# Hypergamy Revisited: Marriage in England, 18372021 

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Gregory Clark and Neil Cummins

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# Hypergamy Revisited: Marriage in England, 1837-2021 

Gregory Clark, University of Southern Denmark, Danish Institute for Advanced Study, LSE, and CEPR
Neil Cummins, LSE and CEPR

It is widely believed that women value social status in marital partners more than men, leading to female marital hypergamy, and more female intergenerational social mobility. A recent paper on Norway, for example, reports significant female hypergamy, even today, as measured by parental status of men and women in partnerships. Using evidence from more than 33 million marriages and 67 million births in England and Wales 1837-2022 we show that there was never within this era any period of significant hypergamous marriage by women. The average status of women's fathers was always close to that of their husbands' fathers. Consistent with this there was no differential tendency in England of men and women to marry by social status. The evidence is of strong symmetry in marital behaviors between men and women throughout. There is also ancillary evidence that physical attraction cannot have been a very significant factor in marriages in any period 1837-2021, based on the correlation observed in underlying social abilities.

Keywords: Hypergamy, marital assortment, female social mobility JEL: J10, J12, J16, J62

Studies of partner preferences in marriage in recent years find differences in desired mate characteristics between men and women. Women prize social status in the mate more highly, and men prize physical attributes including youth (Bokek-Cohen, et al., 2007, Hadfield and Sprecher, 1995, Zentner and Mitura, 2012).

It is believed that these differences in mate preferences are longstanding and led to systematic female marital hypergamy, even in recent years (Geary et al., 2003, Almås et al., 2023).

Women, it is claimed, typically married men who were older and of higher social status than their own families. Correspondingly men married women who were younger and of lower social status. On average women "married up", and men "married down."

In order, however, for these preference differences to produce on average hypergamous marriages for women there have to be ancillary conditions other than a straight pairing of all men with all women in marriage. A one-to-one pairing of all men and women would entail that the family status of men and women on average would be equal in marriage, no matter gender difference in partner preferences.

For the average female marriage to be hypergamous we need conditions such as low status men being less likely to marry, and/or high status women being less likely to marry. In some earlier societies this outcome was created by a surplus of males in the population and also polygyny, where all women married but lower status men were excluded. Thus pre-industrial Chinese demographic and marriage patterns have been argued to produce female hypergamy. While all women married, there was a surplus of males from female infanticide, so that low status men were not able to find brides. Exacerbating this shortage of brides for poorer men was the practice of richer men of taking multiple wives, or concubines. Hypergamy was the norm (Ebrey, 1991).

If, as in England or Norway, there are equal numbers of men and women, and also monogamy, we can still get hypergamy if the unmarried are drawn from the top of the female family status distribution, and from the bottom of the male. ${ }^{1}$ This is the outcome Almås et al., 2023, detect for modern Norway where they find that female partnering frequencies are higher for lower family-status women. Note, however, that Almås et al. count people as partnered both if they are formally married, but also if they are registered as joint parents of a child. Couples who cohabit informally but do not produce children thus will not be counted as partnered.

[^0]In this paper we examine the extent of hypergamy for marriages in England 1837-2023 using two new sources. The first is a new database of 1.7 million marriages in England 18372021 which records the occupations of the fathers of both bride and groom, as well as the ages of bride and groom. Here we can measure with great accuracy the extent of hypergamy by period 1837-2021. The second source is population register data on marriages and births by surname, 1912-2007. Since for rarer surnames we can assign an average status by surname, based on house value by surname in 1999, we can test whether average surname status of grooms exceeded that of wives. Further, given the rising importance of non-marital unions, we can also test whether children had fathers of higher surname status than for their mothers.

