Anthropometry of Love
Height and Gender Asymmetries in Interethnic Marriages

Michèle Belot and Jan Fidrmuc
Nuffield College (Oxford University) and Brunel University

November 9, 2008

Abstract

Both in the UK and in the US, we observe puzzling gender asymmetries in the propensity to outmarry: Black men are substantially more likely to have white spouses than Black women, but the opposite is true for Chinese: Chinese men are half less likely to be married to a White person than Chinese women. We argue that differences in height distributions, combined with a simple preference for a taller husband, can explain a large proportion of these ethnic-specific gender asymmetries. Blacks are taller than Asians, and we argue that this significantly affects their marriage prospects with whites. We provide empirical support for this hypothesis using data from the Health Survey for England and the Millenium Cohort Study, which contains valuable and unique information on heights of married couples.

Keywords: Intermarriage, gender, height
JEL codes: J12, J15

1 Introduction

Interethnic marriages exhibit puzzling gender asymmetries. Both in the UK and the US, black women are less likely to have a white spouse than black men, while the reverse is true for East-Asian women, in particular Chinese.[1] The UK census data show that in 2001 Chinese men were half as likely to have a white spouse than Chinese women, whereas Black Caribbean men were 50 percent more likely to have a white spouse than Black Caribbean women. A very similar pattern is observed also in the US.

Interethnic marriages are usually considered as the ultimate symbol of social integration. Indeed, a number of studies show that intermarriage has important implications for the social mobility of ethnic minorities in Western societies. For example, Meng and Gregory (2005) and Meng and Meurs (2006), argue that immigrants who intermarry receive higher earnings

---

[1]Moreover, this seems to apply not only to marriages but also to sexual intimacy. Sailer (1997), for example, observes that white women are much more likely to mention that their last sexual partner was black than white men.

on average than endogamous immigrants.[2] Van Ours and Veenman (2008) similarly find that children from mixed marriages (specifically, children with Moluccan fathers and native mothers in the Netherlands) attain higher education.

To this date however, there is little understanding of the forces driving intermarriage; and even less of those driving gender differences in intermarriage within the same race. Fryer (2007) shows that patterns of intermarriage across ethnicities and gender are hard to explain with the existing theories. For example, Merton's social exchange theory (1941) predicts that men and women from ethnic minorities who intermarry should have better socio-economic characteristics than those who intramarry. Thus, gender asymmetries could arise because of differences in the distribution of these characteristics across gender. However, the data show that black men who intermarry tend to be *less* educated than those who intramarry and black women are generally more educated than black men yet is it the black men who are more likely to intermarry with whites.

Of course, it could simply be that men and women from different ethnic groups have different preferences for intermarriage, or are more or less open to outmarriage. For example, one hypothesis commonly advanced in the literature (reference) is that South Asian cultures are more tolerant towards outmarriage for men than women.

We propose an alternative explanation that does not rely on any assumption of ethnic specific preferences. We argue that the ethnic-specific gender asymmetries could be driven by a preference commonly shared among all ethnic groups, a preference for an asymmetry between men and women along one physical attribute: Height. We argue that a simple preference for a taller husband (or shorter wife) can explain a great deal of the gender-specific asymmetries across ethnic groups in the propensity to outmarry. Blacks are taller than Asians, and their height distribution is closer to whites. This could explain both why Blacks are more likely to intermarry than Asians, despite their less favourable socio-economic attributes, and why we observe these gender asymmetries. Indeed, because they are relatively tall, black men should have better prospects on the white marriage market than Black women. For Asians, the reverse is true. Asian women would fare substantially better on the white marriage market than Asian men. [3]

More broadly, we consider the implications of *asymmetric* preferences for intermarriage. Asymmetric preferences have important implications because, combined with a positive correlation in attributes between men and women of the same ethnicity (e.g. men and women from a given ethnic group compare similarly in height relative to other ethnic groups), they will generate ethnic-specific gender asymmetries in the propensities to outmarry. As we will show, attributes tend to be positively correlated across gender from the same ethnicity. Thus, preferences for asymmetries between men and women offer a more promising route to explain gender asymmetries than preferences for similarities (homogamic preferences). There is evidence, which we will discuss in more detail in the next section, supporting the assumption of

---

[2]Meng and Gregory and Meng and Meurs argue that their results are robust to possible endogeneity of intermarriage. Kantarevic (2004), however, undermines their findings, arguing that the higher earnings of intermarried immigrants can be ascribed largely to self-selection of immigrants into intermarrying.

[3]This hypothesis has actually been mentioned in the popular press (see Sailer, 1997).

preferences for asymmetries along some attributes, such as height and age. Preferences seem rather homogamic on other dimensions, such as education.

We first present a descriptive analysis using data from the Labour Force Survey.We find that Asian men in exogamous relationships tend to be positively selected along socio-economic attributes, while Blacks are negatively selected. Also, we find that Asian women tend to attract white husbands with favorable socio-economic attributes, more so than Black Caribbean women. These findings point at an asymmetry in unobservables determining the relative attractiveness of men and women of these different ethnic groups. We argue that height could be the unobservable attribute underlying this asymmetry.

We then investigate empirically the extent to which asymmetric preferences along the educational and height dimensions can explain the ethnic-specific gender asymmetries. First, we simply calculate the proportion of acceptable partners in each ethnic group. Second, we examine the extent to which these proportions of acceptable partners explain intermarriage, using data from the Millenium Cohort Survey. The survey presents two major advantages: First, it includes detailed individual information on socio-economic characteristics and also, crucially, height. Second, the respondents in the survey are parents of babies born in the year 2000, that is, the sample is a sample of steady long-term relationships. We show that height does a much better job at explaining gender asymmetries than education.

The paper is organised as follows. We first review the literature in Section 1. Section 2 presents summary statistics on intermarriage in the UK and the US, as well as descriptive statistics of the ethnic groups in terms of population share and education distribution. Section 3 discusses a simple model of asymmetric gender preferences and discuss the empirical implications. Section 4 presents an empirical analysis based on the UK labour force survey. Section 5 discusses the implications of asymmetric preferences and presents evidence of the importance of the "height-rule" using the Millenium Cohort Study. Finally we conclude in Section 5.

