Study of intermarriage premium, however, involves the complicated task of disentangling its selection and productivity components[15]. This kind of analysis is beyond the scope of this paper and will be addressed in future research.

5. Employment and Non-Employment Concentration at the Household Level

One result that stands out from Figures 6 and 7 is the considerable difference in employment rates across the different groups, with ethnic minority immigrants (and in particular females)

[15] See Meng and Gregory (2005) and Kantarevic (2004) for a thorough discussion on the issue.

having much lower employment rates than individuals in the other groups. In this section we investigate whether these differences are reinforced at the household level.

5.1 Measuring Polarisation

We commence by reporting some statistics of the distribution of employment at household level for the three groups we consider.

Table 4: Probability of being in Employment and Polarization (h=husband, w=wife)

	(1) P(h=1)	(2) P(w=1)	(3) P(w=1|h=1)	(4) P(h=1,w=1)	(5) P(w=1)P(h=1)	(6) P(w=1,h=1)- P(w=1)P(h=1)	(7) (6)*100/ P(w=1)P(h=1)
Minority Immigrant	71.74	46.79	55.85	40.06	33.57	6.49	19.33
White Immigrant	84.14	64.39	69.18	58.21	54.18	4.03	7.43
White Native	83.89	71.34	77.33	64.87	59.84	5.03	8.40

In the first two columns of Table 4 we report the probabilities of husbands and wives being employed. These numbers reiterate those in Table 2, and show large differences in employment, in particular between minority immigrants and the other two groups. Column 3 reports the conditional probability of the wife being in employment, given that the husband is in work. If employment events within households were independent, this probability should be equal to the marginal probability in column 2. The numbers suggest that conditional on the husband working, the probabilities of minority immigrant, white immigrant, and white native born women being employed increase by 9, 5 and 6 percentage points respectively, or by 19, 7.4, and 8.4 percent.

In columns 4 and 5 we report the joint probability of the household being in work, and the product of the marginal probabilities respectively. If the events of the husband and the wife being employed were independent, then $P(h=1,w=1)=P(h=1)P(w=1)$. The difference

between the actual probability of employment at the household level, and the predicted probability, $P(h=1,w=1)-P(h=1)P(w=1)$, is called *polarisation* by Gregg and Wadsworth (2004) and Gregg et al. (2004)[16] and is reported in column 6. If work was randomly distributed across individuals, independent of their household formation, then this index would equal zero. The index is higher for ethnic minority immigrant households than for white native born households. Note that, as this index is sensitive to the size of the smallest marginal probability,[17] it may be misleading when comparing different groups. In column 7 we report the percent difference between the joint probability and the product of the marginal probabilities of employment, which is largest for minority individuals.[18] These numbers reiterate findings in previous sections that both minority immigrant wives and their husbands have lower employment probabilities than wives and husbands in the other two groups. They suggest in addition, that there is a stronger polarisation of working males and females in the same households for the minority group.

5.2 Employment probabilities along husband's economic potential

In Figure 8 we display the marginal probabilities of employment of husbands and wives for the three groups along the husbands' imputed wage distribution. For females, the figure suggests fairly stable employment probabilities for the two white groups across the distribution. For minority immigrant women, employment probabilities at the bottom deciles are about 30 percent, but increase to between 50 and 60 percent at the top deciles. Husbands of female minority immigrants show a similar increase, starting at about 60 percent at the bottom decile and rising to over 80 percent at the top decile.

[16] They compute $P(h=0,w=0)-P(h=0)P(w=0)$, which is equal to $P(h=1,w=1)-P(h=1)P(w=1)$.

[17] This is as both $P(h=1,w=1)$ and $P(h=1)P(w=1)$ must be smaller than $\min\{P(h=1),P(w=1)\}$.

[18] Alternatively, this index can be written as 100*(P(w=1|h=1)-P(w=1))/P(w=1), the percent difference between the conditional and unconditional employment probability of the wife.