With these databases we show, for England, the following:
(1) There is no significant hypergamy by women in English marriage throughout 1837 2021, as measured by bride and groom fathers' occupational status, or by bride and groom surname house value.
(2) Women show no more social mobility in their marital pairings than do men. Across the parent status distribution, women match to men in just the same way as men match to women.
(3) Across the family status distribution male and female marriage rates are the same. There is no differential tendency to marry across family status for women compared to men.
(4) There is ancillary evidence that in England 1837-2021 the physical appearance of women was a modest determinant of matching in marriage. The underlying matching on social abilities was high and constant at 0.8 1837-2021. Such a high correlation would not be possible if men valued physical appearance in women strongly, and this was uncorrelated with social abilities.

## Data Sources

Marriage Registers, 1837-2021. From 1837-2023 a marriage certificate in England and Wales, whether the marriage was performed in a church, or a registry office, gives:
(1) marriage date and place
(2) names of the bride and the groom, their ages, their marital condition (single/divorced/widowed), their "rank or profession", and their residences at the time of the marriage
(3) names and "rank or profession" of their fathers
(4) signatures or marks of the bride, groom, and witnesses

Figure 1 shows examples of such a certificate, which has been used unchanged 1837-2023, from both 1837 and 2020.

The UK government now has such records of around 106 million marriages 1837-2023 from England and Wales, with the associated details. However, it costs by statute $£ 11$ to obtain a copy of any marriage certificate from the government, and the copy is delivered by mail as a paper reproduction of the government's copy of the marriage certificate. Since copies of the marriage certificates were kept in church registers, and many of these registers have since been deposited in local record offices, these provide an alternative source for marriage records.

The marriage certificates available in record offices exclude Civil Marriages in registry offices. But though Civil marriage was introduced in England in 1837, such marriages remained a minority of all weddings before 1914. In 1841 Civil marriages were $1.7 \%$ of all marriages, and in 1914, still only $24 \%$. Thereafter there were increasing numbers of civil weddings, as church attendance declined, but also as divorce rates increased. Until recently divorcees were rarely granted permission to be remarried in the Church of England. So 31\% of weddings were civil by $1952,49 \%$ by 1982 and $68 \%$ by 2012. However for first marriages by 1995 only $40 \%$ were civil, and for 2012 63\% civil (Haskey, 2015).

Thus the available marriage records will give an unbiased picture of the hypergamous nature of marriage 1837-1914. But there will be potential bias from the increasing omission of civil marriages as we go from 1914 to 2023.

Figure 1: The English Marriage Certificate 1837-2023


The Freereg Organization of genealogy volunteers has been digitizing and placing on the web marriage records for a number of years. From their web site we were able to collect 1.7 million marriage records in England 1837-2010. ${ }^{2}$ However, because of the genealogical interests of its members, the Freereg volunteers mainly digitized the marriage records from before 1940. Thus for the years 1940-2021 we supplemented these records with a set of marriage records from Essex, where the traditional county of Essex conveniently includes

[^1]both parts of what is now London, as well as rural areas. Thus for the years 1980-2021 we have 4,758 marriage records from the Freereg web pages, and an additional 10,757 records from our own collection from Essex. Table 1 summarizes the data we have available on marriages 1837-2023 from the complete register entry. ${ }^{3}$

Table 1: Parish Register Marriage Data, 1837-2023

| Marriage <br> Period | All | Groom <br> Occupation | Bride <br> Occupation | Father <br> Occupation | Father-in- <br> law <br> Occupation |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| $1837-59$ | 540,650 | 450,905 | 70,032 | 413,638 | 411,789 |
| $1860-79$ | 365,465 | 310,321 | 42,146 | 294,935 | 295,259 |
| $1880-99$ | 336,124 | 285,405 | 42,870 | 253,004 | 273,058 |
| $1900-39$ | 343,344 | 283,040 | 63,397 | 242,408 | 273,831 |
| $1940-79$ | 66,636 | 61,454 | 39,380 | 52,986 | 54,405 |
| $1980-2021$ | 15,515 | 12,288 | 10,653 | 10,659 | 10,912 |
|  |  |  |  |  |  |
| All | $1,663,478$ | $1,401,806$ | 198,446 | $1,266,052$ | $1,317,687$ |
|  |  |  |  |  |  |

Because transcribing these marriage records is a volunteer effort based on local interests, the numbers of marriages recorded by county for the years 1837-1940 vary considerably. Four counties contain about $50 \%$ of the marriages transcribed for England: Kent, Lancashire, Lincolnshire, and Staffordshire. But these counties were distinct from each other in terms of occupations and urbanization, so that the sample generated seems representative of England as a whole.

