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Gender contrasts in partner supply: marriage market estimates and their implications*

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Abstract

Marriage market estimates by sex and single years of age are made for the US and England and Wales in 1990-1991, using explicit data on age preferences. Availability is strongly differentiated by age and sex, being inversely associated with female age and positively with male age. Decomposition shows that young women are advantaged largely by age preferences while older men are advantaged by population age-sex and marital status structure. Most men marry at ages when partners are in short supply; this finding is examined in detail. Some implications for gender power relations through the life course are considered.

How many potential partners are available to men and women of varying ages and are there significant cross-national variations in availability? Although demographers and sociologists have a keen interest in the operation of marriage markets we have relatively few answers to these questions. A classic paper of two decades ago commented that "(s)surprisingly little effort has been expended on determining the relative supply of men and women in the "marriage market"" (Goldman et al. 1984) and this observation remains true. While research on local marriage markets has been active in recent years, local-level studies are more analytical than descriptive in purpose, and the facts of partner supply tend to go unreported. In this paper we turn the focus back on evaluating partner supply itself, presenting estimates of partner availability by age and sex for Britain and the US in 1990-1991. We pay particular attention to sex-differentials, address the question of validating the estimates, and explore a curious aspect of male marriage behaviour that emerges from the findings. We draw attention also to some implications of the results for gender relations across the life cycle.

Early studies of relative numbers were concerned particularly with the relationship of partner availability to marriage rates and used measures that were acknowledged to be fairly crude, being based on sex ratios of a greater or lesser degree of arbitrariness. (Goldberg 1965; Akers 1967; Hirschman and Matras 1971; Muhsam 1974). The Availability Ratio (AR) devised by Goldman et al.(1984) was a decided advance on these approximate indicators, both in incorporating a wider range of acceptable age matches and in making a sophisticated allowance for competition. The AR was defined, in the female case, as the number of suitable men for a particular woman divided by the average number of suitable women available for that woman's suitable men, with suitability specified primarily in terms of age, but also with respect to education. A difficulty with this measure, however, is that the total number of potential partners obtained by summing the availability ratios for each sex is not, in general, equal to the total number of unmarried people of the opposite sex available in the population. This difficulty was resolved by a further development of the AR, proposed by Lampard

(1993). Lampard's Iterated Availability Ratio (IAR) has exactly the same rationale as the original Goldman et al. AR, but is specified in such a way that the sum of the IARs for each sex is equivalent to the number of potential partners of the opposite sex, clearly a desirable property. This is the indicator used in the present study, and details of the specification are given in a later section. The last decade or so has seen a vigorous expansion in research on local marriage markets. A wide variety of measures of relative numbers have been employed in local marriage market research, most involving sex ratios of one kind or another (e.g. Lichter et al 1991, 1992; South and Lloyd 1992; Wood 1995; Raley 1996; Lewis and Oppenheimer 2000; Blau et al. 2000)[1]. Extensive investigation has shown that, for black populations in US metropolitan areas, various specifications of the sex ratio are closely correlated, and some are moderately highly correlated with measures of the prevalence of marriage and of family structure (Fossett and Kiecolt 1991). Comparable analyses of white populations seem not to exist.

MEASUREMENT

Iterated Availability Ratio

Ideally, measurement should begin with a clearly defined concept that is operationalised and validated in a systematic way. This ideal cannot be met in the present case both because the concept of availability is not yet very clear, and because the data required to validate any measures proposed are not available. Partner supply is, ultimately, an individual-level concept and so we need to know how well existing indicators – availability ratios, sex ratios and related aggregate-level indicators (the aggregates being, generally, age groups) – summarise the partner supply of the *individual members* of

[1] Local marriage market studies deal overwhelmingly with female marriage. We have found over 20 such studies since the mid 1970s that examine the link between measures of relative numbers and marriage or fertility. Of these only two (Landale and Tolnay 1991, Lloyd and South 1996) consider male marriage, though several look at marital disruption and consider the potential supply of alternative partners for married men (South 1995, South and Lloyd 1995).

those aggregates. This is the ultimate form of validation required but it could be complex to carry out. Partner availability at the individual level might be quantified most straightforwardly via data collected from individuals on the frequency and structure by age, sex and marital status of their actual social encounters– a simple enough concept though not necessarily readily measured. The pool is, however, usually described in terms of partners potentially available. "Potentially" complicates the matter. Who are the potential partners available to an individual? – people they are ever likely to meet? those they might potentially meet? those they have a high probability of meeting? How would we operationalize the notions of potential or likely encounters? How could competition for partners be gauged from individual level data? Clarification is needed and could result in concepts that are difficult to measure directly.

In the absence of a definitive, well-validated direct measure of partner supply, our strategy is to use the indicator with the best theoretical rationale currently available, Lampard's (1993) refinement of the AR originally proposed by Goldman et al. (1984). We use the weighted version of the IAR given in Lampard's equation 3, the weights representing the joint suitability, on age grounds, of women and men of each age combination. Our estimates improve on those of Goldman et al. and Lampard by using direct measures of partner age preferences to represent age-suitability, thus dispensing with the need to infer age preferences from the age combinations occurring in actual marriages in an arbitrarily chosen year, a procedure that, as previous authors acknowledge, has in-built circularity (actual age combinations in a year result from a mix of preferences and age-sex structure in that year). The preference weights are calculated from a sample of 32,326 clients of a British dating agency in 1996, asked to specify the minimum and maximum age of partner, in single years, that they would be willing to consider. From this information the proportions by age and sex who would accept a partner of each single year of age were obtained: that is, we estimate, for all i and j, α_{ij} , the proportion of women aged *i* who would accept a man of age *j*, and β_{ji}, the proportion of men aged *j* who would accept a woman aged *i*. The λ_{ij} weights used in calculating the IAR and expressing the

suitability on age grounds of women aged i and men aged j, are the product of the male and female acceptance probabilities for corresponding ages: that is, $\lambda_{ij} = \alpha_{ij}\beta_{ji}$. We refer to the λ_{ij} as the joint preference of women aged *i* and men aged *j*. The IAR for woman *i*, IAR_i, is specified as the iterative solution to:

$$IAR_i = \sum_j \frac{\lambda_{ij} / IAR_i}{\sum_k \lambda_{kj} / IAR_k} \quad (1)$$

where the outermost summation extends over all male marriage market participants, and the summation in the denominator term extends over all women in the marriage market, in each case unmarried people aged 17-70. Because we characterise participants by age only, all individuals of each sex who are the same age have the same joint preference profile and, consequently, the same availability ratio. The availability ratio for man *j*, IAR_j, is specified correspondingly as:

$$\mathrm{IAR}_j = \sum_i \frac{\lambda_{ij} / \mathrm{IAR}_j}{\sum_m \lambda_{im} / \mathrm{IAR}_m} \quad (2)$$

Illustrating via the male case, the element of IAR_j within the summation corresponding to woman $\tilde{i}$ $\left(\lambda_{ij} / \mathrm{IAR}_j\right) \Big/ \sum_m \left(\lambda_{im} / \mathrm{IAR}_m\right)^{\sim}$ can be considered a measure of man *j*'s share of woman *i*, given their joint preference, the other women in the marriage market, and the competition for those other women, in the light of their and their potential partners' joint preferences (Lampard 1993). Man *j*'s share of woman *i* will be greater the greater their joint preference, the less numerous the other women available to him, the fewer his competitors for woman *i*, the lower his competitors' interest in woman *i* or hers in them, and the more alternative women are available to his competitors. Like its parent, the Goldman et al. Availability Ratio, Lampard's IAR is complex in construction and richer in conceptual underpinning than sex ratios, the principal alternative measure.

While the age preference data relate to the age range 18-60 it is necessary to extend the age range down to 17 and up to 70. Dating agency clients are aged 18 and above but some men specified 17 as the lower limit of their preferred partner age range. Because the weights we use are joint preferences, this meant that preferences had to be estimated for 17-year-old men and women. Weights were attributed to 17 year olds by assuming that their preferences were the same as those of 18 year olds, lagged by one year: that is, for women, the $\alpha_{17,j}$ were set equal to $\alpha_{18,j+1,}$ and missing male weights were attributed in the same way. Age preferences for ages 60-70 were attributed by a method described in a later section in an attempt to reduce the bias to availability estimates at older ages, largely 50-60, resulting from truncation of the age preferences at 60.

Definitions

We use the terms "supply" and "availability" interchangeably and define as in the marriage market those who are legally unmarried and are therefore legally in a position to marry. However, not all those who are unmarried are candidates either for marriage or for heterosexual relationships. Groups that are problematic are as follows:

(i) The proportions who are gay or lesbian would be expected to be higher among the unmarried but their inclusion is unlikely to bias our estimates very much. This is because the availability ratio is a measure of *relative* numbers and gay men will be offset to a large extent by lesbian women, these two groups having a similar age structure.

(ii) Also unavailable for marriage are unmarried people who are seriously ill or incapacitated and religious celibates. In the age range 17-60, the proportion can be assumed to be very small. Also both sexes are involved and are probably of similar age. For these reasons, their inclusion is unlikely to bias our measure.