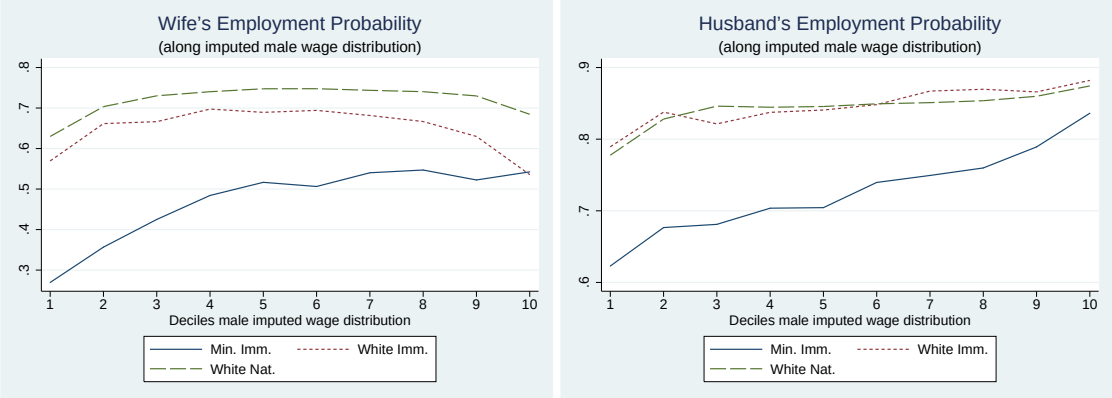

Figure 8: Wives and husbands' employment probabilities along husbands' imputed wage distribution

Figure 9 displays joint probabilities of both partners working ($P(h=1,w=1)$, left panel) and both partners not working ($P(h=0,w=0)$, right panel) along the deciles of the male imputed wage distributions. As before, the figure shows large differences between groups. For white natives and white immigrants, the probability of both partners working seems to have a slightly concave shape. It is lowest on the 1st and 10th deciles and highest in the middle of the distribution. On the other hand, for minority immigrants, it increases along the distribution, with the probability of both partners working growing from 20 percent in the bottom decile of the male distribution to 50 percent in the top decile.

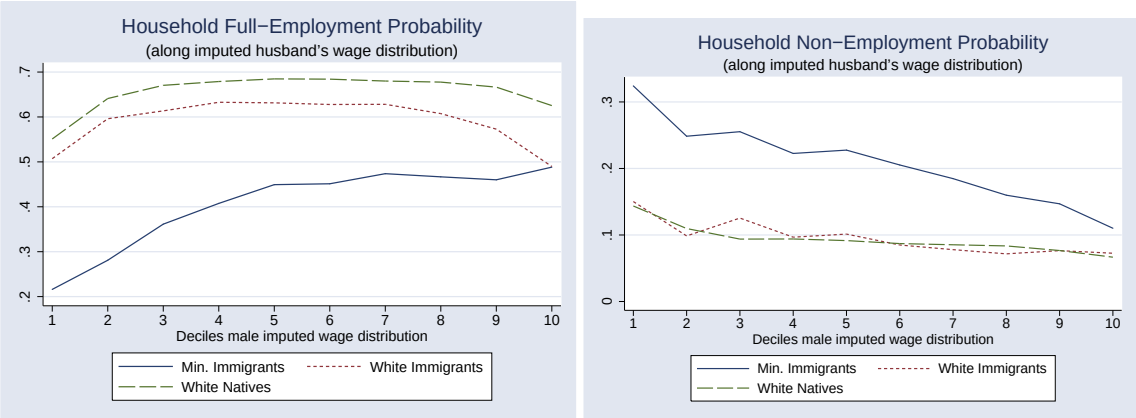

Figure 9 Household Full-Employment and Non-Employment probabilities along the male wage distribution

In the right panel, we display the joint probabilities of joblessness. Similarly, this figure shows that the probability of joblessness decreases slightly for couples with white immigrant or native born white females over the interdecile range of the husband's imputed wage distribution and ranges between 14 and 8 percent. For minority immigrants, it decreases from around 32 percent in the bottom deciles to around 10 percent in the top deciles.

These figures suggest that households where both partners are employed and both partners are non-employed, seem to be fairly equally distributed along the distribution of husband's economic potential for households with white native born and immigrant women. For households with minority wives, the joint probability that both partners are in employment is lower at the lower parts of the husband's imputed wage distribution. This is due to individual employment probabilities of males and their female partners both being lower for males with low economic potential, as suggested by Figure 8. It may be re-enforced by a lower degree of sorting of employed females and males at lower deciles of the husband's economic potential. Evidence for this is provided by the analysis on the polarisation index that follows.