2 Theories of intermarriage

Interethnic marriages have been studied extensively in the sociological literature and, more recently, in the economics literature. The seminal theory in the sociological literature is Merton's (1941) exchange theory[4]. The basic idea is that marrying across the racial line is a cost, but interracial marriage with whites is a benefit to other (minority) ethnic groups because whites are assumed to be on top of the social hierarchy. In that respect, gender differences in outnarriage rates could come from different abilities of men and women from ethnic minorities to compensate for their "lower" social status. Indeed, men may be better able to do so, by having a higher socio-economic status, something that women could not do because they were mostly out of the labour force (at least at the time he proposed his theory). This explanation, however, fails to explain why Asian men are less likely than Asian women to intermarry with whites and why the gender asymmetry in the rates of intermarriage of blacks persists despite

---

[4]See the detailed discussion of Merton's exchange theory as well as some other explanations of interethnic marriage by Jacobs and Labov (2002).

increasing labor-force participation of women and despite black women currently attaining higher education than black men.

The economic theories of marriage go back to the seminal insights of Becker (1973, 1974). Becker models marriage as an equilibrium outcome in which the spouses maximize their well-being which, crucially, includes consumption of household or relationship specific goods that cannot be purchased in the market – such as love, companionship, producing and raising children and so on. In the original work, utility is perfectly transferable such that the equilibrium on the marriage market maximizes the aggregate marital output. A key issue in Becker's analysis is whether the spouse inputs (or characteristics) are complements or substitutes. If they are complements, then the market will generate positive sorting (the 'likes' marry), if they are substitute, the market will generate negative sorting. In the context of race, one could argue that the inteherent heterogeneity of mixed marriages may generate positive returns to the spouses and their children, for example by equiping them with additional linguistic skills or by helping them integrate (as argued above). But on the other hand, the cultural (including religious) and linguistic differences between the spouses may lower their utility from marriage and may come at a cost.

The literature has also identified important attitudes and preferences regarding traits of potential partners. Given that marriage is an equilibrium outcome, it is challenging to identify the preferences driving the equilibrium. A few recent papers have used actual choices in a dating setting to shed light on the mechanisms driving the choice of a partner (see Fisman et al., 2006, 2008, Hirtsch, Hortacsu and Ariely, 2006, 2008, and Belot and Francesconi, 2006). The evidence strongly suggests that people prefer a partner of similar age, educational background, ethnicity and culture, and both men and women prefer a relationship where the man is taller than the woman. These studies find also that attractiveness is important for both males and females. They indentify, however, important differences in preferences across genders. Hirtsch et al. (2006, 2008) find that women put more emphasis on the potential partner's income, Fisman et al. (2006, 2008) find that women care more about intelligence, and Belot and Francesconi (2006) interpret women's greater preference for taller partners as evidence that women care more about the partner's affluence (since height is correlated with economic wellbeing during childhood).

Higgins et al. (2002) use survey data on reported preferences along age, education and height, among university students in the UK and China. They find that both Chinese and UK students are much more likely to express preferences stipulating that "husband should be taller" and "husband should be older": 92 percent of Chinese female students and 78 percent of British females prefer a taller partner and 72 percent of Chinese women prefer him to be older, compared to 44 percent for UK females. These preferences are also present among men, although to a smaller extent: 50 percent of Chinese males prefer their partner to be shorter and 45 want a younger partner, compared with 43 and 14 percent, respectively of UK males who express such preferences. Asymmetries seem to be present along the education dimension as well. Women prefer a husband who is at least as educated as themselves (this is true for 63% of British women and 71.6% of Chinese women). Chinese men also have preference for a partner that is at most as educated as them (62.3%), while British men either do not care (50.6%) or

prefer someone with the same or higher level of education (40.2% and 7.9% respectively).

Note that there is little work though attempting to explain ethnic-specific gender asymmetries (although those have been noted repeatedly in the literature). One exception is a paper by Jabobs and Labov (2002), who argue that war brides explain part of the gender asymmetry in intermarriage rates in the US: some of the Asian women married to whites are the wives of ex-servicemen stationed in Japan or Korea. Once they control for this effect, the differences in intermarriage rates across ethnicities shrink but do not disappear. Thus, the existence of war brides seems to be also part of the puzzle.

3   Interethnic marriages in the UK and the US

Interethnic marriages are generally a rare occurence. Despite increasing heterogeneity of modern Western societies such as the UK, endogamy is still the rule[5]. According to the UK 2001 census (see Tables 1-2), 97 percent of the majority (white British) men and women had a spouse of the same ethnicity (the share of endogamous marriages would be even higher at 98 percent if white British and white Irish were counted as a single group and 99 percent if all whites are taken together). Among ethnic minorities, South Asians, with between 91 and 95 percent of their marriages being endogamous and with small differences across genders, represent an exception rather than the rule.

For the remaining groups, we observe striking gender-specific differences in the propensity to intermarry. Black women are more likely to be in endogamous marriages than males of the same group: 75 and 82 percent of black Caribbean and black African women, respectively, have a spouse of the same ethnicity whereas the same holds only for 68 and 76 percent of black Caribbean and black African men. The opposite pattern prevails among Chinese: 71 percent of women have a Chinese husband, compared with 86 percent of men who have a Chinese wife. Exogamy figures illustrate the dramatic differences in propensities to marry out across genders even better: 23 percent of Chinese women in the UK have a white British husband, compared with 9 percent of Chinese men who have a white British wife. Hence, a Chinese woman is more than twice as likely to marry a white person than a Chinese male. The diffences in exogamy for blacks are less dramatic but still substantial. The rates of exogamous marriage with ethnic groups other than whites are much smaller, except for black Africans and black Caribbeans marrying each other or other blacks or blacks marrying a person of mixed white/black ancenstry (to conserve space, figures for mixed races and for other blacks are not reported in Tables 2-3).