(iii) Estimates of the marriage market could be based either on those formally unmarried, as in this paper, or on those not currently in a formal or informal partnership. The choice is arbitrary. Because of its relatively high prevalence in 1990-1991, unmarried cohabitation is potentially problematic but

in fact turns out to be less so than might be anticipated. In principle, cohabitors who are unmarried are in a legal position to marry and are therefore members of the (formal) marriage market. But, having already found a partner, they are not entirely available as potential partners for the unmarried who are not cohabiting. Nevertheless, cohabiting relationships are less stable than formal marriages (Prinz 1995, Table 4.15; Thornton 1988; Bumpass and Sweet 1989) and cohabitors report more new sexual partners in the past year than do married people (Johnson et al. 2001). So, cohabitors are likely to be more available as potential partners than are the married, and are not entirely outside the market for partners. More importantly, our partner supply indicator is a measure of *relative* numbers, and so it can be expected that unmarried cohabitors of each sex will offset each other to a large extent, with little net impact on the availability ratios. This is, indeed, what transpires in practice. Using 1995 Current Population Survey (CPS) data for the US and the 1991 Labour Force Survey (LFS) for Great Britain, availability ratios for the unmarried are found to be very close to those for the unpartnered (those neither married nor cohabiting). In the CPS, the difference is no more than 1% at ages under 40; at ages 40+, female IARs for the unpartnered are up to 3% lower than for the unmarried and male IARs up to 5% higher. The differences are slightly larger, but still small, in the British LFS of 1991, with, at all ages, female IARs for the unmarried up to 4% higher than for the unpartnered, and male up to 4% lower at ages under 40 and up to 6% lower at older ages.

(iv) The relatively high frequency of involvement with another partner prior to marital breakdown and the non-negligible frequency of rapid entry into either cohabitation or remarriage following separation/divorce indicates that some of the currently married are active in the (re)marriage market (South and Lloyd 1995, Table 1; Sweeney 2002). The exclusion from the pool of eligibles of those currently married people who are active in the marriage market could, in principle, bias our estimates. The bias would depend on how much their age-sex structure differs from that of the unmarried population and how far married men and women offset each other. We make no attempt here to

estimate their numbers by age and sex. Restricting estimates of availability to those currently in a position to marry formally is conceptually clearer.

Characteristics other than age

Many recent marriage market studies incorporate characteristics other than age as constraints on matching, notably education and economic status, particularly of men (Goldman et al. 1984; Lichter et al. 1992; South and Lloyd 1992; Qian and Preston 1993; Wood 1995; Raley 1996; Lewis and Oppenheimer 2000; Blau et al. 2000). However, we choose not to include additional matching factors (apart from race as we confine our US estimates to the white population) for two reasons. First, our objective is to estimate relative numbers in pure demographic terms. Evidence of long standing that marriage rates are positively associated with economic conditions (Yule 1906; Glass 1938; Galbraith and Thomas 1941; Oppenheimer 1994, 2000 and references; Oppenheimer et al. 1997) means that the marriageability of available potential partners in economic terms is a function of economic rather than of demographic conditions, our primary concern here. Potential marriage opportunities, and any constraints on these, resulting purely from numbers by age – demographic structure – should be distinguished from those grounded either in the economy or in social practices such as endogamy within social class, educational, ethnic, racial or religious groups. Second, information is lacking both on the nature of preferences for personal attributes such as education or employment status and on how rigid or flexible these are. We quite simply do not know how strong is the preference for assortative mating by educational level nor how acceptable potential partners with more or less education would be. Are e.g. people with no educational qualifications ruled out entirely, and even if that is the stated preference, are they ruled out in practice? The explicitly stated age preference data we use here reveal that age preferences are more flexible than is often assumed and also that sex differentials in age preferences are in some respects at variance with common supposition (Ní Bhrolcháin 2001). Directly measured preferences for other partner characteristics could differ

substantially from what is generally assumed. Besides, as we will see presently, the structure of age preferences has a strong effect on availability indices and so supply measures will be heavily influenced, in the absence of directly measured preferences for other attributes, by the assumptions made.

DATA

Age preference weights

Since the age-preference weights are a crucial influence on the availability ratios, we present summary information on them in Figure 1, a contour plot of the joint preferences of men and women (the $\lambda_{i,j}$) by male and female ages, 17 to 60. The white areas in the upper left and lower right sections of the graph represent combinations of ages for which the joint preference is zero. The strongest joint preferences (black shading) with $\lambda_{ij} \geq 0.9$ are found along an off-diagonal line representing women aged 25-34 and men three years older, with a few adjoining age combinations on either side[2]. Surrounding this area are pairs of ages having a joint preference in the range 0.8-0.9, this level extending from the mid-20s up to women in their late thirties combined with men in their late thirties and early forties. Thus, as anticipated, preferences are stronger for combinations of ages in which the man is older but, as detailed elsewhere, at ages under 30 this is influenced more by a disinclination on the part of women to accept younger men than by male reluctance to accept older women. Validation of the weights used is discussed in a later section.

[2] If preferences were symmetrical, a joint preference of ≥ 0.9 would imply that at least 95% of men/women of the ages in question would accept the potential partner, on age grounds. Preferences are, however, not generally symmetrical. Further details of these data are given in Ní Bhrolcháin (2001).

Notable in Figure 1 are the ridged outer contours, reflecting digit preference in declarations of the minimum and maximum preferred partner ages. In transforming the data by calculating the proportions by age and sex who would accept a partner of each age and obtaining the product of the corresponding male and female proportions, heaping diminishes and is seen primarily in a sharp drop in joint preference on one or other side (but not both) of ages ending in 0 and 5. We use the preferences as reported, rather than smoothing them since the iterated availability ratios are heavily influenced by the weights used, and this is revealed quite clearly by the estimates based on the unsmoothed weights. That influence would remain if the preferences were smoothed but it would be less apparent.

Weights expressing the preferences of women/men aged 60+ are unavailable because both clients' ages and the preferences are top-coded at age 60. Experiments with attributing preferences at ages 60-70 revealed however that omitting 60-70 year olds could result in substantial bias in the estimates of availability at ages 50-60, for both sexes. Accordingly, we have extrapolated the age preferences of each sex up to age 70, but report availability ratios only to age 60. Observed preferences of the 60+ age group were discarded, since the top-coding created a discontinuity with the pattern of preferences by age difference of people in their late 50s. The structure of age preferences by age difference at single year ages in the 50-59 age range was found to be very similar, and so preferences for a given age difference were obtained by averaging preferences at these ages, specific by age difference, in both sexes. Where preferences for very large negative age differences (partner younger by 43+ years) were unavailable, these were set to zero. Using the 50-59 age range, the maximum observed age difference preference was at +10 years (preferences of 50 year olds for a person aged 60+). Since a sizeable minority of women aged 50 (34%) would accept a man of 60+, it was necessary also to assign preferences for age differences of +11 and greater. These were obtained by averaging the corresponding preferences of people aged 45-49, with a cut off at an age difference of +15 years,

setting any unobserved preferences for age differences of +16 years to zero. This truncation is unlikely to introduce much distortion since the proportion of women aged 40-44 who would accept an age difference of 16 years is in the range 2.2%-4.7% and the corresponding figure for men no higher than 0.2%. These averages were assigned, specific by age difference, as the estimated preferences of and for partners aged 60-70.

Clearly the attribution of preferences at older ages means that the estimates of availability are less solidly grounded at older than at younger ages. At age 45, the revised availability ratios across all years examined in the study are between 1% and 4% higher (female) and between 1% and 3% lower (male) than the estimates obtained on truncating the age distribution at 60; the corresponding figures at 50 are +4% to +10% (female) and -7% to -11% (male). At older ages, the discrepancies are, of course, much larger. At 55 the revised estimates are 15-31% higher than the truncated versions (female) and 15-23% lower (male); at age 60, the ranges are +72% to +127% (female) and -30% to -42% (male). We believe that the estimates to about 50 are reasonably trustworthy but that beyond 50 they should be treated with caution, though there can be little doubt about the broad trends by age and sex.

Age sex distributions

The England and Wales data used are mid-year population estimates by sex, marital status and single year of age, 17-70, for 1991. These are rolled forward from the 1991 Census, the final figures for which are, in turn, based on a combination of demographic analysis (overall numbers) and the age-sex distribution of the enumerated population; they therefore incorporate adjustments for selective underenumeration by age and sex (Heady et al. 1994: chap. 5). For comparative purposes, we use US 1990 census data, drawn from the Integrated Public Use Microdata Series (Ruggles and Sobek 1997). Because the marriage market situation of the black population differs from the white, we confine the

sample to the white population, aged 17-70. The sample numbers by age, sex and marital status are adjusted for undercount by the factors given in Robinson et al. (1993: Table 3). Robinson et al's factors are for 5-year age-groups and are not specific by marital status and so these are applied to each single year age within 5-year-age groups without reference to marital status. We have also made estimates of partner availability for all 20th century census years for which data were available in England and Wales and the US, the results of which are reported elsewhere. We refer occasionally in this paper to selected findings from the historical series.