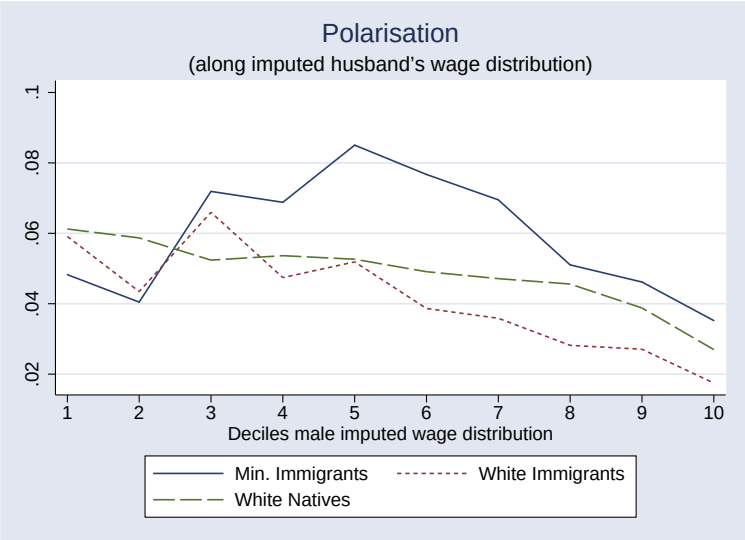

Figure 10: Polarisation along male wage distribution

In Figure 10 we display the difference in the joint probability and the product of the marginal probabilities of husband's and wife's employment (Gregg and Wadsworth's "polarisation" index) for the three groups. The counterfactual in each decile of the wage distribution is computed as the product of the marginal probabilities $P(h=1)^D P(w=1)^D$, where D is the respective decile. The figure reiterates the results in Table 4, that polarisation is on average slightly higher for minority immigrant couples than for white native and white immigrant couples. Furthermore, while polarisation seems to steadily decrease for white couples, it has an inverse U-shape for minority couples. It increases until about the median, and then decreases, first re-enforcing and then counteracting the slope of the joint household full-employment probabilities, as compared to those obtained by random matching.

6. Family Earnings across the distribution of husbands' economic potential

The results in the previous sections suggest that males and females from the ethnic minority population are disadvantaged with respect to their wages relative to individuals from the white majority population. They also indicate relatively low individual and household employment rates at the bottom ranges of the distribution of the husband's economic potential for minority males and females. All this suggests that earnings disadvantages in the minority population in the lower deciles of the overall distribution, are aggravated at the household level.

To investigate this, we display in Figure 11 the differences in family log gross weekly earnings. In Figure 12 we display differences in gross weekly earnings where we include couples where both are out of employment, and we set weekly earnings at zero. In Table 5 we report the percentage differences along the distribution of husband's economic potential for this last group.

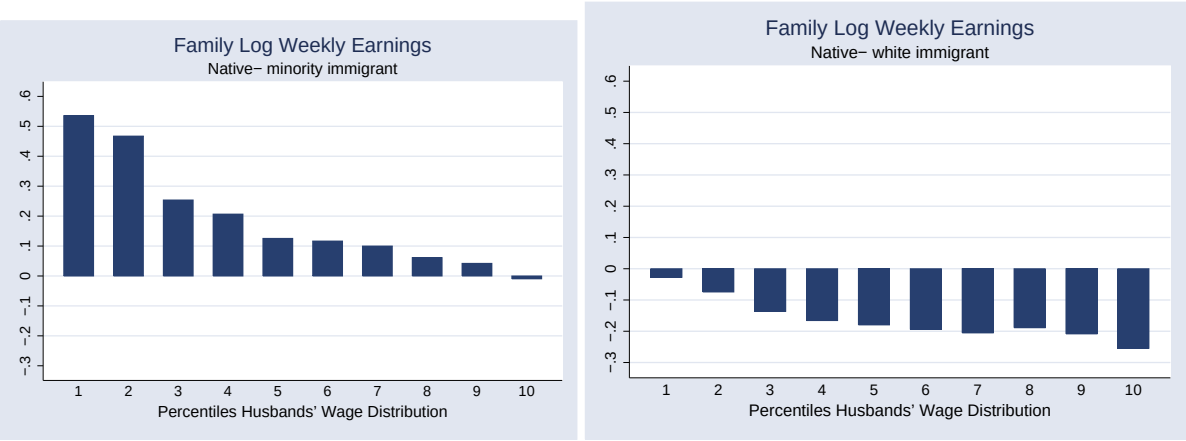

Figure 11: Family log weekly earnings differentials along the male group wage distributions

Consider first Figure 11, where we only include couples where at least one partner is in work. For ethnic minority couples, the earnings differential at the lower end of the distribution is larger than at other points of the distribution. In the bottom decile, white native households earn, on average, 68 percent more than minority households. This differential decreases to 28 percent in the third decile and turns to an advantage only in the top decile.