[^2]Note in table 1 that the amount of occupational information for women is much less than for men until after 1980. Many women had no listed occupation, or such non-informative occupations as "at home". And the women reporting no occupation are from high social status families in the early years, and then from lower status families in the later years.

If we take, for example, women marrying 1837-79 whose fathers had occupational status scores of 75 (out of 100 ) and higher, only $1 \%$ have an occupation listed. In contrast, in the same period for fathers with an occupational status score of less than $25,12 \%$ of brides had occupations listed. This problem of the selective absence of female occupations is found all the way until 2021. But in the later years the tendency for absence switches towards women of lower socioeconomic status. Thus for marriages 1980-2021 daughters of fathers with occupational status above 75 report an occupation $95 \%$ of the time, but daughters of fathers with occupational status less than 25 report an occupation only $60 \%$ of the time. These selective omissions will bias the observed correlations between brides and grooms, fathers and fathers-in-law. In contrast, male occupations are universally reported, and will give unbiased estimates.

To rank occupations we used an association index constructed from the marriage data to maximize the father-son and father-in-law son occupational status correlations rankings for marriages 1837-1939.4 For marriages 1940-2021 we assigned occupational scores using the CAMSIS 1990 scores, which are based on a $1 \%$ sample of British households in the 1991 UK census. ${ }^{5}$

## Marriage and Birth Register Data

Marriages, 1912-2007

We compiled a database of all 30,769,942 marriages in England and Wales, 1912-2007. This was created by downloading the individual index entries from two websites: freebmd.com (1837-1980) and familysearch.org (1980-2007). The number of records collected match the expected number from official sources. For marriages in this interval, the marriage index

[^3]contains the full name of both bride and groom. By assigning status to rarer surnames we can test for hypergamy in marriage. We can also test whether women show more social mobility through marriage than men. Further we can estimate the relatively likelihood of men and women across the surname status distribution entering marriage.

## Births, 1912-2007

We similarly compiled a database of all 67,670,339 births in England and Wales 19122007 using the sources as above. In these years the birth index always contains the birth surname of the mother. If the child has a different surname to that of the mother, then that will be the surname of the father. Thus for the great majority of births 1912-2007 we observe both mother and father surname.

Since in recent years many people cohabit without formal marriage, this gives an alternative measure of assortment in partnering, though one that depends on fertility. We can again test for hypergamy in such unions. We can what is the relatively likelihood of men and women across the surname status distribution entering such unions.

## Surname Status, 1999

We assign an average status to each surname in England and Wales using the Electoral Register of 1999. This register was a complete register of all voters, including detailed addresses for each voter. ${ }^{6}$ These addresses can be linked to the land registry to estimate average house values, from sales, by postcode for sales 1995-2005. Since there are 1,758,312 postcodes in the UK this estimate typically covers less than 20 houses. Average house value by postcode (in 2017 prices) ranged from $£ 8,000$ to $£ 24,000,000$ with a pronounced right skew. Thus for

[^4]each surname we estimate average $\log$ housing value in 1999, as an index of the social status of that surname. ${ }^{7}$

For both marriages and births throughout the years 1912-2007, surname status correlates across bride and groom, as figure 2 shows, as well as across mothers and fathers. That correlation rises as surnames become more rare. The surname contains more information about the average social status of its holders the rarer is the surname. In what follows we trade off information content of surnames and sample size by concentrating on surnames which appear 10-500 times on the 1999 electoral register. For marriages we find 1.8 million in England and Wales 1912-2007 where both parties had surnames in this size range.