FINDINGS

Age pattern

The levels of partner supply by age and sex as assessed by the iterated availability ratio are given in Figure 2 for the US, 1990 and England and Wales, 1991. Partner availability peaks for women at very young ages (age 18 in these data) and declines thereafter. The opposite is true of men: the youngest men have the fewest potential partners available, but partner supply increases with rising male age. Availability for women reaches an average in 1990-1991 of 1.8-1.9 at age 18, remains above 1.0 until the early to mid 30s and by age 60 has declined to 0.45 (US) and 0.59 (E+W), though as noted earlier estimates of partner supply for women in their 50s depend heavily on the validity of our age preference assumptions beyond age 59. Among men average partner supply is 0.4 at age 17, reaches and goes above 1.0 at around 30 in the US and at 45 in England and Wales (though also, briefly, at age 30) and then rises to 2.0 (US) and 1.6 (E&W) by age 60. On these estimates, a 50-year old American man had around the same number of potential partners as an American woman of 20 in 1990, and, in Britain, a man of this age was in the same position as a 26 year old woman, in 1991. Partner supply for a white woman of 50 in the US in 1990 was, at 0.6 per woman, about on a par with the situation of a 20-year-old man, while in Britain in 1991 a woman of this age was, at 0.9 potential partners, level pegging with a 25 year old man. Partner availability is, thus, highly differentiated by age and sex, with a range by age of 1.3-1.4 potential partners per woman, and ranges of 1.2 and 1.6

partners per man in England and Wales and the US, respectively. The decline in partner supply with rising age for women and the increase in supply with age for men is common to other twentieth century census dates in both countries, though there is considerable variation through time in the precise ages at which partner supply for each sex reaches parity. Although not true of earlier periods, absolute levels of partner supply in the two countries are virtually identical in 1990-1991 for both sexes up to the mid-30s, but diverge at older ages. British women of 40+ had around 14-23 more potential partners per 100 available than their American counterparts in 1990-1991. The comparative position of older men is the reverse, with average partner supply for men of 40+ between 21-41 per 100 higher in the US than in England and Wales.

Sex differentials

In pure demographic terms, then, and taking these figures at face value, men and women of the same age encounter quite dissimilar levels of partner supply at most ages. In 1990-1991, average availability for women far exceeds that for men at younger ages and the reverse is true at older ages. In both countries in 1990-1991, unmarried women aged 20-24 had between 34% and 163% more potential partners on average than did men, and those aged 25-29 between 8% and 28% more. Among those aged in their 30s, partner supply for the two sexes was not greatly out of balance in England and Wales in 1991, with a female advantage of between 4% and 8%, but in 1990 in the US average partner availability for women in their mid-30s and above was well below that of men. From age 36 onwards in the US, and from 46 on in England and Wales, men had at least 15% more potential partners on average than did women, a male advantage that increased with age. Much the same is true throughout the twentieth century, although the ages at which partner supply becomes favourable to men varies through time. Adopting as a criterion of balance in the relative positions of the sexes that the ratio of female to male partner supply is in the range 0.95 to 1.05, partner supply has been in balance at relatively few single year ages over the course of the twentieth century in the two countries. At 14 of the 17 censuses from 1900-1991 in the US and England and Wales for which we

have estimated availability ratios, the ratio of female to male IARs was in the range 0.95-1.05 in no more than 3 single-year age groups in any year, at two dates this was true of 4 single years of age and at one (England and Wales 1990) partner supply was in balance between the sexes at 7 single year ages (Table 1). Not only has gender balance in marriage market position usually been confined to a restricted age range, gender balance occurs by and large at ages when the majority of women and men are already married. In Table 1 we see that in 11 (65%) of the 17 census years examined the male availability ratio does not reach within 5% of the female value before age 29, and in 7 census years (41%) gender balance, on the present definition, does not occur before age 35. In all, women have a decided advantage over men in relation to partner supply at the prime ages of both male and female marriage, even in some cases of poor female marriage markets. We return to this issue in a later section, having first examined, in the next section, the factors influencing the IAR.

Determinants of partner availability

What accounts for age and sex differentials in partner supply? Decomposition can answer this question in relation to demographic determinants. There are two inputs to the iterated availability ratio: the age preference weights and the age-sex distribution of unmarrieds. The age-sex distribution of the unmarried population can, in turn, be expressed as the product of overall age-sex structure and the proportions unmarried by age and sex. Of these factors, the preference weights are a major influence on the profile of partner availability by age and sex at ages under about 35. This is shown by calculating availability ratios by age and sex for a population with a rectangular age distribution, thus removing the effect of population structure. The results are plotted in Figure 3. The weights being the sole influence on the pattern of availability in Figure 3, age preferences clearly account for the basic age pattern of decline from abundant supply at young ages for women, and for the increase from low values at young male ages, since both of these features would be present even if there were no differences by age and sex in population numbers. Between the mid 30s and the late 40s, preferences for both men and women remain fairly level at around parity, but with a slight female

advantage. By the late 50s, age preferences per se create a small female disadvantage, and a corresponding male advantage – but the pattern at these later ages is, of course, heavily influenced by the extrapolated preferences beyond age 60. Based purely on age preferences and with no effect of population age-sex structure, female availability ranges from a low of 0.91 at age 60 to a high of 1.66 at age 18 and male supply from 0.41 at age 17 to 1.10 at 60. For comparison, the minima and maxima for women in the US 1990 and England and Wales 1991 are 0.45-1.81 and 0.59-1.88, respectively, and for men 0.4-2.01 and 0.38-1.58, respectively. Young women benefit from the structure of preferences both because joint preferences at young female ages are high over a wide range of male ages and because young women have little competition from older women for the young men of their own age, or a little older, who interest them. The opposite is true of young men, who are doubly disadvantaged by the more restricted range of female ages over which joint preferences are high, and by competition from older men for the young women who both interest them and would accept somewhat older men[3]. With rising age, men progressively favour larger age differences, but this appears to produce little pure preference-based advantage in their 50s because of competition for women in their 50s from older men – assuming, of course, that the assigned preferences are accurate.

The difference between the actual availability ratios for the unmarried and those obtaining in a rectangular age structure measures the effect on availability ratios, beyond age preferences, of the overall age-sex distribution and of structure by marital status and is plotted in Figure 4A; the overall structural effect is further decomposed into an effect due to age-sex structure and one attributable to

[3] Among women 18-24, the average joint preference across male ages 18-35 is between 0.28 and 0.39 and the standard deviation is in the range 0.29-0.31; the corresponding averages for young men of 18-24 in the range 0.05-0.29, just barely overlapping the female range, and standard deviations are also lower at 0.14-0.32.

marital status composition, shown for women and men in Figures 4B and 4C, respectively[4]. These two factors combined give a boost to younger women's partner supply (reaching 0.15 and 0.21 at age 18 in the US and England and Wales, respectively), but have little or no impact on availability for younger men, in both countries in 1990/91. The structural advantage to young women is about evenly divided between age-sex and marital status components. At older ages, age-sex structure and marital status have a much larger effect, especially for men. For example, by age 55, the structural effect is responsible for an additional 50 potential partners per 100 men in the US and 21 per 100 in England and Wales; the corresponding reductions for women of this age are 46 per 100 and 21 per 100, respectively. Structure by marital status rather than by age is the larger (in absolute terms) of the two components at older ages in both sexes. Both structural effects are more pronounced in the United States than in England and Wales, in 1990/91.

In summary, preferences are the main explanation for both levels and sex differentials in partner supply at younger ages in 1990/91. Young women have an abundant supply and young men a shortage of potential partners largely because of age preferences, though young women also enjoy a small boost to their opportunities from population structure. With rising age, gender disparities in relative numbers and especially in the proportions currently married create a progressively larger gender gap in men's favour. Thus, in 1990/91 older men in both countries are doubly advantaged in the marriage market, and older women doubly disadvantaged – by age-sex structure and by sex differentials in marital status, with the second of these playing by far the larger role. Note that the size, at older ages, of all three components identified here is influenced by the attribution of preferences at ages 60-70. However, there can be little doubt that women in their 50s experienced a

[4] Further details of this decomposition are given in Ní Bhrolcháin (2003b)

shortage of potential partners, and men of this age a surplus, since sex ratios (with a 3 year gap) among the unmarried at these ages were well below 1.0 in both countries in 1990-1991.

A paradox?

A curious feature of gender differences in the demography of marriage came to light earlier – an apparently substantial gender asymmetry in partner availability around the peak ages of marriage. Partner supply is most abundant for women before and at the prime ages of female marriage, but in contrast male marriage markets are at their worst, in relative terms, at the ages at which most men marry. Most women, it appears, marry when the supply of partners is to their advantage and the majority of men at ages when their marriage market situation is disadvantageous, i.e. that the male IAR is below 1.0. In both the US and England and Wales in 1990-1991 the earliest age at which the male IAR reached or exceeded 1.0 was 30; 71.6% of American and 61.2% of British men of this age were ever married[5]. The corresponding figures for American women are 86.9% ever married by age 33, and 88% of British women ever married by age 36, when the female IARs in each case reached or fell below 1.0. The age profiles of IARs and proportions ever married are compared graphically in Figure 5. This gender disparity is not peculiar to 1990-1991. It is true of all census dates examined in the present study with the exception of the early decades of the twentieth century in England and Wales[6]. In all US censuses 1900-1990 (but no data are available for 1930), at least 77% of women

[5] Although the male IAR reached 1.02 briefly at age 30 in England and Wales, 1991, it was below 1.0 at ages 31-44, rising and remaining above 1.0 at age 47, an age at which 90% were ever married.