For white immigrant families, the differential is negative, with white immigrant families earning more than native families throughout the distribution, and in particular between the middle and the top end of the distribution.

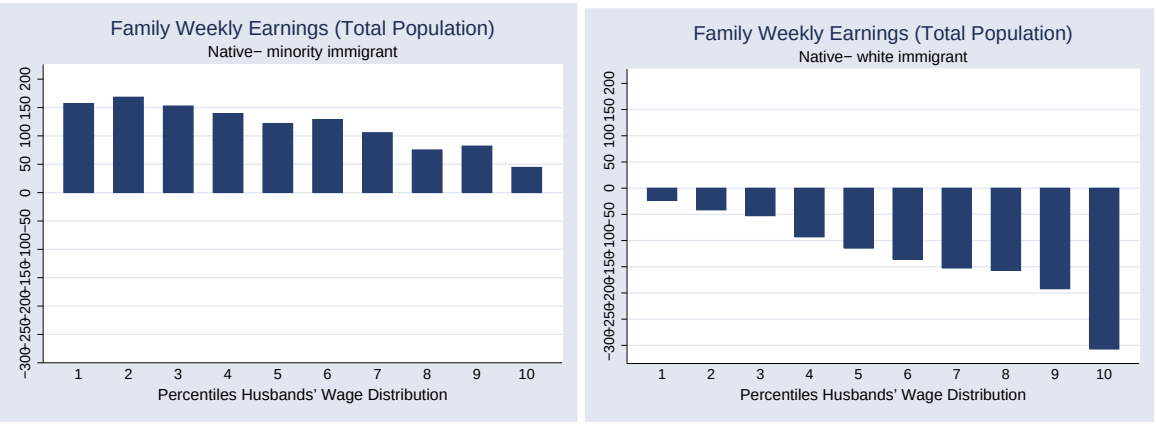

Figure 12: Family weekly earnings differentials along the male group wage distributions (total population)

Figure 12 includes non-working households and reports actual differences without the logarithmic transformation. Earnings differentials for minority couples vary between 44 and 168 pounds. The average differential between minority and white native families in the first decile is of 158 pounds per week. In percentage terms (reported in Table 5), this differential is large. Average family earnings for minorities in the first decile amount to a mere 173 pounds per week, against 330 pounds per week for white natives. This means that white native families in the first decile of husband's distribution of economic potential earn almost twice as much as minority families. In contrast, the earnings difference in the tenth decile is 44 pounds, which, in relative terms, translates into a 4 percent difference between native and minority earnings.

For white immigrants, differentials in the middle deciles are substantially in favour of immigrants. In percentages terms, these differentials are highest between the middle and top end of the distribution.

Table 5: Percentage Differential in Family Weekly Earnings (Total Population)

Decile	Minority immigrants	White immigrants
1	90.70	-6.63
2	68.79	-9.12
3	49.36	-10.22
4	38.48	-15.63
5	28.69	-17.33
6	27.78	-18.62
7	19.63	-19.13
8	11.81	-18.04
9	11.17	-19.03
10	4.15	-21.57
Average over total sample	35.06	-15.53

7. What explains employment differences between groups?

In the previous sections we have illustrated considerable differences in employment, in particular between minority immigrants and white natives. These differences contribute to the

sizeable disadvantage in earnings of couples where the wife belongs to an ethnic minority, in particular at the lower deciles of the distribution of husband's economic potential. In this section we investigate the possible reasons for these differences in terms of observed characteristics.

Our analysis relies on standard Oaxaca decompositions for employment probabilities, where the estimation is based on linear probability models. Regressions use two specifications: one using a set of individual characteristics (such as education, age, and number of children), and a second adding partner's characteristics, including educational achievements and age. The interpretation of our estimates and decomposition is non-causal. As before, we investigate employment decompositions along the husband's wage potential. The full specifications with estimated coefficients and decompositions for the overall samples are reported in the Appendix.

As we saw in Table 2, there are both similarities and differences in observed characteristics between the immigrant groups and native whites. One particularly distinguishing feature of minority immigrants was the larger number of children in each of the age categories. This may have an important effect on labour supply behaviour. The estimated coefficients in Table 6 in the Appendix show evidence of a slightly smaller response to the presence of children in the age groups between 0 and 9 years in the sample of minority females. On the other hand, there seems to be a slightly stronger response from minority females to having a degree or A-levels, compared to the other groups. The second set of columns in Table 6 includes partner characteristics. For all groups, having a partner with a degree increases employment probabilities, while employment probabilities of minority and white native women are increase with partner's age at a decreasing rate.