Figure 2: Correlations of Surname Status in Marriage, by Marriage Decade


Notes: Derived from 30.8 million marriages, 1912-2007.

[^5]
## Average Bride and Groom Family Status

For the 1.7 million parish marriage records we can measure average occupational status for the fathers of both brides and grooms. In this dataset there is no significant hypergamy by women in English marriage throughout 1837-2022. Overall matching is on average that of social equals, as measured by father occupational status for both bride and groom. This is shown in table 2 . Grooms have a slight advantage in status, which is statistically significant, but not quantitatively significant. At its maximum for marriages 1900-39 the groom family status is one point higher than the bride family status. But this is on a hundred point scale with an average of 35 . The average woman had little gain in their social circumstances through marriage. By 1980-2021 the brides are marrying grooms of on average lower family status than the brides, though again by small amounts.

As noted, while this parish register data is largely representative of marriages as a whole for the years 1837-1914, thereafter it becomes a steadily smaller share of all marriages. So for the years 1912-2007 the general marriage index provides a more comprehensive measure of hypergamy. As noted, here we measure family background by the average log surname house value in 1999. Table 3 shows by decade the difference in average groom surname log house value minus average bride surname log house value for all registered marriages 1912-2007, by decade. Since the status measure is log house value, this difference represents a percentage difference in average house value, groom surname minus bride. As table 3 shows the difference in average $\log$ house value averages $0.2 \%$. In the decades of the 1980 s to 2000 s it becomes slightly negative.

Since we have in the house value measure an attenuated measure of family status for each individual, an average across holders of their surname, the actual differences in status will be greater than estimated in table 3. However, figure 2 shows that the degree of attenuation will be modest. For the estimated correlation between spouses in status is around 0.30 for names in the 10-500 range. Given the true correlation in spouse family status will be 0.5 or less, this implies that the true difference in average status will be at maximum double the measured, using this measure. That implies differences in average house value still typically be less than $0.4 \%$ for the families of marital partners.

Table 2: Marriage Database, All Marriages, 1837-2021

| Marriage <br> Period | Number | Status Groom's <br> Father | Status Bride's <br> Father | Difference | Standard <br> Error <br> Difference |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| $1837-1859$ | 393,339 | 31.61 | 31.35 | $0.25^{* *}$ | 0.025 |
| $1860-1899$ | 622,826 | 32.85 | 32.37 | $0.48^{* *}$ | 0.019 |
| $1900-1939$ | 209,335 | 35.75 | 34.79 | $0.97^{* *}$ | 0.032 |
| $1940-1979$ | 40,193 | 41.68 | 41.32 | $0.36^{* *}$ | 0.086 |
| $1980-2021$ | 12,113 | 51.96 | 52.34 | $-0.39^{*}$ | 0.176 |
|  |  |  |  |  |  |

Note: Status rank of father ranges 0-100.

Table 3: Female Hypergamy in Marriages, England, 1912-2007

| Decade | Difference <br> Grooms-Brides | $-95 \%$ confidence <br> interval | +95\% confidence <br> interval |
| :---: | :---: | :---: | :---: |
| $1912-9$ | $0: 004$ | $0: 002$ | $0: 007$ |
| $1920-9$ | $0: 005$ | $0: 003$ | $0: 007$ |
| $1930-9$ | $0: 005$ | $0: 003$ | $0: 007$ |
| $1940-9$ | $0: 005$ | $0: 004$ | $0: 007$ |
| $1950-9$ | $0: 002$ | $0: 000$ | $0: 004$ |
| $1960-9$ | $0: 003$ | $0: 001$ | $0: 005$ |
| $1970-9$ | $0: 003$ | $0: 002$ | $0: 005$ |
| $1980-9$ | $-0: 001$ | $-0: 003$ | $0: 001$ |
| $1990-9$ | $-0: 002$ | $-0: 004$ | $-0: 000$ |
| $2000-7$ | $-0: 001$ | $-0: 004$ | $0: 001$ |

Notes: Measured as decadal averages. Based on 31 million marriages in England, 1912-2007