[6] The proportions ever married cited here are those pertaining to the single year age group in which the availability ratio reached the value in question. The figures being cross-sectional, this need not imply that the proportions ever married rise monotonically with age. However, taking account of this factor makes a negligible difference to the estimated minimum proportions ever married by the given age.

were ever married and from 1951 onwards in England and Wales at least 79% were so by the age at which female availability ratios dropped below 1, that is by the age at which female marriage markets became unfavourable. This is true even in the very unfavourable US female marriage market of 1970: although the female availability ratio dropped below 1.0 at age 23 in that year, 77% of 23-year-old women had already been married. At least 67% of white American men in all years except 1980 (when the figure is 59%) and at least 78% in Britain from 1950 onwards (but 61% in 1991) were ever married by the age at which with average partner supply reached parity (male IARs $\geq$ 1.0)[7].

An exception occurs in England and Wales in 1911, 1921 and 1931 when only a minority of both sexes (between a fifth and a third) had married by the ages at which the marriage market became favourable to men (and unfavourable to women). These proportions reflect both the low marriage rates in Britain in the early decades of the century and the relatively young age at which male marriage markets became favourable. Apart from this period, throughout the century in the US, and since 1951 in Britain, the majority of women married at ages when partner supply was favourable to women and the majority of men at ages at which partners were in apparent short supply, on the indicator used here. Even if we relax the definition of parity in partner supply to the range 0.95 to 1.05, the finding remains broadly true: 69%+ of British and American women from 1950 onwards, 59%+ of American men and at least 70% of British men in 1951-81, but 50% in 1991, are already married by the age at which the availability ratios reach the range 0.95-1.05.

Further investigation

Do these findings reveal a neglected truth about male marriage? Are the majority of men at a disadvantage in the marriage market around the time of marriage and if so what are the implications?

[7] If we leave aside the years 1970 and 1980, at least 72% of American men were already married by the age at which male IARs reached 1.0, at census dates between 1900 and 1990.

That most men in developed societies should marry when marriage market conditions are relatively poor for them is not empirically impossible Marriage rates at each single year of age are well below the maximum possible[8], and so there is no numerical paradox here. The possibility of such an effect has also been noted in the literature in respect of aggregate conditions, though not in relation to the life course (Martin 1963; Muhsam 1974; Guttentag and Secord 1982)[9]. But the finding is worth scrutinising further. In doing so, we encounter a number of issues relating to partner supply and the functioning of marriage markets that need to be clarified conceptually and investigated empirically. Indeed, pursuing the issue turns up more questions than answers. The validity of the observation that most men marry in poor marriage markets and most women in good markets depends on two main elements: (A) the validity of our measure of partner supply; and (B) whether a given level of partner supply has the same significance for men and women. We consider each of these in turn, together with some ancillary factors.

(A) Validity of Iterated Availability Ratio measure

The availability ratios calculated here are for aggregate groups – i.e. groups of men and women at single yeas of age. Partner supply is, strictly, an individual level concept. How valid is the IAR as a

[8] In the male birth cohorts of 1900-1980, the maximum marriage rate at any single year of age in England and Wales was 205.3 per 1000 (age 24, 1968); among female cohorts the corresponding figure is 264.5 per 1000 (age 21, 1960). In the aggregate, if there are e.g. just 78 women for every 100 men, it is possible for a majority of men (78%) to have married.

[9] Muhsam (1974, p. 295) suggests that one of the conditions under which observed marriages might exceed expected is where the "relative lack of eligible mates of one of the sexes renders the persons of the other sex so eager to get married and puts the persons of the rare sex under so much pressure that even more marry than would, in the absence of squeeze". The Guttentag and Secord thesis is discussed in a later section.

summary of the marriage market position of individuals in each age group? How accurately does it represent either the absolute level of partner supply by age and sex or at least relativities in this respect? As noted earlier, there appear as yet to be no studies that attempt to validate availability ratios or, indeed, any of the wide range of partner availability indicators used in the marriage market literature against individual level information. We therefore proceed indirectly, examining first the validity of the dating agency preference data since, as we have seen, these have a strong influence on the pattern and differentials in the IARs. We then look at the correspondence between the IAR and sex ratios, consider an indirect indicator of imbalance in the marriage market (sex ratios among dating agency clients), and finally examine the relationship between availability ratios and marriage rates.

Validity of the dating agency preference data

Evidence of the validity of the age preferences is a high priority, particularly in view of the highly specialised sample from which they are derived. As these appear to be the only detailed, large scale explicit preference data available currently[10], validation is, of necessity, indirect. Two features of the Dateline preferences are consistent with external sources. First, the preference data suggest that at ages under about 30 women are strongly biased against younger men, but men are quite accepting of a slightly older woman. For example, while just 15.8% of women aged 24 would accept a man of 22, 91.3% of 22-year-old men would accept a woman of 24; the corresponding figures for 28 year old women and 26 year old men are 33.4% and 74.8%. This asymmetry in preferences between the sexes

[10] Some sources report data from surveys of newspaper lonely hearts advertisements. However, such data are of uncertain value. An undergraduate student carried out a survey of such advertisements in national newspapers in Britain during a 3-week period in 1998. In a sample of 1326 advertisements, 10% of male and 25% of female advertisers did not state their age, and 56% and 52% respectively did not specify an age preference. Those that do may, therefore, not be representative of the generality.

corresponds with the findings of a 1984 survey of French couples, based on a sample of the general population (Bozon 1991: 123). Second, variation by age and sex in both the mean and the distribution of age difference preferences in the dating agency sample corresponds broadly to differentials by age and sex in actual age differences at marriage: the average of the weighted preferred age difference (male-female) rises with male age and declines with female age, and the range rises with age in both sexes, as in the case of actual age differences at marriage. Furthermore, analyses presented in Ní Bhrolcháin (2003a) show that expected age differences[11] based on the dating agency preferences provide, in most comparisons at census dates from 1921-1991for England and Wales and 1950-1990 for the US, a closer fit to observed age differences, evaluated by the root mean square error, than assuming either fixed preference of 2 or 3 years across the age range or assigning preferences derived from observed age differences at each date by the method devised by Goldman et al's (1984). But further evidence is needed on the issue, particularly in view of the central role of the preferences in determining measures of availability.

Relationship between IAR and sex ratios

Comparison of the availability ratios with straightforward sex ratios is a weak form of validation, since there are good reasons to doubt that sex ratios are a valid measure of partner supply. Nevertheless, they have been used extensively in the literature for that purpose and the comparison is, at minimum, informative. Availability ratios differ substantially from sex ratios at young ages with sex ratios having a much flatter age profile than do availability ratios. Sex ratios with a 3-year age gap between men and women show either no disadvantage for young men, or a much lesser one, and either disadvantage or a much reduced advantage to young women compared with availability ratios,

[11]The expected age difference between women of age *i* and their potential partners is defined as the weighted mean age of unmarried men minus *i*, that is, $\left(\sum_j jw_{i,j}M_j \Big/ \sum_j w_{i,j}M_j\right) - i$, where M_j is the number of unmarried men aged j. The expected male age difference is defined correspondingly.

in 1990/91[12]. In the middle age range (mid to late 20s to late 30s), by contrast, there is remarkable agreement between the average partner supply as measured by sex ratios and by the IARs, for both sexes. At ages 40-60, the two measures are quite close in both countries, unweighted averages of the ratio of the IAR to the sex ratio across these ages for the US and England and Wales, respectively, being as follows: 0.99 and 0.94 (female), and 0.94 and 0.99 (male). Judging by sex ratios, then, there would be nothing odd in male marriage patterns in Britain and the US in recent decades since, unlike the IARs, sex ratios at younger ages show little or no disadvantage for men and little or no advantage for women. However, while useful in practice, sex ratios are conceptually unsatisfactory for a variety of reasons. They imply a rigidity in age preferences – that preferences are fixed on partners of a particular age gap – an assumption clearly at variance with actual age difference distributions (Levy and Sardon 1982; Goldman et al. 1984; Lampard 1993). In addition, sex ratios make only elementary provision for competition, assume that the preferred age difference is independent of age and assume complementarity between the preferences of men and women. On all these grounds, the weighted IAR, based on actual preferences, is superior to any specification of partner availability via sex ratios.