Figure 13 to 16 report both the raw employment differential and the "explained" part of wives' and husbands' employment differentials along the husband's imputed wage distribution. The white native group is taken as the norm for the decompositions.

Figure 13 partly reiterates the findings from Figure 8 (left panel). The employment differential between minority and white native wives is higher in the lower part of the husband's wage distribution. Figure 13 shows that the fraction of this differential that can be explained by individual and partner's characteristics decreases along the distribution, but is overall quite small.

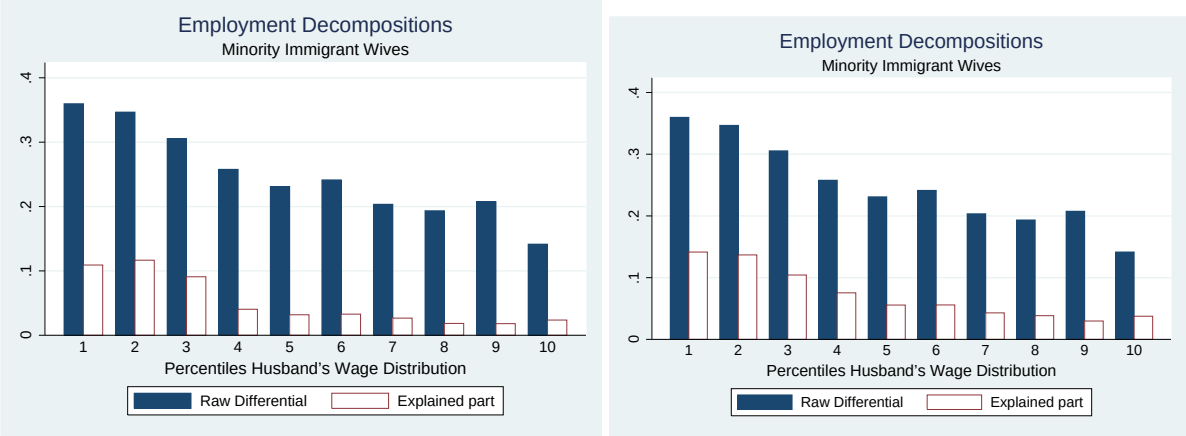

Figure 13: Oaxaca employment decompositions, minority immigrant wives. The left panel reports results unconditional on partner's characteristics, the right panel conditional on partner's characteristics.

Figure 14 reports differentials between white immigrants' wives and white natives' wives. It shows that the employment disadvantage is higher for wives whose husbands are in the highest deciles. The overall differentials are however much lower than for minority wives and their husbands. Hardly any of the differential can be explained by individual and partner's characteristics.

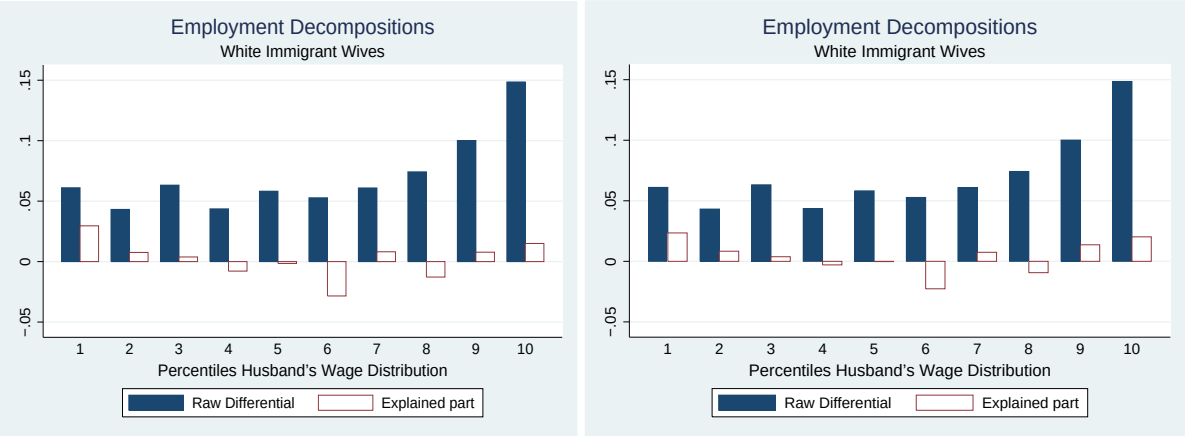

Figure 14: Oaxaca employment decompositions, white immigrant wives. The left panel reports results without partner's characteristics, the right panel with partner's characteristics.