Table 4: Female Hypergamy among Parents, England, 1912-2007

| Decade | Difference <br> Grooms-Brides | $-95 \%$ confidence <br> interval | +95\% confidence <br> interval |
| :---: | :---: | :---: | :---: |
| $1912-9$ | $0: 006$ | $0: 003$ | $0: 008$ |
| $1920-9$ | $0: 004$ | $0: 002$ | $0: 006$ |
| $1930-9$ | $0: 003$ | $0: 001$ | $0: 005$ |
| $1940-9$ | $0: 006$ | $0: 004$ | $0: 008$ |
| $1950-9$ | $0: 002$ | $-0: 000$ | $0: 004$ |
| $1960-9$ | $0: 002$ | $0: 000$ | $0: 004$ |
| $1970-9$ | $0: 007$ | $0: 005$ | $0: 009$ |
| $1980-9$ | $0: 009$ | $0: 007$ | $0: 011$ |
| $1990-9$ | $0: 010$ | $0: 008$ | $0: 013$ |
| $2000-7$ | $0: 006$ | $0: 003$ | $0: 008$ |

Notes: Based on 67.8 million births in England, 1912-2007

A feature of modern partnerships, however, is that many couples never formally get married, even when they raise children together. ${ }^{8}$ So an alternative measure of hypergamy comes from looking at the relative family status of fathers versus mothers. Note, however, that this measure excludes childless married and unmarried couples. ${ }^{9}$ In about $1 \%$ of births the child surname is the same as the mother's. This can be because the father has the same surname as the mother, because the parents give the child the surname of the mother, or because the father is not listed on the birth certificate. Given this ambiguity we exclude such cases from the calculation of hypergamy.

[^6]Table 4 shows hypergamy by decade 1912-2007 measured at the level of parents. Again there is a slight tendency to female hypergamy, but with a measured average log house value difference of $0.55 \%$ or less between groom's family and bride's. If we correct for attenuation in the surname status measure these differences would be magnified, but still likely no more than $1 \%$, and so quantitatively insignificant.

The slightly greater measured hypergamy at the level of births compared to marriages would potentially be explained by lower surname status women having higher fertility. Women at the bottom of the surname distribution will typically have partners of higher social status, so if such women are overrepresented in the birth data we would get an appearance of hypergamy even though at the partnership level there may be no such effect. ${ }^{10}$

## The Nature of Marital Sorting

Tables 2-4, show no significant female hypergamy in marriage or partnerships in England 1837-2021. But could there still be a difference in marital matching between men and women, of the form shown in Figure 5? Could high status women be marrying down more than men, and low status women also marrying up more than men? That is, could we find a situation such as in figure 3, where there was no difference in average status for men and women at marriage, but a different slope connecting their family status with that of their partner?

One situation we might think could create this would be if men sought both status and physical attractiveness in women in marriage, but physical attractiveness was equally distributed in women across the family status spectrum. While the average family status of husbands would still be the same as for wives, that would potentially lead women to experience more regression to the mean in marriage partner social status, and consequently more social mobility.

However, the intuition in the paragraph above is incorrect. Even if men value physical appearance and women do not, this will create a status match between men and women that

[^7]Figure 3: Hypothetical Male/Female Marital Matching

is symmetrical to that between women and men if all men and women marry. It is true that this will reduce the correlation in family status between marital partners, but with symmetrical effects on both sides of the marriage market.

To see this let $y_{g}, y_{b}$ be the social status of grooms and bridges, assumed mean 0 and the same variance. For grooms $y_{g}$ alone measures their rank on the marriage market. However, assuming grooms value in brides also physical appearance, measured as a random shock $u$, mean 0 , independent of bride social status. Brides' marital ranking is then

$$
x_{b}=\varnothing\left(y_{b}+u\right)
$$

where $\emptyset<1$ is chosen such that $\sigma_{y_{b}}^{2}=\sigma_{x_{b}}^{2}$. If we now match brides and grooms in marriage so that $y_{g}=x_{b}$, then we have $y_{g}=\emptyset\left(y_{b}+u\right)$. In this case if we regress $y_{g}=b y_{b}$, and alternately regress $y_{b}=c y_{g}$ then the expected value of b will be the same as for c .

$$
E(\hat{b})=\varnothing=E(\hat{c})
$$

Despite the asymmetry in ranking between men and women, the only effect of men also ranking by physical appearance is to create both for men and women just the same increase in regression towards the mean in marital partners social status.