Sex ratios among dating agency clients

One way of checking the proposition that men experience partner shortages at the prime ages of male marriage is via the age-sex composition of the dating agency client sample. If true, we would expect that sex ratios among younger (unmarried) dating agency clients are higher than in the unmarried population at large. This is indeed the case. Between ages 21 and 40 the age-specific sex ratio among Dateline clients in 1996 is between 1.4 and 2.6 compared with sex ratios of between 1.1 and 1.3

[12] Sex ratios have been calculated from the perspective of each sex. The female sex ratio at age x is defined as the ratio of unmarried men aged x+3/unmarried women aged x and the male sex ratio as the ratio of unmarried women aged x-3/unmarried men aged x. A 2-year gap gives closely similar results.

among the unmarried in England and Wales in 1996. A difficulty with this argument, however, is that sex ratios well below 1 would be expected at older ages, reflecting the disadvantaged position of older women. In the 1996 sample of clients sex ratios do not drop below 1 until age 54, though in a further sample of 36,443 clients in 2001, the sex ratio at ages 51-60 is 0.8 and at ages 61+ 0.7 (single years of age not available). The data thus lend some support to the age-sex differentials in marriage market position suggested by the IARs, though must obviously be treated with caution because the ways in which people select themselves into such a sample are unknown – cultural factors may well influence perceptions of how appropriate it is for men and women to use dating agencies, and such effects could be an age-specific.

Availability ratios and marriage rates

Marriage rates might be thought of as an indirect source of validation since it is often supposed that measures of partner availability are accurate to the extent that they are associated with marriage propensities. However, this is not necessarily so. It is entirely conceivable that, except when extreme imbalances occur, marriage rates could be independent of, or only very weakly related to, the volume of potential partners and so it is not integral to the concept of partner availability that it should be associated with marriage rates. The expectation that the two are so related – whether in cross-section by age, at area level or across time at national level – is a hypothesis, the evidence for which is decidedly weak[13].

[13] While many recent local marriage market studies report a positive association between partner supply and measures of female marriage this cannot be interpreted in a straightforward way as reflecting an influence of partner availability on rates, for several reasons: the marriage outcomes measured are often prevalence measures rather than rates, the effects are typically quite small, and many studies do not include measures of local economic conditions in their statistical models. Aggregate level studies have long found little evidence either of marriage squeeze or of a direct

It is unsurprising therefore that the profile by age and sex of availability ratios corresponds poorly with the schedules of marriage rates by age and sex typical of Britain and the US, and that the same is true of sex ratios. Female marriage rates in these countries do not typically peak at ages under 20 and decline thereafter nor do male marriage rates anywhere increase steadily with age, as the male availability ratios do. Nevertheless, the profile by age of sex *differentials* in marriage rates corresponds fairly well with the age profile of sex *differentials* in availability ratios, evaluated in relative terms. This is seen in Figure 6 which plots the female/male and male/female ratios of IARs and of age specific marriage rates in the US 1990 and England and Wales 1991, the age range being confined to 20-55 so as to exclude the most extreme values. In both countries, the general pattern of a large excess of female over male IARs at young ages, the levelling out in the 30s and subsequent decline is mirrored in the age-specific ratios of female to male marriage rates. Single year of age data are available for England and Wales and so the correlation coefficients can be obtained: it is .99. Conversely the age profile of the male/female ratio of IARs corresponds reasonably well in both countries with the male/female ratio of marriage rates (r = .97, E&W). By contrast, relative differentials in sex ratios and marriage rates are not as closely associated (correlation coefficients: female/male .39, male/female .58, England and Wales). These figures would suggest that the IAR is measuring something close to the relative position of the sexes by age in the marriage market. They also indicate that the British age preference data are an excellent fit in the American case.

(B) Is a given absolute level of partner supply equivalent for men and women?

The picture of low male availability ratios at the prime ages of male marriage might, however, be modified if the absolute level of partner supply has a different meaning for men and women. This

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relationship between relative numbers and marriage rates (see e.g. Henry 1966, Keilman 1985, Fortier 1988 and Ní Bhrolcháin 2001)

could be so if one sex is more demanding than the other in relation to partner characteristics. Women are likely candidates as the choosier sex, by analogy with the biological domain. If women are more exacting, they may require greater partner choice in order to be satisfied with a match, and hence the same absolute levels of availability may not be equivalent as between the sexes. Some information is to hand that backs up the hypothesis of greater female choosiness. A first source of confirmation is the age preference data used earlier. Women specify a narrower range of acceptable partner ages than do men, the mean ranges being 7.8 and 10.3 years, respectively. In addition, up to the mid 30s, at each age the acceptability of the most popular single-year partner ages and those adjacent to them is lower among women than men (though the reverse is true at older ages)[14]. That women are more discriminating is also evident in an additional set of preference data, from a further sample of 36,443 Dateline clients in 2001. In relation to each partner attribute, clients have three options: they may state a positive preference for a partner with that attribute, or reject such a partner, or they can choose neither of these, implying that they "do not mind". More women than men state a definite preference – positive or negative – and fewer imply that they do not mind specific partner attributes, with just two exceptions (among a total of 11 characteristics). Averaging over all characteristics, 8% more women than men state a definite preference in relation to each partner attribute. Disparities in relation to some traits are quite substantial – for example, 49% of women in contrast to 24% of men would reject a partner with no educational qualifications.

[14] For example, among 26 year olds, an average of 6.6% more men than women would accept their most preferred partner age or the two ages on either side of this.

In all, women are more exacting, and this could mean that, other things equal, they require a larger pool of potential partners to find a satisfactory match[15]. As a result, women under 40 may be less advantaged in the marriage market, and men of this age less disadvantaged, than the availability ratios suggest, and at later ages the disparities in men's favour could be greater than the IARs indicate. We do not attempt to quantify the effect of differential choosiness on the relativities in partner supply between the sexes, having no basis for this at present. Note that while female choice predominates in animal mating systems, greater choosiness in mate choice on the part of human females need not be rooted in biology. It could stem from any of a number of cultural factors including power disparities between men and women in both personal and public spheres and from the central role of male earning power in the economic welfare of families.[16]

(C) *Further factors*

Differential demand for marriage

[15] How far this would be so would depend on the male and female distributions of the various characteristics relevant to each sex in choosing a partner.

[16] Greater choosiness among women might stem precisely from the abundant supply of partners they enjoy when young, but this hypothesis is not supported by the Dateline preference data. Older women, who face a shortage of potential partners, appear to be no less exigent that are women in their twenties in relation to partner attributes, and the range of ages acceptable to them is, as at younger ages, narrower than that of men. The same appears to be true of men: older men are no more demanding in relation to partner characteristics than are younger men, although their marriage market position is substantially better, according to the dating agency data. However, older people are more tolerant than younger in relation to partner age, the mean range of acceptable partner ages increasing with *both* male and female age.

The picture presented by the availability ratios of sizeable disparities between the sexes in partner availability at the prime ages of marriage might be modified if the desire for marriage/partnership were to be factored in. Measures of partner supply generally ignore differentials in demand by age and sex, and this is no surprise since data on the subject are hard to come by. At younger ages, differential demand might be seen as having been introduced implicitly into the availability ratio by the preference weights, in the greater preference for male-older/female younger partnerships. Earlier female than male marriage is a human universal, observed in all societies. It does not follow from this that demand for marriage is higher at young ages among women than men but that seems a reasonable working assumption, and so adjusting for demand for marriage/partnership could narrow the gender gap in availability at younger ages. A 1980 round of the Study of American Families revealed a higher median ideal age at marriage among young American men (25.1) than young women (23.8) (Thornton and Freedman 1982). In the US study of high school seniors, Monitoring the Future, young men *expect* to marry later than do young women though this does not imply that they wish to do so (Thornton and Young-DeMarco 2001, Table 2). However, even if young men want to marry on average later than young women, it seems reasonable to suppose that demand on the part of young people for at least a dating relationship has been fairly high in recent decades, and comparable between the sexes. Hence, sex differentials in availability ratios would probably not be modified much if at all if demand for at least a dating relationship were taken into account.

Age structure of encounters

There may be a disparity at some ages between age preferences and the age-sex structure of encounters between the sexes. If so, availability indicators might be of more theoretical than practical interest. Another possibility is that the degree of correspondence differs between the sexes, thus altering sex differentials in effective availability. For example, if young women encounter young men more frequently than the slightly older men they would prefer, but that women of their preferred ages predominate among the encounters of young men, sex differentials in effective availability could be

modified. This could be true, for example, of university and college student populations. No evidence is available to assess this possibility.

Distribution of availability

One possible resolution of the apparent anomaly that most men marry at ages when their age group is in a disadvantaged marriage market situation is via heterogeneity[17]. Perhaps the men who marry while their age group is disadvantaged in the marriage market are those who have either a plentiful or an above-average supply of partners. Even if this were so, the female advantage is likely to remain true, since partner supply almost certainly varies for women too and the average partner availability for women who marry would be expected to be above that of men who do so, at younger ages[18].

The functioning of marriage markets

Finally, we know very little about how the marriage market operates. How do male and female preferences, including demand for marriage/partnership, interact? What are the behavioural specifics of the process of pair formation and do female and male strategies differ in this respect? Ultimately, defensible measures of the relative numbers of the sexes will only become available when we have a successful behavioural model of the functioning of marriage markets within which such measures can be embedded.

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[17] The distribution of partner availability at the individual level evidently affects how well an aggregate measure of supply does its job. A symmetrical distribution would be better summarised by an average than a skew distribution, and the variance could matter also.

[18] A summary of the sex differentials in partner supply at the prime ages of marriage is given by a weighted average of the IARs for each sex, the weights being age- and sex-specific marriage rates. Single year of age marriage rates for England and Wales in 1991 are used for the purpose. The weighted average female and male IARs are 1.16 and 0.91, respectively, representing a 28% supply advantage for British women in that year.