For husbands of minority immigrant women (Figure 15), a larger part of the unemployment differential is explained by individual and partner's characteristics, but the explained proportion remains below 50%.

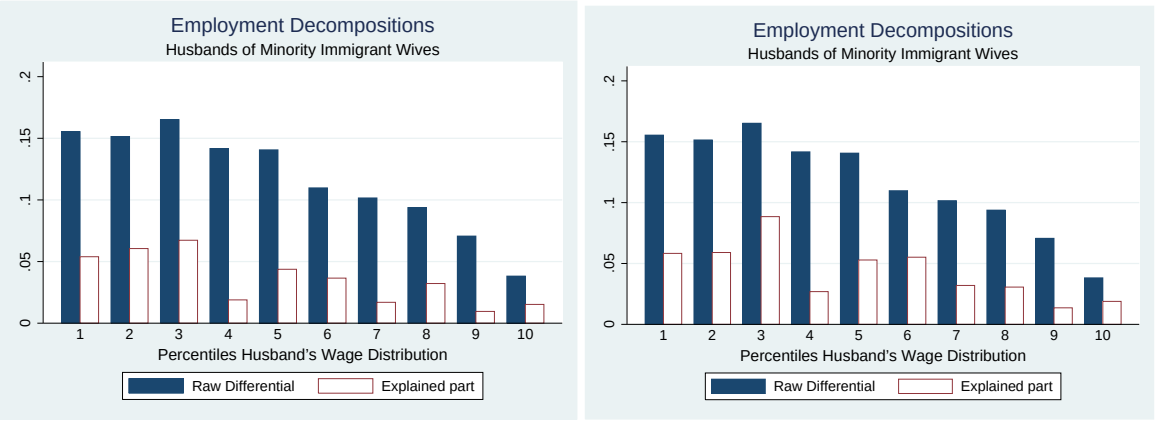

Figure 15: Oaxaca employment decompositions, husbands of minority immigrant wives. The left panel reports results unconditional on partner's characteristics, the right panel conditional on partner's characteristics.

Figure 16 reports results for husbands of white immigrant women. Here the numbers seem to suggest that according to their observed characteristics, and relative to husbands of white native women, the employment rate of husbands of white immigrant women should be higher in most deciles. However, the overall differences are very small.

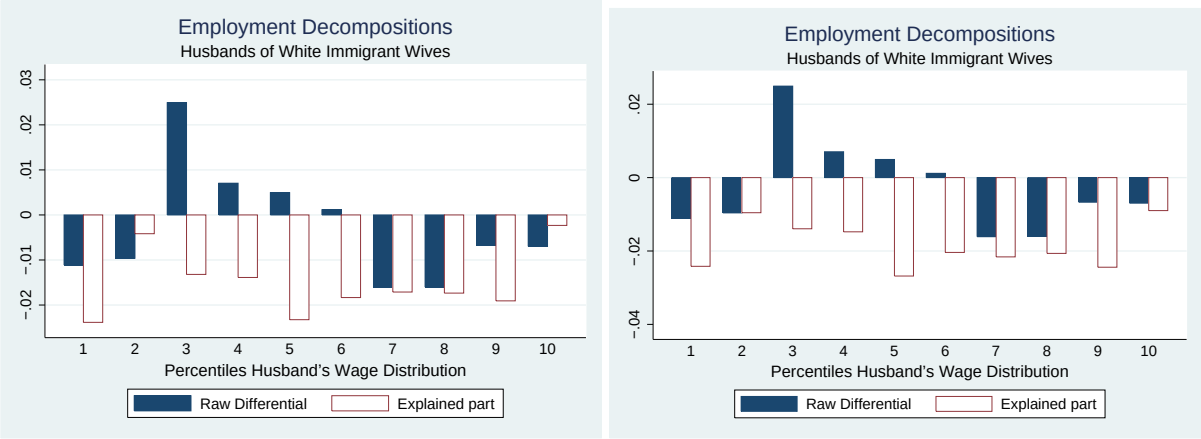

Figure 16: Oaxaca employment decompositions, husbands of white immigrant wives. The left panel reports results without partner's characteristics, the right panel with partner's characteristics.

8. Discussion and Conclusions

In this paper we present a detailed analysis of immigrant women in Britain in a household context. We distinguish between immigrant women who belong to ethnic minority communities, and white immigrant women. We consider married or cohabitating couples, and analyse both women and their husbands. Much of our analysis compares these groups along the husband's distribution of economic potential.