For there to be a difference in the matching across family status, there has to be a different partnering rate across the family status distribution for men and women. But that difference will result in a difference in average family status by women versus men, which we do not see in the data in tables 2-4.

With either the parish register database, or the larger register data, we can confirm that there is no evidence of greater regression to the mean in marriage by women as compared to men. If we analyze for men and women the status of their spouse's father relative to that of their own father, we see exactly the same relationship across the status distribution. This is shown in figure 4, for marriages 1837-59. Women with fathers of status rank 97, for example, marry men whose fathers have an average status rank of 83 . But the same is true for men with fathers of this rank, and the average status of their wives' fathers.

Figure 4: Occupational Status, Father-in-Laws, men and women, by decile, 1837-59


Note: The horizontal axis shows average father status for men and women by status decile. The vertical axis shows the average father-in-law status.

Figure 5: Surname Status, men and women, by decile, marriages 1980-2007


Note: Measured for marriages where bride and groom surname has a frequency 10-500 in the 1999 electoral register.

Figure 6: Surname Status, men and women, by decile, births 1980-2007


Note: Measured for marriages where bride and groom surname has a frequency 10-500 in the 1999 electoral register.

For the most recent years, marriages or births 1980-2007, figures 5 and 6 show similarly by decile of surname status, for surnames of frequency 10-500 in the 1999 electoral register, the average partner surname status as a function of men's or women's surname status (by deciles). As can be seen, for marriages the slopes for men and women are the same. For births, you can see in figure 6 that the distribution of surname status for mothers is lower than for fathers. Correspondingly the slope of the line connecting mother status with father status is slightly flatter than that connecting father status with mother status. But again these differences are modest.

## Marital Propensity by Family Status, Men and Women

Consistent with the evidence of equivalent family status on average for men and women in marriage, and even in parenting, in England 1837-2021, there is no evidence of gender differences in marital propensity by family status. From the parish register data, relative marriage rates were the same for men and women all across the social spectrum, as measured by their fathers' occupational status. This is shown in figure 7 for church marriages 1837-59. The figure shows the share of all marriages by men and women with a given father status. There may be differences in the propensity to marry by father status, but figure 7 shows that the relative propensity to marry for men and women was equal across the father status distribution. The same constant relative propensity to marry is also shown in figure 8 for recent church marriages, 1980-2021.

The general marriage register shows a similar equal propensity for men and women to marry all across the surname status distribution, 1912-2007. This is illustrated in figure 9, for marriages in the years 1980-2007. Note, however, that if we look 1980-2007 at the surname status of the parents of newborns, then we do see a higher propensity for childbirth among mothers with a lower surname status, consistent with the evidence above. Notice, however, in table 4 that this corresponds to a very modest measured degree of hypergamy among mothers and fathers for births by decade 1980-2007. Fathers have a surname status, as measured by house value, which is $0.8 \%$ higher than for mothers.

Figure 7: Percent of Marriages for men and women by father status, 1837-59


Note: Father status by decile on scale 0-100.

Figure 8: Percent of Marriages for men and women by father status, 1980-2021


Note: Father status by decile on scale 0-100.

Figure 9: Marital Frequency by Surname Status, Men, Women, England, 1980-2007


Notes: Based on 232,104 marriages in England and Wales, 1980-2007 with surname frequency in 1999 of 10-500 for both groom and bride.