US statististics are similar (see Tables 3-4). Again, most whites, 98 percent, live in endogamous marriages. Black men and Asian women are more likely to intermarry with whites than the opposite gender. Specifically, 96 percent of black women have endogamous marriages compared with 92 percent of black males, and 80 percent of Asian women versus 93

---

[5]This holds not only for interethnic marriage but, as documented by Bisin et al. (2004), also for religious intermarriage.

Table 1: Distribution of marriages by ethnicity: males (% of total marriages)

Female ethnicity	Male ethnicity							
	White British	White Irish	Indian	Pakist.	Bangl.	Black Carib.	Black African	Chinese
White Brit.	96.58	56.15	4.53	3.47	2.06	22.13	10.11	9.07
White Irish	0.91	38.67	0.33	0.18	0.10	0.81	0.57	0.50
Indian	0.11	0.29	91.56	1.48	0.95	0.53	0.73	0.27
Pakist.	0.03	0.05	0.72	91.66	0.70	0.11	0.53	0.10
Bangl.	0.01	0.01	0.20	0.26	94.56	0.03	0.06	0.07
Bl. Carib.	0.10	0.24	0.11	0.07	0.05	67.53	4.53	0.10
Bl. African	0.05	0.16	0.11	0.20	0.08	1.62	76.31	0.04
Chinese	0.11	0.21	0.11	0.06	0.07	0.12	0.11	85.98
All	100	100	100	100	100	100	100	100

Source: Census UK, 2001

Table 2: Distribution of marriages by ethnicity: females (% of total marriages)

Male ethnicity	Female ethnicity							
	White British	White Irish	Indian	Pakist.	Bangl.	Black Carib.	Black African	Chinese
White Brit.	97.20	57.69	4.24	1.95	1.31	15.30	9.51	22.81
White Irish	0.85	36.92	0.18	0.06	0.03	0.55	0.45	0.66
Indian	0.11	0.53	91.27	1.32	1.01	0.43	0.51	0.58
Pakist.	0.05	0.16	0.82	93.06	0.70	0.15	0.52	0.19
Bangl.	0.01	0.03	0.19	0.26	94.62	0.04	0.08	0.07
Bl. Carib.	0.16	0.37	0.15	0.06	0.04	74.63	2.22	0.19
Bl. African	0.06	0.21	0.17	0.22	0.07	3.94	82.11	0.13
Chinese	0.04	0.12	0.04	0.03	0.05	0.06	0.03	71.22
All	100	100	100	100	100	100	100	100

Census UK, 2001

Table 3: Distribution of marriages conditional on male ethnicity
(percentage of total marriages)

	Male ethnicity			
Female ethnicity	White	Asian	Black	Other
White	97.80	6.48	6.61	46.24
Asian	1.03	92.81	0.79	3.54
Black	0.23	0.22	91.57	1.99
Other	0.94	0.48	1.04	48.23
All	100	100	100	100

Source: US Census bureau (2006)

Table 4: Distribution of marriages conditional on female ethnicity
(percentage of total marriages)

	Female ethnicity			
Male ethnicity	White	Asian	Black	Other
White	98.06	17.11	2.85	43.95
Asian	0.34	80.47	0.15	1.18
Black	0.56	1.10	96.45	4.09
Other	1.04	1.32	0.56	50.77
All	100	100	100	100

Source: US Census bureau (2006)

percent of Asian men. Again, the disparity is especially striking for Asians: with 17 percent of Asian women married to whites, they are almost three times more likely than Asian males to intermarry with whites.

The populations of the various ethnic groups in the UK differ not only in their relative weights within the British society but also in their composition and average socio-economic characteristics, as Table 5 illustrates. The gender composition of the different ethnic groups differs substantially. For the white British, women outnumber men by 8 percent (considering only those aged 16 and over). For some ethnic minorities such as blacks, the female/male ratio is much higher; this is especially the case of black Caribbeans and other blacks. On the other hand, the populations of Pakistanis, Bangladeshis and especially other Asians have an excess of males, especially relative to the ratio observed for whites. The Chinese, finally, differ little from the whites in their female/male ratio.

The various ethnic groups possess also different socio-economic attributes such as education. There is, however, a clear correlation across genders from the same ethnicities. Among non-white ethnic groups, Chinese and Indian men and women are among the most educated, while Pakistani, Bangladeshi and Black Caribbeans are at the bottom of the distribution. There is a notable difference between Black Africans and Black Caribbeans, the former being twice less likely to hold a university degree than the latter.

Table 5 Basic statistics by ethnic groups and gender							
	Population aged 16 and above			University degree (%)		Mean height in cm (std dev)	
	M	F	F/M	M	F	M	F
British White	19,454,964	21,079,873	1.08	18.1	16.1	175.3 (7.3)	161.6 (6.8)
Irish White	305,187	345,474	1.13	23.4	25.0	174.2 (6.8)	161.4 (6.5)
Other White	562,356	664,530	1.18	19.7	21.8	n.a.	n.a.
Mixed	160,670	176,877	1.10	21.9	19.6	n.a.	n.a.
Indian	400,306	410,738	1.03	29.7	20.7	170.2 (7.0)	156.4 (6.3)
Pakistani	245,440	240,621	0.98	15.0	9.7	172.1 (7.9)	157.8 (6.1)
Bangladeshi	87,612	86,645	0.99	11.0	4.7	167.8 (7.2)	154.7 (6.2)
Other Asian	105,445	83,591	0.79	23.3	18.8	n.a.	n.a.
Black Caribbean	204,503	245,995	1.20	11.3	14.6	175.2 (7.4)	162.8 (6.7)
Black African	160,291	178,536	1.11	23.6	17.4	173.5 (6.9)	163.0 (6.5)
Other Black	27,510	32,914	1.20	13.9	16.3	n.a.	n.a.
Chinese	94,282	103,863	1.10	32.9	28.8	170.8 (7.4)	157.9 (6.0)
Any other	79,464	105,442	1.33	22.6	18.5	n.a.	n.a.
Source	UK Census 2001					Health Survey for England 2004	

Table 1: Table Caption

Based on these numbers and in the light of the theories put forward by Becker and Merton and discussed above, we should expect black Caribbean women to display a higher propensity to intermarry with whites than their ethnic male counterparts: there is an excess of black Caribbean women in the UK who also are on average more educated than black Caribbean men. We should similarly expect Indian, Pakistani and Bangladeshi men to marry out more often than women because of their numerical supremacy, while Indian and Chinese rates of exogamy should be relatively high for both genders because of their high educational attainments.