All in all, our chosen measure of relative numbers stands up reasonably well but there are certainly many unanswered questions surrounding the measurement of partner availability. With further research, our indices and estimates might be modified in ways that could alter the gender disparities at younger ages, and hence the apparent anomaly in male marriage behaviour that we have highlighted.

OVERVIEW AND DISCUSSION

Partner supply by means of a weighted version of the Iterated Availability Ratio (Lampard 1993) suggests that women have an abundant supply of potential mates at young ages and that this declines steadily with age. Men, by contrast, experience a decided shortage of prospective partners at young ages, but a progressive increase in supply with age. In 1990/91, age preferences are the primary determinant of partner supply among the young, with population structure playing a minor role. At older ages preferences, as attributed, have little effect on gender differentials but the contribution of structural factors increases with age, particularly among men. Although it is often assumed that the marriage market advantage of older men compared with older women results from higher male mortality, our findings suggest that population structure by marital status has a larger effect than mortality differentials (on this point, see also Goldman et al. (1984) and Davis and van den Oever (1982))[19]. The marriage markets of British and American men and women aged up to the mid-30s were similar in 1990-1991, but at older ages American men were at a greater advantage, and American women more disadvantaged, than their counterparts in England and Wales.

[19] Population structure by marital status at older ages is, however, partly determined by higher male mortality, since in the age-group 50-59 a much higher proportion of women are widowed than are men. This differential is, however, partly determined by the mean age difference in favour of husbands rather than purely by higher female survival to any given age.

A striking finding is that most men marry when they are disadvantaged in the marriage market, throughout most of the 20th century in both countries. We have suggested some reasons in principle why sex differentials in availability at younger ages might be modified by further investigation of, and data on, such factors as differentials in demand and in choosiness between the sexes, and the age structure of encounters between potential marriage partners. With improved information, the equally striking sex differentials in partner supply at older ages might also be modified, in either direction. Higher male than female marriage and remarriage rates are generally found at older ages (see Figure 6 above) and are often attributed to greater opportunities for older men (i.e. partner supply), but gender disparities in demand and choosiness may be part of the explanation. There is some evidence to suggest that older women have less interest in marriage and partnership than do older men (South 1993; Davidson 2001)[20]. Besides demand, age-related factors could reduce the marriageability of older unmarried persons differentially by sex. The precise way in which age preferences operate is

[20] South's (1993) analysis of National Survey of Families and Households attitude data suggests that while young unmarried women are keener on marriage than young unmarried men, the reverse is true at older ages; the sample is however limited to ages under 35. On the basis of a small-scale qualitative of widowed people aged 65+ Davidson (2001) reports that widows were much less interested than widowers in a further partnership. Widows furthermore gave many more reasons for not entering another partnership than did widowers; in general widows positively valued their independence while widowers more often cited age and health constraints as barriers to remarriage. However, since the sample is much older than that in the present study and since the widowed are a minority of the unmarried aged 45-59, this gender differential may well not be true of the older part of the age range covered in the present study.

crucial in this context, since they have a strong effect on the supply estimates. They might be seen in conditional fashion: that they represent preferences *insofar as partner age is relevant to partner choice and given that other partner characteristics are acceptable*. If we suppose that partner choice is guided by a combination of partner age with a set of partner attributes $x_1, x_2 \ldots x_n$, age preferences might be seen as expressing acceptable partner ages, *given that* a partner is suitable with respect to factors $x_1 \ldots x_n$. If suitability with respect to $x_1 \ldots x_n$ changes with age differentially by sex, then gender contrasts in partner supply at older ages may be other than suggested by our estimates. While current data resources do not allow an evaluation of the effects of such processes, they would have to be very large indeed to offset the gender disparities in availability at older ages.

While caution is needed in interpreting our findings, the remainder of this discussion considers several implications supposing them to be approximately correct. A key implication for demographic science itself is that they reinforce the need to view marriage and related family matters from a two-sex perspective (Oppenheimer 1994; Goldscheider and Kaufman 1996; Greene and Biddlecom 2000). That the adverse marriage market position of young men has been overlooked may be due to the traditional tendency in demography to examine mainly female marriage and partnership. One author pointed to the marriage market difficulties of older women as being the "real" marriage squeeze, but in doing so ignored the partner shortages experienced by young men – an issue of greater demographic significance, since it occurs at and before the prime ages of male marriage (Veevers 1988). Davis and van den Oever (1982) comment on the surplus of unmarried men at young ages but suggest that the phenomenon is of little significance since most will ultimately marry. However, is it truly unimportant? The existence of a substantial sex differential in women's favour at young ages seems to us, on the contrary, to raise an intriguing set of questions about the balance of power between the sexes in courtship and the process of search and matching in the marriage market. Are young women and men aware of their comparative advantage/disadvantage in relation to partner

supply? Is the position of each sex evident to the other? Are members of each sex aware of the change to be expected in their marriage market position, and that of the other sex, as they age? With or without such awareness, does the sex differential in partner supply at young ages create gender disparities in bargaining power in the process of partner search and if so, what are the consequences? Do gender disparities in supply result in differing perspectives about the timing of marriage or partnership formation? From an economic perspective, how far is the price of marriage for each sex influenced by actual and prospective partner supply (see, e.g., Cherry 1998)?

These questions can be seen in a more systematic context. That relative numbers may have a strong and pervasive influence on relations between men and women is the central theme of Guttentag and Secord's (1983) influential book, one which is, however, marred by a mismatch between the extensive claims made and the unsystematic and uncritical approach to evidence. While we doubt that sex ratios have anything like the all-pervasive effect on gender relations that Guttentag and Secord suggest, and while our findings on historical change in partner supply (to be presented elsewhere) discount their hypotheses concerning the relation between partner supply and marriage rates, nevertheless their core idea – that relative numbers may influence dyadic power – appears to us both interesting and promising. A key feature of partner availability is that it is heavily age-related, in opposite ways for each sex. We suggest therefore that the Guttentag and Secord thesis may be relevant to relative numbers *as they change through the life-course*, and that variation in relative numbers through personal time may be of greater significance than variation through time and space. For example, Guttentag and Secord predict that where sex ratios are high men will be more inclined to marry, and our finding that most men marry at ages at which they are disadvantaged in the marriage market fits in with this expectation (a mechanism along these lines is considered by Muhsam 1974; see footnote 12 above). If partner supply enhances women's dyadic power at younger ages, it could swing the balance in favour of men at older ages. Bargaining approaches to distribution

and power within marriage employ the concept of threat point as influencing the outcome of marital bargaining: the more advantageous each partner's position would be outside the marriage, the greater their bargaining power within the partnership (Manser and Brown 1980; McElroy and Horney 1981; England and Kilbourne 1990; Lundberg and Pollak 1993). Thus, beyond the impact on older *un*married women, a relative lack of potential alternative partners could, in principle, be a barrier to divorce for older *married* women and also weaken their bargaining position within marriage, while abundant alternatives could strengthen that of older married men (for evidence of an association between divorce risk and partner supply, see South and Lloyd 1995). Davis and van den Oever (1982) draw attention to the social consequences of the low sex ratios among the unmarried at older ages, but their concern was directed to the unavailability of partners for older unmarried women. However, if relative numbers do indeed influence gender relations within marriage, the issue is much larger in scale than they supposed, since older married women are much more numerous than the unmarried, at least until the ages at which widowhood has made substantial inroads. While partner supply is almost certainly just one of many possible influences on gender power relations – the *ceteris paribus* condition must always be borne in mind – it is nevertheless a fairly pure demographic influence and so its role in this respect is deserving of demographic attention.

In all, our findings raise a number of substantive issues relating to male marriage and what might be described as the gender politics of dating as well as the demographic determinants of power relations between the sexes through the life course, all of which require further investigation. On a methodological note, the central role of age preferences in determining availability indices shows that solid information is needed on these for a definitive assessment of partner supply by age; where age preferences are assumed on arbitrary or approximate criteria, the resulting measures of relative numbers will in large measure reflect the assumptions made.

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Table 1 Prevalence of balance in partner supply: frequency of single year age groups and ages at which the ratio of female to male IARs is in the range 0.95-1.05.