We find large differences between the two immigrant groups, relative to husbands and wives in couples where the woman is white British born. Couples where the wife is a white immigrant have labour supply patterns similar to couples where the wife is white and native born. However, white female immigrants have higher wages and weekly earnings than white native born women. Their husbands are likewise more successful on average, and increasingly so when moving up the distribution of their economic potential.

In contrast, results for ethnic minority couples reveal a more complex scenario. Average wages of ethnic minority females are slightly higher than those of white natives. Due to

higher labour supply, their weekly earnings are even higher. However, the employment rate of ethnic minority foreign born women is much lower than for white natives. This leads to a large economic disadvantage for the total ethnic minority female population. The disadvantage is particularly pronounced at the bottom of the distribution of the husbands' economic potential. Husbands of ethnic minority women, in addition, have both wage and earnings disadvantages at the lower end of their economic potential. Labour supply and employment rates are also lower than for husbands of white native women, again particularly at the lower end of their wage distribution.

There is evidence of sorting of females along the economic potential of males for all groups. Employment probabilities for both white immigrant and white native women do not greatly differ along this distribution, while those of minority immigrants are much lower on average. This is in contrast to findings regarding Asian immigrant women in the US (see Duleep and Sanders 1993), which may be due to the different composition of Asian immigrants between the US and the UK. When investigating employment patterns along the distribution of husband's economic potential, we find very low employment at the bottom deciles, and convergence to those of white immigrants at the top deciles. This translates into a serious disadvantage for minority immigrant couples in terms of weekly earnings, in particular at the bottom of the distribution of the husband's economic potential. In contrast, immigrant couples with a white wife, have on average, an advantage in terms of weekly earnings, when compared to natives.

Our analysis is a first exploration of the economic activity of different immigrant groups in Britain in a household context. It demonstrates substantial differences among groups in the immigrant population, and large differences within these groups along the distribution of husband's economic potential. We have not attempted to estimate structural models and we

have been parsimonious when dealing with particularities in our data. Future work should explore additional important issues which we could not address in this paper. For instance, while we demonstrate large employment differentials for both males and females between the groups of ethnic minority immigrant wives and white native born wives, we are unable to explain these differences in terms of observed characteristics. We also aggregate various ethnic groups; we know from other sources (for instance Dustmann, Fabbri and Wadsworth 2003) that there are differences in performance between the different non-white groups. A further breakdown of ethnic minority individuals into different ethnic groups could provide further interesting insights. We have also shown that a fraction of immigrant women are married or cohabiting with men outside their ethnic groups. Recent work by Meng and Gregory (2005) find large earnings advantages for those immigrants who are married to natives. Extension of this analysis to the British case, and considering differences in ethnic origin, may contribute to drawing a more complete picture of economic differences across the various groups.

9. Appendix

Table 6: Employment regressions used in the Oaxaca decomposition, wives

	Minority Immigrants		White Immigrants		White Natives	
O level	0.158	0.131	0.129	0.125	0.163	0.154
	[26.92]**	[20.20]**	[19.45]**	[17.56]**	[131.36]**	[121.48]**
A level	0.375	0.334	0.234	0.221	0.203	0.196
	[50.83]**	[41.90]**	[32.42]**	[28.54]**	[153.95]**	[142.49]**
Degree	0.360	0.331	0.255	0.250	0.251	0.261
	[41.69]**	[33.45]**	[32.69]**	[28.33]**	[145.78]**	[134.86]**
Age	0.063	0.053	0.033	0.033	0.049	0.042
	[28.41]**	[20.03]**	[16.67]**	[13.15]**	[124.01]**	[74.11]**
Age squared /100	-0.078	-0.063	-0.047	-0.044	-0.069	-0.056
	[28.23]**	[19.10]**	[19.31]**	[14.09]**	[142.23]**	[82.36]**
Children aged 0 to 4	-0.162	-0.162	-0.223	-0.222	-0.211	-0.212
	[41.14]**	[41.33]**	[57.06]**	[56.96]**	[235.95]**	[236.97]**
Children aged 5 to 9	-0.086	-0.086	-0.118	-0.116	-0.101	-0.101
	[24.27]**	[24.37]**	[29.58]**	[29.21]**	[120.45]**	[121.47]**
Children aged 10 to 18	-0.044	-0.043	-0.038	-0.037	-0.042	-0.042
	[16.02]**	[15.49]**	[11.79]**	[11.57]**	[62.49]**	[63.27]**
Partner's O level		0.038		-0.018		0.052
		[5.42]**		[2.23]*		[33.82]**
Partner's A level		0.127		0.066		0.058
		[16.26]**		[8.07]**		[41.15]**
Partner's Degree		0.044		0.006		0.006
		[5.12]**		[0.63]		[3.16]**
Partner's age		0.014		-0.001		0.010
		[5.90]**		[0.25]		[18.70]**
Partner's age sq./100		-0.019		-0.004		-0.015
		[7.03]**		[1.40]		[25.51]**
Constant	-0.875	-0.994	0.094	0.092	-0.158	-0.248
	[16.92]**	[17.55]**	[2.11]*	[1.94]	[18.93]**	[27.83]**
Observations	36791	36791	43464	43464	882626	882626
R-squared	0.20	0.21	0.13	0.14	0.13	0.14