Importantly, the patterns of intermarriage differ strikingly from the predictions formulated above based on gender composition and educational endowment of ethnic groups. The patterns observed for blacks (and especially for black Caribbeans) and for the Chinese thus defy both conventional wisdom and predictions of theories formulated within sociology or economics.

To help explain these puzzles, the last two columns of Table 5 add data on average heights by ethnic group and gender. Black males are essentially as tall as white men and black women are even slightly taller than white women whereas the Chinese, Indians, Pakistanis and Bangladeshis are relatively short. Again, there is a clear correlation in the distribution of physical stature within ethnic groups and across genders. Given the revealed preferences of men and women concerning their partner's height, anthropometric characteristics therefore promise to be a crucial element of our attempt to make sense of the observed patterns of interethnic marriage.

4 Descriptive analysis using the LFS

The goal is to explain ethnic-specific gender asymmetries in the propensity to marry out. We start with an analysis based on the Labour Force Survey household datasets. The Labour Force Survey (LFS) household datasets are produced each spring and autumn from the corresponding quarter's individual-level LFS data. The household datasets include a number of new derived variables at household and family unit level. We use two quarters per year from 2002 up to 2007 (last quarter of 2007 included). In total, we have 12 quarters. Typically households will be kept in the survey for five consecutive quarters. We use the most recent wave only for households appearing more than once. The LFS includes important information on socio-economic characteristics of respondents, such as their education level and occupation. There is no information on anthropometric measures though.

4.1 Summary statistics

We use the variable *ethcen15* for ethnicity. The LFS distinguishes 15 different ethnicities. We group some ethnicities together because we presume they are culturally close and because we have a relatively small number of observations in some sub-groups. We group together "Whites" and "Other Whites" and "Black Caribbeans" and "Other Blacks". Also, we define as exogamous a relationship where there is no common ethnic background. Hence, those from mixed races, such as "White and Black African" will be coded as endogamous if they are partnered either with a White or with a Black African. According to this definition, those with a mixed ethnicity can never be in an exogamous relationship with a white partner (the number of mixed race individuals who do not have white ancestry is negligible) and will therefore not be included in the analysis of intermarriage. Since we are interested in explaining ethnic-specific gender asymmetries in marriage rates with whites in particular, we exlude all the other types of exogamous relationships. They represent a very small number of observations anyway.

Table 6 shows the frequency of exogamous relationships by ethnicity and gender (we report both the percentages and the nubmer of observations for each category). We include all relationships where the couples live together, either as spouses or cohabitees (in the latter case, we keep only those who report they are living as a couple).We find a very similar pattern as with the census data. The proportion of exogenous relationships is very small for Pakistani and Bangladeshi (less than 5% both for men and women); it is around 8% for Indian men and women. "Other Asians" and "Chinese" display a much propensity for exogamy exogamous relationships among women (35% and 38% for other Asians and Chinese, respectively) than men (18% and 16%). Finally, Black Caribbean men have the largest proportion of intermarriage: almost 40% live with a white woman. The proportion is much smaller (but still substantial) for Black Caribbean women, 26% of them are in exogamous relationships. Black Africans show the same gender pattern but the shares are smaller. 16% of Black African men and 11% of Black African women are in exogamous relationships.

Looking only at those who were born or grew up in the UK, we see higher exogamy rates but their variation across ethnicities and genders follows the same underlying pattern. Hence, the ethnic-specific gender asymmetries do not seem to be driven predominantly by *imported*

Table 6: Frequency of mixed marriages (in all marriages)				
	All		UK born or arrived before age 16	
	Men	Women	Men	Women
Indian	8.03%	8.09	19.46%	20.18%
	235	237	87	110
Pakistani	4.80	2.38%	10.46%	3.35%
	87	42	32	15
Bangladeshi	2.37%	1.28%	19.23%	8.97%
	15	8	5	7
Other Asian	17.65%	34.99%	65.12%	54.05%
	137	344	28	20
Black Caribbean and Other Blacks	39.14%	26.32%	55.16%	39.35%
	411	225	246	146
Black African	15.62%	10.55%	32.43%	15.29%
	144	92	36	13
Chinese	16.39%	37.80%	69.35%	75.34%
	80	248	43	55

Source : Labour Force Survey 2002-2007 (biannual).

preferences and/or characteristics.

4.2   Who is marrying whom?

To get a deeper insight into the determinants of intermarriage, we investigate who is marrying whom. We present simple logistic regressions where the dependent variable distinguishes whether the relationship is exogamous or not and the regressors are ethnicity dummies interacted with a dummy for exogamous relationship. The goal is simply to see whether those who are in exogamous relationships are positively or negatively selected along socio-economic attributes and age. We report separate estimates for each gender. Tables 7 and 8 show the results. We find a striking pattern among men. Asians are all positively selected in terms of education, especially Chinese. In contrast, black Carribeans and black Africans are not; in fact, black Africans in exogamous relationships are significantly less likely to be university educated than their endogamous counterparts. Furthermore, exogamous black Carribeans and black Africans tend to be younger.

For women, we find similar positive selection on education among almost all groups, the most notable exception being black Africans. Furthermore, this positive selection appears strongest among Indians.