	Frequency		Ages	
Census year	US	England & Wales	US	England and Wales
1900-01	1	-	38	-
1910-11	2	1	41-42	22
1920-21	3	1	41-43	21
1930-31	-	0	-	-
1940-41	4	-	30-33	-
1950-51	3	2	30-32	28-29
1960-61	2	1	35-36	39
1970-71	1	1	23	45
1980-81	1	3	25	41,43-44
1990-91	4	7	30-33	32-33, 35, 41,43-45

Key: - data unavailable

FIGURE 1

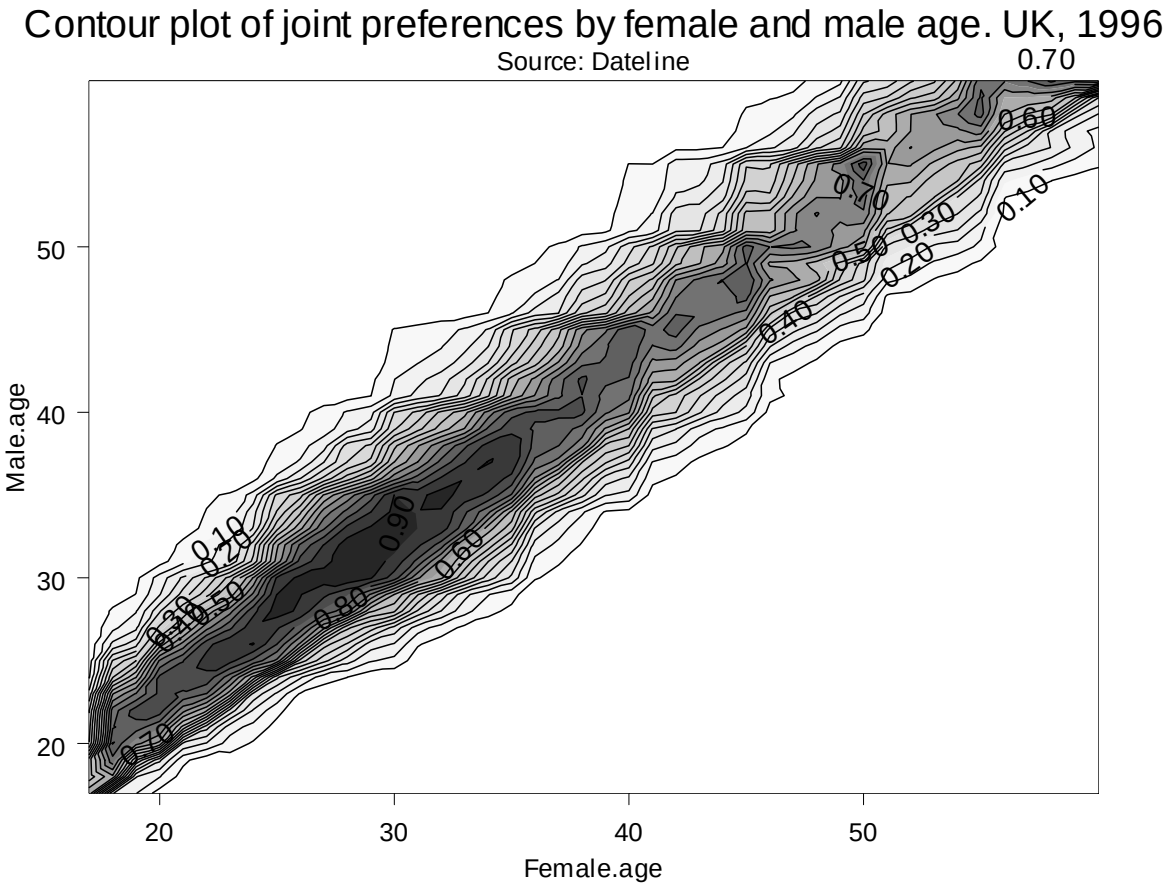

Contour plot of joint preferences by female and male age. UK, 1996
Source: Dateline
0.70
0.60
0.10
0.50
0.30
0.20
0.40
0.90
0.80
0.60
0.70
Male.age
Female.age
20
30
40
50

FIGURE 2

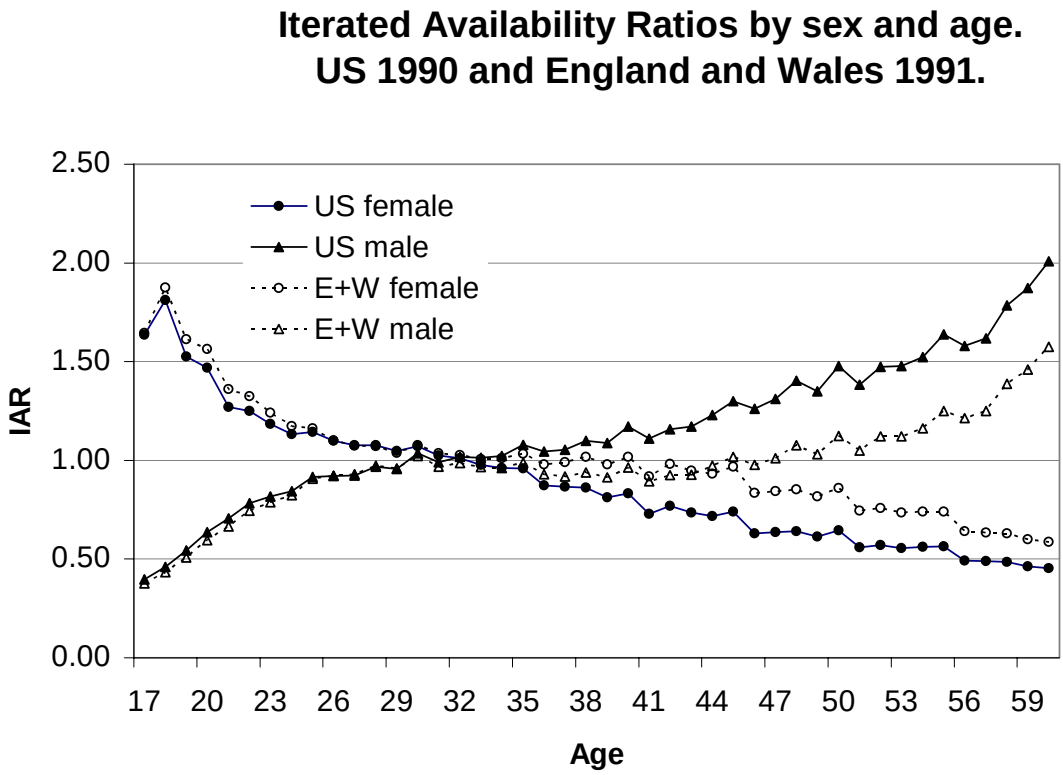

Iterated Availability Ratios by sex and age.
US 1990 and England and Wales 1991.
IAR
2.50
2.00
1.50
1.00
0.50
0.00
US female
US male
E+W female
E+W male
17 20 23 26 29 32 35 38 41 44 47 50 53 56 59
Age

Figure 3 Simulated iterated availability ratios for a population with a rectangular age structure

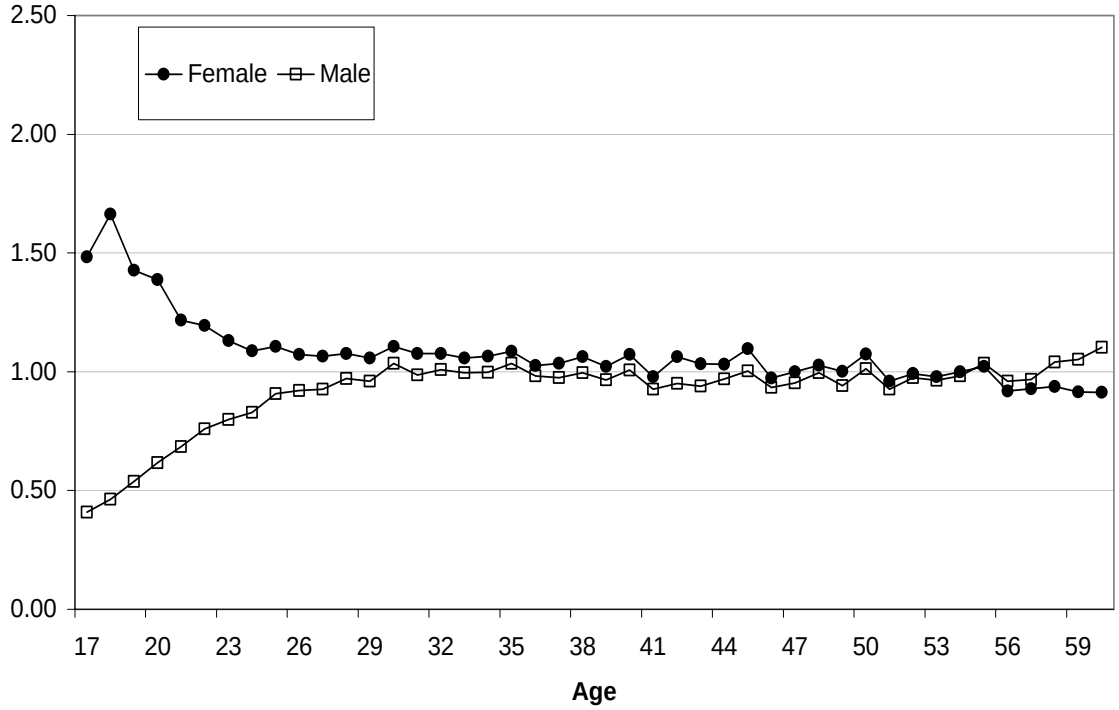
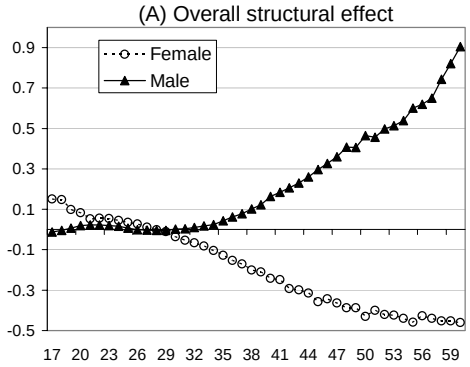
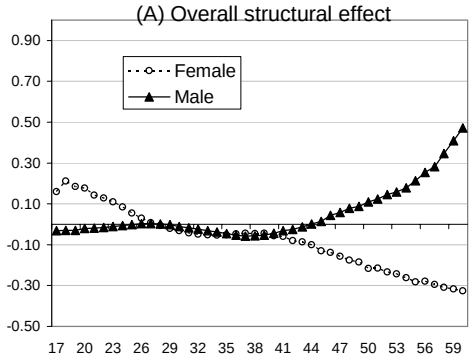


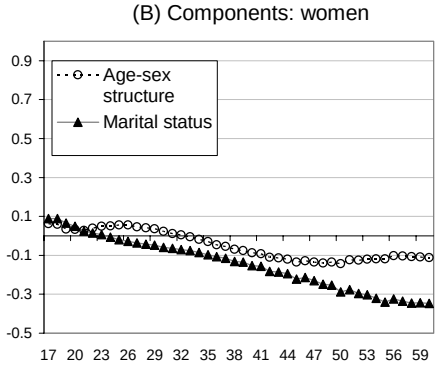
Figure 4 Decomposition of age and sex differentials in iterated availability ratios.