Note: Absolute value of t statistics in brackets * significant at 5%; ** significant at 1%

Table 7: Employment differential decompositions, wives

	Minority Immigrants		White Immigrants	
	Without partner's controls	With partner's controls	Without partner's controls	With partner's controls
Raw differential	0.245	0.245	0.069	0.069
unexplained	0.194	0.172	0.062	0.056
% unexplained	79.1	70.2	89.0	80.9
explained	0.051	0.073	0.008	0.013
% explained	20.9	29.8	11.0	19.1

Table 8: Employment regressions used in the Oaxaca decomposition, husbands

	Minority Immigrants		White Immigrants		White Natives	
O level	0.125	0.095	0.164	0.119	0.145	0.124
	[11.61]**	[8.11]**	[15.33]**	[10.52]**	[66.84]**	[56.65]**
A level	0.236	0.195	0.196	0.145	0.168	0.142
	[19.87]**	[15.05]**	[18.58]**	[12.89]**	[84.06]**	[69.43]**
Degree	0.275	0.227	0.231	0.167	0.201	0.163
	[22.94]**	[16.24]**	[21.59]**	[13.82]**	[84.37]**	[61.88]**
Age	0.056	0.046	0.043	0.035	0.050	0.040
	[16.54]**	[11.52]**	[17.83]**	[11.09]**	[95.02]**	[52.58]**
Age squared /100	-0.001	-0.001	-0.001	-0.000	-0.001	-0.001
	[19.43]**	[14.32]**	[20.64]**	[13.80]**	[111.33]**	[66.32]**
Children aged 0 to 4	-0.055	-0.046	-0.021	-0.020	-0.032	-0.031
	[8.76]**	[6.99]**	[4.10]**	[3.89]**	[25.51]**	[24.19]**
Children aged 5 to 9	-0.038	-0.036	-0.034	-0.034	-0.035	-0.036
	[6.73]**	[6.18]**	[6.31]**	[6.39]**	[30.00]**	[30.55]**
Children aged 10 to 18	-0.028	-0.028	-0.008	-0.010	-0.023	-0.026
	[6.30]**	[6.23]**	[1.79]	[2.35]*	[24.89]**	[27.57]**
Partner's O level		0.058		0.104		0.082
		[5.40]**		[10.77]**		[44.77]**
Partner's A level		0.101		0.124		0.093
		[7.71]**		[11.68]**		[47.08]**
Partner's Degree		0.069		0.118		0.084
		[4.32]**		[9.98]**		[31.07]**
Partner's age		0.016		0.012		0.015
		[3.60]**		[3.48]**		[18.90]**
Partner's age sq./100		-0.016		-0.013		-0.016
		[3.02]**		[3.01]**		[16.83]**
Constant	-0.562	-0.678	-0.149	-0.256	-0.188	-0.305
	[6.52]**	[7.32]**	[2.50]*	[3.99]**	[15.45]**	[23.72]**
Observations	11744	11744	13830	13830	277724	277724
R-squared	0.15	0.16	0.13	0.14	0.14	0.15

Note: Absolute value of t statistics in brackets. * significant at 5%; ** significant at 1%

Table 9: Employment differential decompositions, husbands

	Minority Immigrants		White Immigrants	
	Without partner's controls	With partner's controls	Without partner's controls	With partner's controls
Raw differential	0.121	0.121	-0.003	-0.003
unexplained	0.080	0.072	0.011	0.014
% unexplained	65.5	59.4	-418.4	-528.9
explained	0.042	0.049	-0.013	-0.016
% explained	34.5	40.6	518.4	628.9

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