Next, we look at the characteristics of the whites who intermarry. We regress the difference between the ethnic-minority individual's characteristics and the characteristics of their white

Table 7: Probability of exogamous relationship with whites (men)

	Indians		Pakistani		Chinese		Other Asians		Black Car.		Black Afr.	
Higher educ.	-.02	(.34)	.79	(.53)	1.74	(.72)**	.43	(.45)	-.39	(.30)	-.31	(.36)
Univ. degree	.37*	(.20)	.81	(.36)**	1.34	(.44)†	.60	(.31)**	-.30	(.26)	-.86	(.30)†
Prof./manag.	.31	(.21)	-.27	(.36)	.49	(.45)	-.02	(.32)	-.19	(.22)	.44	(.30)
Skilled/n.man.	.31	(.27)	.15	(.45)	.88	(.55)	-.01	(.37)	-.18	(.22)	-.15	(.32)
Age band	.05	(.05)	-.02	(.08)	.36	(.11)†	.06	(.07)	-.02	(.05)	-.13	(.08)*
Age arrival	-.05	(.01)†	-.03	(.02)	-.08	(.02)†	-.10	(.01)†	-.05	(.01)†	-.10	(.02)†
Born in UK	-.17	(.41)	.13	(.67)	-.76	(.88)	-1.40	(.83)	-.64	(.47)	-2.97	(.77)†
Constant	-2.04	(.65)†	-2.31	(.95)†	-3.91	(1.34)†	1.40	(.83)	1.19	(.72)	3.50	(.86)†
N. Obs.	2112		1358		355		566		711		689	

Standard errors in parentheses, *, ** and † denote 10%, 5% and 1% significance levels, respectively.

Table 8: Probability of exogamous relationship with whites (women)

	Indians		Pakistani		Chinese		Other Asians		Black Car.		Black Afr.	
Higher educ.	.50	(.28)			.15	(.30)	.93	(.39)**	.10	(.26)	-.06	(.39)
Univ. degree	1.13	(.19)†	.85*	(.46)	.48	(.23)**	.69	(.25)†	.64	(.24)**	-.10	(.36)
Prof./manag.	.62	(.22)†	1.79	(.55)†	.24	(.27)	.62	(.29)**	.07	(.26)	.40	(.41)
Skilled/n.man.	.89	(.19)†	2.22	(.47)†	-.44	(.21)**	1.19	(.27)†	-.38	(.21)	.36	(.32)
Age bands	.08	(.05)	.10	(.11)	.09	(.04)**	.15	(.06)†	-.05	(.06)	.11	(.08)
Age arrival	-.06	(.01)†	-.05	(.02)**	-.01	(.01)	.00	(.01)	-.02	(.01)	-.05	(.02)**
Born in UK	-.85	(.37)**	-1.69	(.75)**	.21	(.53)	1.62	(.55)†	-.09	(.51)	-1.63	(.85)*
Constant	-2.14	(.57)†	-3.58	(1.08)	-.87	(.46)	-2.53	(.61)†	.01	(.74)	-1.19	(.82)
N. Obs.	2293		1416		750		509		636		699	

Standard errors in parentheses, *, ** and † denote 10%, 5% and 1% significance levels respectively

Table 9: Differences in characteristics between ethnic minorities and their white partners
Ordered probit regressions (all sample)

| | Education differential | | | | Occupation differential | | | | Age differential | | | |
	Men		Women		Men		Women		Men		Women	
Black Carib.	-	-	-	-	-	-	-	-	-	-	-	-
Indians	-.11	(.13)	-.25	(.12)**	-.05	(.16)	-.24	(.14)*	.13	(.12)	.20	(.12)**
Pakistani	.11	(.17)	-.09	(.22)	-.06	(.25)	.10	(.26)	.18	(.16)	.28	(.21)
Bangladeshi	-.32	(.41)	-.22	(.54)	-.10	(.49)	-.61	(.58)	.17	(.37)	-.49	(.49)
Chinese	.25	(.18)	-.53	(.12)†	-.18	(.21)	-.16	(.15)	-.11	(.17)	.38	(.12)†
Other Asians	-.02	(.14)	-.28	(.11)**	.15	(.18)	-.15	(.14)	-.01	(.14)	.35	(.11)†
Black Afr.	-.03	(.14)	-.33	(.17)*	.26	(.17)	.19	(.21)	-.05	(.13)	.81	(.17)†
N. Obs	776		995		538		669		795		1031	
Pseudo R-sqrd	.23		.25		.20		.10		.03		.05	

The dependent variable is a discrete variable equal to 1 if own characteristic is higher than
the partner's, 0 if it is the same and -1 if it is lower. All regressions control for education
dummies, age and occupational dummies, Standard errors are between brackets, *, **
and † denote 10%, 5% and 1% significance levels respectively

partner along three dimensions: education, occupation and age on own characteristics.[6] We estimate ordered probit equations where the dependent variable is either 1 (own characteristics higher), 0 (own characteristics equal) or -1 (own characteristics lower). The results are reported in Table 9. We find no systematic differences in the characteristics of white female partners, conditioning on the etnic-minority men's characteristics (columns denoted 'men'). White male partners differ, however, depending on whom they marry. Indian, Chinese, other Asian and also black African women tend to attract white men who are more educated than them – contrary to the pattern observed for black Caribbean women. And black Caribbean women tend to be significantly younger than their white partners, at least to a greater extent than the women belonging to other ethnic minorities.

In summary, we find that interracial marriages involve mostly more educated men and women, except for black men, and for white men who marry black Caribbean women.

5   Asymmetric preferences and intermarriage

We now provide more insight in the role of asymmetric preferences in explaining intermarriage. Asymmetric preferences offer a promising route to explain gender asymmetries because, as we have discussed earlier, attributes tend to be correlated within ethnicity. For example, both Asian men and women are shorter than whites on average. Asymmetric preferences offer therefore a more promising route than homogamic preferences (preferences for similar attributes) to solve the puzzle of ethnic-specific gender asymmetries. To give the best chance to these socio-

---

[6]Education and occupation are measured by categorical variables, whereby higher values indicate higher education or skill level. Age is reported also as a categorical variable (age bands) rather than the actual value.

economic characteristics, we will consider the implications of asymmetric preferences along education as well, and investigate whether they could explain asymmetries.