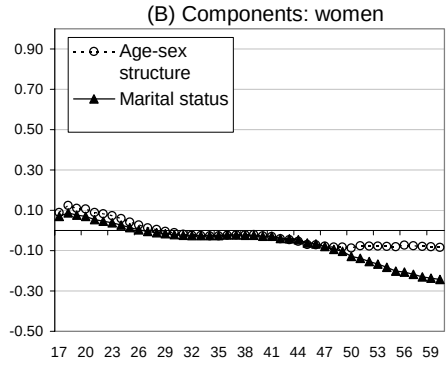
(A) Overall effect of population structure by age and sex and by marital status
(B) Age-sex structure and marital status components for women
(C) Age-sex structure and marital status components for men

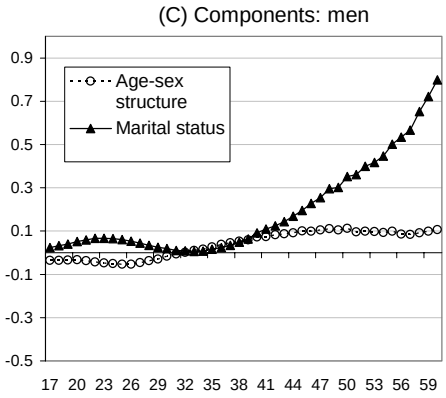
United States 1990 **England and Wales 1991**











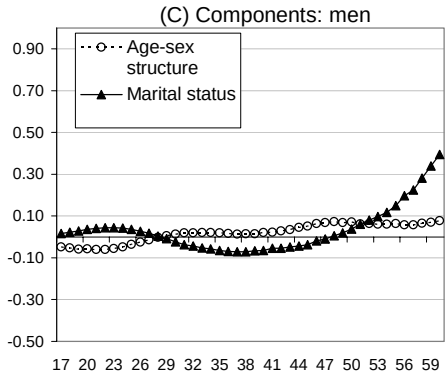
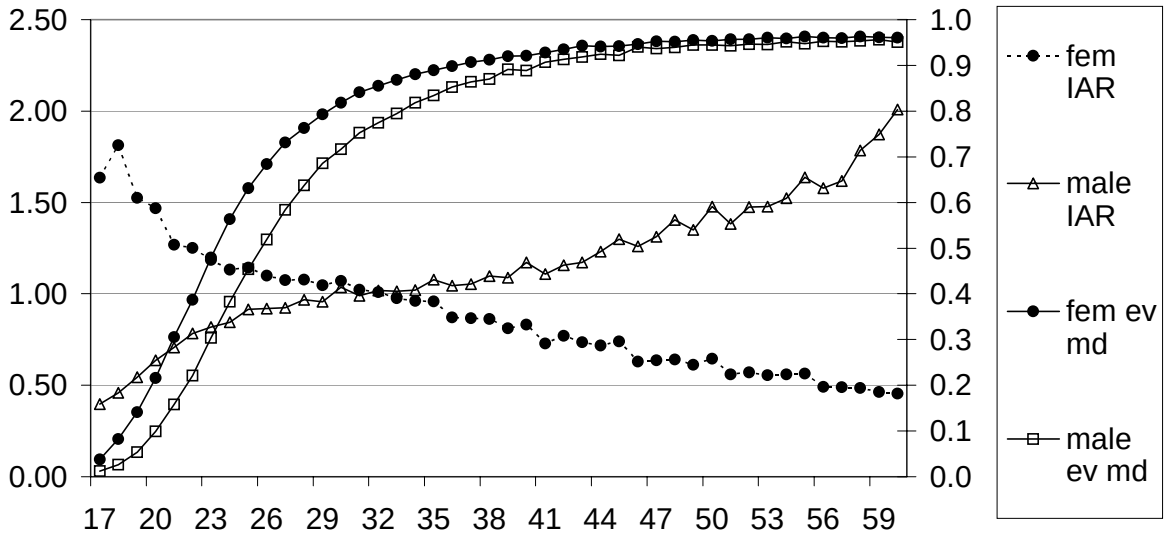


Figure 5 Proportions ever married (right hand scale) and iterated availability ratios (left hand scale) by age and sex. US 1990 and England and Wales 1991

A United States 1990



B England and Wales 1991

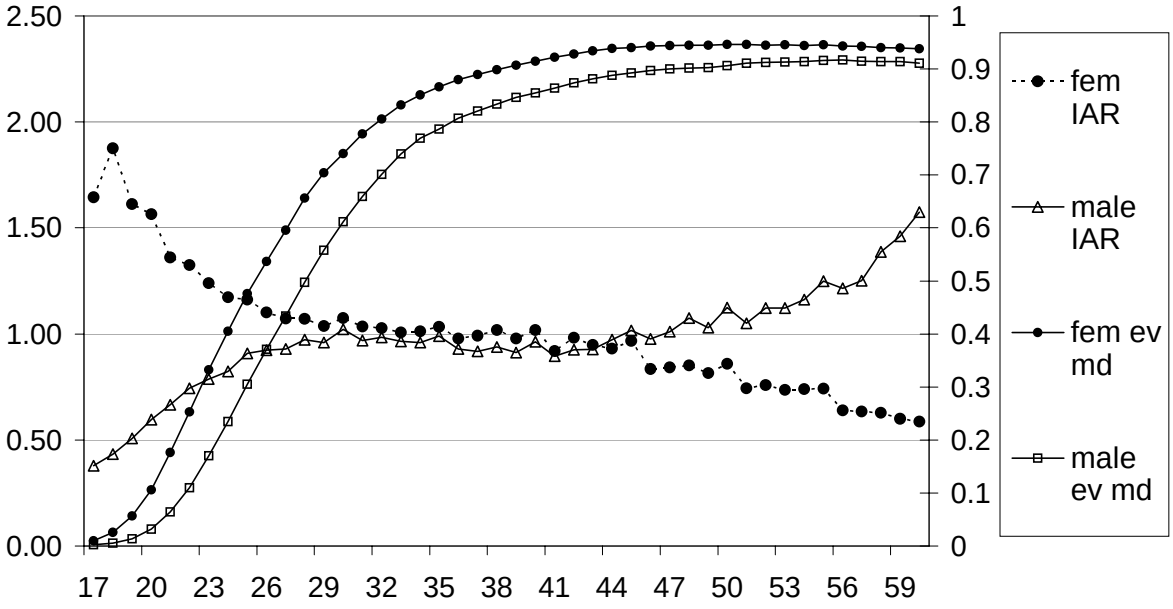
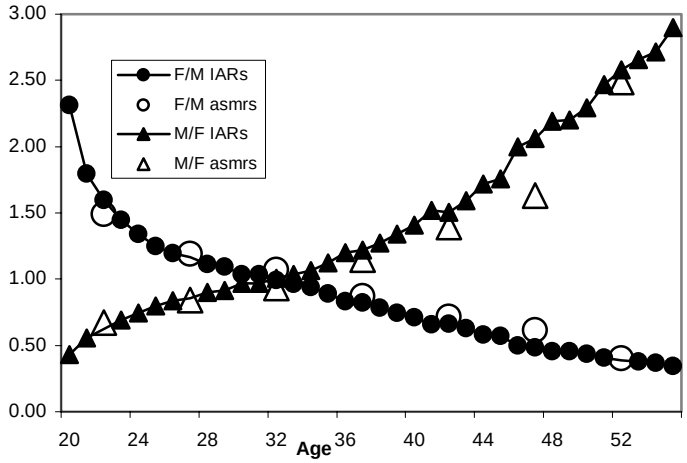


FIGURE 6 Female/male and male/female ratios of age-specific marriage rates and of availability ratios, ages 20-55.

A. United States, 1990



Source: marriage rates: Monthly Vital Statistics Report, Vol. 43, No. 12, Supplement, 1995.

B. England and Wales 1991