Figure 10: Parent Frequency by Surname Status, Men, Women, England, 1980-2007


Notes: Based on 500,223 births in England and Wales, 1980-2007, with surname frequency in 1999 of 10-500 for both child and mother.

## England Versus Norway

The constancy across the status spectrum of male and female marriage rates in the recent years 1980-2021 in England is surprising in light of the just published paper on hypergamy in Norway (Almås et al., 2023). This reports partnering rates for men to be higher for higher family status, but roughly constant for women across family status. The consequence is that Norwegian women had a $4-5 \%$ lower partnering rate in the top decile of family income compared to the bottom decile (Almås et al., 2023, Figure 1, p. 268). Also higher status men in Norway had more multiple partnerships than do higher status women. Thus there are more male partnerings from high status families, and more female partnerings from low status families.

A curiosity of the Norwegian data, however, is that if we look at the overall family status of men and women in the sample it is 50.6 (on a scale 1-100). For those who formed partnerships we do see a difference, but a tiny one. Table 1 in Almås et al., 2023, shows that for men who formed partnerships average family earning rank was 51.6 , while for women it was 51.2.

## Conclusion

There is good evidence that women value status more, and physical appearance less, than do men in forming marriages. Yet the popular belief that this produces significant female hypergamy in marriage is incorrect. In England all the way from 1837 to 2021 we find that female marital hypergamy was extremely modest. The average difference between men and women in marriage in terms of their family status was modest and at times non-existent. In terms of family status, matching in marriage was nearly symmetrical between men and women. The male preference for physical attraction would be predicted to reduce the correlation between marital partners in family status. But this was the same effect for women as compared to men.

As noted above, if men prize physical attributes in mates which are uncorrelated with family status then the correlation of status in marriage will decline. However there is ancillary evidence that the importance of physical attributes in forming matches must always have been modest. In a related paper we estimate the correlation of underlying social abilities for brides and grooms in marriage in England as constant at around 0.8 1837-2021 (Clark and Cummins, 2022). This very strong correlation implies that the importance for men in making a match of
physical appearance must have been limited, or else physical appearance in women was strongly correlated with social abilities.

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[^0]:    ${ }^{1}$ There are some conceptual issues here, however. In a world where men have on average more education than women, and everyone marries, for example, the typical marriage will involve hypergamy in education for women, whatever the relative preferences of men and women. Thus studies which look at average educational status across partners are bound to find more hypergamy for women, where women have lower education levels on average than men.

[^1]:    ${ }^{2}$ https://www.freereg.org.uk/

[^2]:    ${ }^{3}$ There are 1,637,674 marriages 1837-2010 from Freereg. In addition there are 27,887 from 18372021 from Essex parishes, including some now part of London, we ourselves collected.

[^3]:    ${ }^{4}$ https://www.camsis.stir.ac.uk/hiscam/. See Lambert et al., 2013.
    ${ }^{5}$ https://www.camsis.stir.ac.uk/Data/Britain91.html. See Prandy and Lambert, 2003.

[^4]:    ${ }^{6}$ All voters in the UK were listed in the 1999 electoral roll. We extracted these records from a CDROM UK-Info Disk. 1999 was the last year that the complete, pre-opt-out, Electoral Roll was available. After 1999, registered voters could choose not to be reported on the public electoral roll. Our extraction method resulted in $31,551,398$ observations of surname, address, and post-code for 1999. While this is only $70 \%$ of the names on the roll, it represents $100 \%$ of any surname held by 500 people or less in the electoral roll.

[^5]:    ${ }^{7}$ We use the $\log$ housing value since house values are skewed and have a close to log normal distribution.

[^6]:    ${ }^{8}$ In 2021, for the first time, children born to mothers not married or in domestic partnerships were the majority of all births.
    ${ }^{9}$ It also excludes cases where the child is given the surname of the mother, or where the mother records no father on the birth certificate.

[^7]:    ${ }^{10}$ This explanation requires, however, that fathers do not show the same strength of decline in fertility with surname status. Otherwise these effects would cancel out with no appearance of hypergamy.