We propose to construct a measure of the proportion of acceptable partners in the white and own populations respectively, given the individual's own attribute (height or education). Acceptable partners are those who satisfy the rule "male's attribute is at least as high as the female's attribute."

Suppose for simplicity that x is the only attribute that matters for future spouses. Denote by $F_j(x)$ the corresponding distribution function of attribute x in the female population of ethnicity j and $M_j(x)$ the distribution function of attribute x in the male population of ethnicity j. So, suppose for example that people only care about height and have a preference for "husband taller than wife". Denote by $F_k(x)$ and $G_k(x)$ the respective distributions of the attribute in the female and male populations of ethnicity k. Then, the proportion of acceptable mates of ethnicity j for a woman of attribute x_f is equal to: $(1 - G_j(x_f))$ and the proportion of acceptable mates of ethnicity j for a man with attribute x_m is $F_j(x_m)$. If we have individual information on x, we can calculate individual-specific shares of acceptable partners.

For women, the proportion of acceptable men with ethnicity j, conditional on ethnicity k equals:

$$\int (1 - G_j(x))f_k(x)dx$$

and for men:

$$\int (F_j(x))g_k(x)dx$$

Other important implications are, conditionally on gender groups of identical sizes within ethnicity:

- When $F_i(x)$ and $M_i(x)$ stochastically first-order dominate $F_j(x)$ and $M_j(x)$ respectively, the probability that groups i and j intermarry should be higher for females of ethnic group i than males.of group i, and reversely for group j.

- Among the populations with relatively low mean value of x, the average value of those intermarrying should be higher than among those in homogamous marriages.

5.1   Predictions based on the UK census and Health Survey for England

We first calculate the proportions of acceptable partners using aggregate data. We use information from the 2001 UK census on relative population sizes and education distribution, and from the Health Survey for England (2004) on the height distributions.

Table 10 shows the results. We find that black Caribbean men do indeed have a larger share of acceptable partners among whites than women, whereas the opposite is true for Asians (and substantially so). Black African men and women, on the othe hand, should face relatively equal shares of acceptable partners. If we calculate the proportion of acceptable partners based on the education distribution, we find very different predictions. We find that among all ethnic groups, women have better prospects to outmarry than men. Chinese and Indian men

Table 10:.Percentage of acceptable partners (%)						
	Height			Education		
	Own ethnicity	White women	White men	Own ethnicity	White women	White men
Whites	92			61.7		.62
Black Caribbeans	89.3	91.5	89.7	51.0	53.5	61.0
Black Africans	86.6	89.5	89.6	65.5	59.5	65.0
Indians	92.9	81.7	97.5	62.7	61.1	64.2
Pakistani	92.4	84.8	96.7	66.2	47.5	75.5
Bangladeshi	91.6	74.2	98.4	72.3	39.3	82.8
Chinese	91.2	82.6	96.7	63.6	60.2	62.2

are closest to women, and so should be relatively more likely to outmarry than both Black, Pakistani or Bengladeshi men. Thus, based on this simple exercise, height does a much better job at explaining ethnic-specific gender asymmetries than education.

5.2   Evidence based on the Millenium Cohort Study

We now present evidence based on micro data using the Millenium Cohort Study (MCS). The MCS is based on a sample of babies born in the year 2000. It reports information on parents of around 18,000 babies and oversampled ethnic minorities. The main respondent is a woman (in 99.9% of the cases). Crucially, the data include information on ethnicity for the main respondent and the main respondent's partner .We have data on 13,066 couples with ethnicity information on both the respondent and respondent's partner and where one of the partners is white. These include 414 mixed couples (if we considered also mixed marriages where none of the partners is white, the number of mixed couples would increase to 560). 240 of these couples involve a white woman and a non-white man, 174 involve a white man and non-white woman.

We now examine how much of the ethnic-specific gender differences in propensities to outmarry can be explained with asymmetric preferences. We introduce the proportion of acceptable partners as additional controls and see whether, indeed, they reduce the gender differences in outmarriage across ethnicities.

The results are shown in Table 11. The first column only includes ethnicity and gender, interacted. The results confirm what we have found before: Black caribbean women are substantially less likely to outmarry than women from other ethnicities, in particular Indians and Chinese. Column (2) controls for the proportion of acceptable partners based on the respondent's height. Column (3) controls for the proportion of acceptable partners based on the respondent's education. The results are quite striking. While controlling for acceptable partners on the education dimension improves little in terms of explaining intermarriage, controlling for the proportions of acceptable partners based on height makes an important difference. We find that the ethnic differences in outmarriage rates shrink, while they remain almost identical when we control for acceptable partners based on education. These results suggest that height

Table 11: Determinants of the propensity to outmarry with a white (probit regressions)
Marginal effects

Marginal effects	(1)		(2)		(3)	
Black Caribbeans	-		-		-	
Indian	-.15	(.04)***	-.09	(.05)**	-.15	(.04)***
Pakistani	-.23	(.05)***	-.20	(.04)***	-.23	(.05)***
Bangladeshi	-.12	(.02)***	-.09	(.02)***	-.12	(.02)***
Other Asian	-.12	(.02)***	-.11	(.01)***	-.12	(.02)***
Black Africans	-.04	(.06)	-.03	(.07)	-.05	(.06)
Chinese	-.09	(.01)***	-.08	(.01)***	-.09	(.01)***
Female	-.08	(.04)**	-.07	(.03)**	-.08	(.04)**
Indian x Female	.04	(.04)	-.02	(.05)	.04	(.05)
Pakistani x Female	.08	(.05)*	.04	(.05)	.08	(.06)
Bangladeshi x Female	.06	(.06)	-.04	(.07)	.06	(.08)
Other Asian x Female	.20	(.06)***	.13	(.06)**	.20	(.06)***
Black African x Female	-.09	(.07)	-.10	(.07)	-.09	(.08)
Chinese x Female	.20	(.08)**	.13	(.08)	.20	(.08)***
Acceptable white partners (height)			.35	(.12)***		
Acceptable partners own ethnicity (height)			-.16	(.32)***		
Acceptable white partners (education)					-.01	(.01)
Acceptable partners own ethnicity (education)					.00	(.02)
Share own ethnicity	-2.98	(.40)***	-2.89	(.39)***	-2.99	(.40)***
N. obs.	1362		1362		1362	1362
Pseudo R-squared	.22		.24		.20	

does indeed explain a large proportion of the puzzle. And indeed, the variables controling for the shares of acceptable partners based on the height rule predict outmarriage in the direction we would expect: the larger the share of acceptable white partners and the lower the share of acceptable partners from one's own ethnicity, the higher the probability of outmarrying. On the other hand, the proportions of acceptable partners based on education have an estimated coefficient close to 0 and insignificant.

Finally, we compare mean heights of those who intermarry to those who intramarry. A straightforward implication of a "height-rule" is that those who are from ethnic groups who are on average shorter and intermarry with whites should on average be taller than those who marry within their own ethnicity. This is true both for men and women.

Tables 12-13 presents mean heights of men and women, per ethnicity and type of relationship. Let us look at women first. The positive selection into exogamous relationships is observed for all ethnicities, with the exception of Chinese. The pattern is especially striking for Bangladeshi women: those in exogamous relationships are on average 6.5 cm taller than their endogamous counterparts. Exogamous black Caribbean and Indian women also stand

Table 12: Mean height of women from ethnic minorities (cm)				
Ethnicity	All	Endogamous	Exogamous	Difference
Black African	163.0	165.1	165.8	+0.7
Black Caribbean	162.8	164.4	167.6	+2.8
Bangladeshi	154.7	156.1	162.6	+6.5
Pakistani	157.8	160.6	160.9	+0.3
Indian	156.4	159.2	161.3	+2.1
Chinese	157.8	161.1	160.7	-0.4

Table 13: Mean height of men from ethnic minorities (cm)				
Ethnicity	All	Endogamous	Exogamous	Difference
Black African	173.5	176.1	177.2	+1.1
Black Caribbean	175.2	176.3	176.0	-0.3
Bangladeshi	167.8	168.7	171.7	+3.0
Pakistani	172.1	174.6	173.8	-0.8
Indian	170.2	173.5	175.6	+2.1
Chinese	170.8	171.2	172.7	+1.5

out by. Moving on to men (Table 13), we again see positive selection according to height into exogamous marriage. Exogamous Bangladeshi men again deviate most from their endogamous counterparts although the difference is not as striking as for Bangladeshi women. Exogamous Indian and Chinese men also tend to be taller. Exogamous and endogamous black Caribbeans are little different – which is not surprising given that black Caribbean men are on average the same height as whites. Obviously, this could be due to a correlation between height and other socio-economic characteristics, since we have shown for example that Asians who inter-marry tend to be more educated than those who intramarry. In Table 14, we regress height on ethnicity and a dummy variable distinguishing whether the respondent is in an exogamous relationship (with a white person) or not and we show the effect of including socio-economic characteristics as additional controls. We find that the positive selection on height is even stronger once we control for socio-econonomic attributes.

Tables 15-16 present mean heights of whites depending on their spouse ethnicity. The general pattern is perfectly in line with what we would expect. In particular, white women married to black Africans and especially black Caribbeans tend to be taller than endogamous white women while those married to Chinese and Indian men tend to be shorter. White men married to black Africans are taller than endogamous whites (although we do not observe a similar pattern for those married to black Caribbean women) and those married to Bangladeshi women are substantially shorter.

Table 14: Height, ethnicity and intermarriage (cm)

	Men				Women			
	(1)		(2)		(3)		(4)	
Intermarry	1.32	(.81)	1.38	(.81)*	2.45	(.99)**	2.54	(.99)**
Black Caribbean	-		-		-			
Indian	-1.33	(.94)	-1.44	(.96)	-4.32	(.95)†	-4.98	(.97)†
Pakistani	-.39	(.97)	-.56	(1.01)	-3.34	(.97)†	-3.93	(1.01)†
Bangladeshi	-5.51	(1.13)†	-5.66	(1.15)†	-8.75	(1.14)†	-9.42	(1.19)†
Chinese	-3.70	(1.85)**	-3.86	(1.86)**	-4.35	(1.63)†	-4.85	(1.61)†
Other Asian	-2.46	(1.33)*	-2.28	(1.34)*	-4.86	(1.26)†	-5.25	(1.26)†
Black African	1.01	(1.08)	1.05	(.93)	1.60	(1.13)	1.13	(1.14)
Controls for age, education and occupation	No		Yes		No		Yes	
N	822		822		833		833	
R-squared	.07		.07		.13		.13	

Table 15: Mean height of white women (cm)

Spouse's ethnicity	All	Endogamous	Exogamous	Difference
Black African	161.4	164.2	165.3	+1.1
Black Caribbean	161.4	164.2	166.6	+2.4
Bangladeshi	161.4	164.2	164.8	+0.6
Pakistani	161.4	164.2	164.2	+0.0
Indian	161.4	164.2	161.1	-3.1
Chinese	161.4	164.2	162.1	-2.1

Table 16: Mean height of white men (cm)

Spouse's ethnicity	All	Endogamous	Exogamous	Difference
Black African	175.3	178.4	184.6	+6.2
Black Caribbean	175.3	178.4	177.3	-1.1
Bangladeshi	175.3	178.4	171.7	-6.7
Pakistani	175.3	178.4	177.1	-1.3
Indian	175.3	178.4	176.7	-1.7
Chinese	175.3	178.4	178.3	-0.1

6   Conclusion

We investigate the determinants of ethnic-specific gender asymmetries in intermarriage rates. Both in the UK and in the US, we observe a larger propensity to outmarry among black men than black women, while the reverse is true for Asians, in particular Chinese. We show that this pattern cannot be explained by socio-economic attributes such as education or occupation. Using data from the Labour Force Survey for the period 2002-2007, we show that intermarriage occurs mainly among more educated people, except for black men marrying whites and white men marrying black Caribbean women. These results suggest there are other factors increase the attractiveness of Asian in comparison to black Caribbean women , and of black Caribbean men in comparison to Asian men.

We show that a simple preference for "husband must be taller than wife" helps explain these gender asymmetries. Blacks are taller than Asians on average, and this alone could explain the ethnic-specific gender asymmetries in propensities to intermarry. We provide empirical support of this hypothesis using data from the Health Survey for England (2004) and the Millenium Cohort Study (2000). We find that the height preference rule is a very good predictor of the probability of outmarrying, in contrast to a preference rule based on education.

These results deepen our understanding of social and cultural integration of ethnic minorities in Western societies. Furthermore, they also point out a previously unrecognized implication of large immigration flows: they can potentially alter the sex ratio on the marriage market – and in turn the bargaining power of the two genders – even if their gender composition is roughly balanced. For example, a large inflow of East Asians (and Chinese) immigrants to the UK or the US will effectively increase the marriage-market opportunities, and the bargaining power, of white men relatively to white women.[7] And, rather ironically, the relaxation of laws or social norms against interethnic marriages[8] may implicitly increase the relative bargaining power of one gender in comparison to the other; and may even disadvantage some ethnic-minority individuals (in particular black women) in the marriage market. It would be worthwhile to investigate what are the implications in terms of household behaviour and distribution of resources within the household.

References

[1] Akerlof, G. and R.E. Kranton (2000). "Economics and Identity," *Quarterly Journal of Economics* (August), 715-753.

[2] Becker, G. (1973). "A Theory of Marriage: Part I," *Journal of Political Economy* 81 (4), 813-846.

---

[7]Future research will show whether the large influx of Polish and other Eastern European migrants to the UK will have also have an asymmetric effect on the UK marriage market.

[8]The most notable example of this is the repeal of antimiscegenation laws in the US following the Supreme Court ruling on *Loving vs Virginia*.

[3] Becker, G. (1974). "A Theory of Marriage: Part II," *Journal of Political Economy* 82 (2), S11-S26.

[4] Belot, M. and M. Francesconi (2006), "Can Anyone be 'The One'? Evidence on Mate Selection from Speed Dating," CEPR Discussion Paper No. 5926, Centre for Economic Policy Research, London.

[5] Bisin, A., G. Topa and T. Verdier (2004), "Religious Intermarriage and Socialization in the United States," *Journal of Political Economy* 112 (3), 615-664.

[6] Buunk, A.P., J.H. Park, R. Zurriaga, L. Klavina, and K. Massar (2008). "Height Predicts Jealousy Differntly for Men and Women," *Evolution and Human Behavior* 29, 133-139.

[7] Fisman, R., S. Iyengar, E. Kamenica and I. Simonson, "Gender Differences in Mate Selection: Evidence from a Speed Dating Experiment," *Quarterly Journal of Economics* (May 2006), 673-697.

[8] Fisman, R., S. Iyengar, E. Kamenica and I. Simonson (2008), "Racial Preferences in Dating," *Review of Economic Studies* 75, 117-32.

[9] Fryer, R. (2007), "Guess Who's Been Coming for Dinner? Trends in Interracial Marriage over the 20th Century," *Journal of Economic Perspectives* 21(2), 71-90.

[10] Glowsky, D. (2007), "Why Do German Men Marry Women from Less Developed Countries? An Analysis of Transnational Partner Search Based on the German Socio-Economic Panel," *SOEP Papers on Multidiscriplinary Panel Data Research* No. 61, DIW Berlin.

[11] Higgins, L., M. Zheng, Y. Liu and C.H. Sun (2002), "Attitudes to Marriage and Sexual Behaviors: A Survey of Gender and Culture Differences in China and the United Kingdom," *Sex Roles* 3/4, 75-89.

[12] Hirtsch, G., A. Hortaçsu and D. Ariely (2006). "What Makes You Click? Mate Preferences in Online Dating," MIT Sloan Working paper 4603-06.

[13] Hirtsch, G., A. Hortaçsu and D. Ariely (2008). "Matching and Sorting in Online Dating," University of Chicago, mimeo.

[14] Jacobs, J.A. and Labov T.G. (2002), "Gender Differentials among Sixteen Race and Ethnic Groups," *Sociological Forum* 17(4), 621-46.

[15] Kalmijn, M. (1998), "Intermarriage and Homogamy: Causes, Patterns, Trends," *Annual Review of Sociology* 24, 395-421.

[16] Kantarevic, J. (2004), "Interethnic marriages and Economic Assimilation of Immigrants," *IZA Discussion Paper 1142.*

[17] Merton, R.K. (1941). "Intermarriage and the Social Structure: Fact and Theory," *Psychiatry* 4, 361-374.

[18] Meng, X. and R. Gregory (2005), "Intermarriage and the Economic Assimilation of Immigrants," *Journal of Labor Economics* 23(1), 135-76.

[19] Meng, X. and D. Meurs (2006), "Intermarriage, Language and Economic Assimilation Process: A Case Study of France," *IZA Discussion Paper* 2461.

[20] Merton, R. (1941), "Intermarriage and the Social Structure: Fact and Theory," *Psychiatry* 4, 361-74.

[21] Sailer, S. (1997), "Is Love Colorblind?," available at http://www.isteve.com/IsLoveColorblind.htm.

[22] Steckel, R. (1995). "Stature and Standard of Living," *Journal of Economic Literature* 33 (4), 1903-1940.

[23] Van Ours, J. and J. Veenman (2008), "How Interethnic Marriages Affect the Educational Attainment of Children: Evidence from a Natural Experiment," *IZA Discussion Paper* 3308.