

New estimates and projections of the population cohabiting in England and Wales

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INTRODUCTION

Estimates of the population of England and Wales by legal (*de jure*) marital status are produced annually by the Office for National Statistics (ONS).¹ Projections are produced at regular intervals by the Government Actuary's Department (GAD) and the latest (1996-based) set are described elsewhere in this issue.² However, with the growth in cohabitation over the last twenty years or so, *legal* marital status by itself gives an increasingly incomplete picture of relationships and family circumstances. Marriage and divorce statistics, obviously, relate only to the formation and dissolution of *legal* unions, while comparisons of fertility rates between married and unmarried women, for example, mask the reality that over half of births outside marriage are now registered by both parents living at the same address.³

Similarly, projections relating only to legal marital status are of increasingly limited use. Two of the main applications of marital status projections are for estimating the future number of households, and for social security forecasting. Clearly cohabiting couples have similar housing requirements to married couples while all income related benefits, for example, treat married and cohabiting couples identically.

This article describes the derivation of a new set of population estimates of those cohabiting in 1996. As well as estimating the population cohabiting by age and sex, the estimates have also been made by legal marital status. The article then discusses new projections to the year 2021, based on these estimates.

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METHODOLOGY FOR COHABITATION ESTIMATES

Past estimates

A number of alternative approaches, each employing a different method, can be formulated for making estimates of the population by whether cohabiting and legal marital status - which are usually referred to as *de facto* marital status population estimates, or, more recently, 'social' marital status population estimates. Past estimates have relied mainly on data collected in the General Household Survey (GHS) which first collected data on cohabitation in 1979, but only for women aged 18 to 49. The age range was extended to 16 to 59 in 1986, when data on cohabitation started being collected for men.

ONS (then the Office of Population Censuses and Surveys) - began producing some limited cohabitation estimates during the 1980s.^{4,5} However, the first estimates of *de facto* marital status covering the whole population related to 1989 and were based on GHS data for the period 1986-89.⁶ Mathematical curve-smoothing techniques were used to obtain age-profiles of the proportions cohabiting for each legal marital status category, and for men and women, separately. These proportions were first estimated from the four years' GHS data, in the form of 5 or 10 year age-groups. Fitting the various mathematical curves to these proportions - and extrapolating them into the older ages not covered by the GHS - yielded estimates of the proportions cohabiting in each category by single years of age.

Updated estimates of the proportions cohabiting, based on 1989-92 GHS data, were then used as the starting point for GAD's 1992-based marital status projections,⁷ the first set of official projections to incorporate the factor of cohabitation. This second set of *de facto* marital status population estimates was essentially an update of the first, although using less sophisticated techniques to estimate the age profiles.

The new estimates – population covered

The GHS remains the main data source for making the new set of estimates. Because the GHS covers a sample of private residential households in which respondents are asked whether they are living with someone in the household as a couple, the resulting estimates refer to co-resident cohabitation in private households. Furthermore, answers to the GHS cohabitation question which indicate that the partner was a person of the same sex have been distinguished in recent years. However, the sample numbers are very small, and in the absence of a specific question on same-sex couples, the GHS is likely to underestimate the relative numbers. For this reason, same-sex couples have been excluded from the analyses, so that the new estimates refer to cohabitation between partners of opposite sex.

Key issues for making the new estimates

In making the present set of estimates, three practical considerations affected the choice of method. The first was that, for the first time, information on both legal marital status and, quite independently, on whether cohabiting, was available from the Labour Force Survey (LFS). (In fact, the original request to incorporate these two separate questions in the LFS was made expressly to assist with making *de facto* marital status population estimates for the purpose of producing corresponding population projections.) Hence, for the first time, there was a choice of two data sources: the GHS and the LFS, each with their advantages and disadvantages.

The second consideration was that in each previous set of *de facto* marital status population estimates, the unadjusted GHS proportions cohabiting - by age, sex and legal marital status - implied that, overall,

there were considerably more cohabiting men than cohabiting women. The 1986-89 proportions suggested 7 per cent more, and the 1989-92 proportions 20 per cent more. Although, theoretically, the estimated numbers of cohabiting men and women need not be exactly equal, differences of this magnitude are clearly implausible. Therefore, in these two previous sets of estimates, the numbers of cohabiting men and women were averaged to obtain a single estimate for the number of cohabiting couples. On this occasion, however, with initial, unadjusted data (from both LFS and GHS) again suggesting an excess of cohabiting men of around 20 per cent, it was felt that some further insight, and a more objective methodology, was needed to estimate the true figure as closely as possible.

The third consideration involved a subjective assessment of the likely reliability of the estimates derived from either or both surveys - and the appropriate degree of methodological sophistication which that reliability warranted.

To meet these considerations, three separate, parallel strategies were adopted. First, it was decided to use both LFS data and GHS data, using GHS data in situations where it was judged to be the superior source and LFS data in others where that data source was considered better. The details will be described below.

Second, a particular sequence of alternative ways of making the population estimates was devised - such that, whichever particular method was chosen, it automatically ensured that the total numbers of cohabiting men and women were equal.

The third consideration - deciding the most appropriate methodology given the characteristics of the survey data - was very much a subjective one. It was addressed based on practical experience in analysing cohabitation data from the GHS and LFS, and evaluating their coherence, although certain sampling and other data aspects were also taken into account. However, the very fact that the discrepancy between the numbers of cohabiting men and women implied by the unadjusted survey data was so large, suggested that a highly sophisticated methodology would not be warranted. Therefore, a fairly straightforward method was chosen, with the important corollary that there is inevitably a large degree of uncertainty surrounding the resulting estimates.

Ensuring that the total numbers of cohabiting men and women are equal

Because a husband or a wife may be temporarily resident abroad, the numbers of married men and women are never exactly equal in population estimates. A similar situation undoubtedly applies to the numbers of cohabiting men and women, but, as shown above, the available data do not allow an accurate estimate to be made of any such imbalance. In the circumstances, the most appropriate step is to assume the numbers are exactly equal, that is, to set the total numbers of cohabiting men and women to the same figure. The procedure for obtaining these equal estimates was regarded as being of over-riding importance and was tackled first, using data from the GHS for the reasons given in Box One.

To ensure that the total numbers of cohabiting men and women were equal, the following strategy was adopted. The estimated proportions cohabiting in particular population subgroups were to be applied to the official estimates of the total population in those subgroups in 1996. The strategy was to use the lowest level of disaggregation which gave approximately equal total numbers of cohabiting men and women and then disaggregate those equal numbers further using appropriate data and methods, thereby preserving the required equality of total numbers.

Box one

USE OF GHS DATA TO ENSURE THAT THE TOTAL NUMBERS OF COHABITING MEN AND WOMEN WERE EQUAL

Because the information on cohabitation is collected in the General Household Survey from a section specially dedicated to family and marital matters (the Family Information Section), and because the GHS is long-established, it was decided to use GHS, rather than LFS, data. Another reason was that for several GHS years' data, special 'couples files' had been constructed - files in which each record consisted of the details of *both* the male and the female partner of the married or cohabiting couple. Thus, from this file, the sample number of cohabiting men would be identical to that of women.

For a number of reasons, however, the use of such GHS data was not as clear-cut and straightforward as might initially be imagined. First, the GHS response rates for men and women differ; second, information on cohabitation and legal marital status of absent members of the household is not collected from other household members (proxy respondents) in the Family Information Section; and finally, for members of the household who are present at the time of interview, only those adults aged under 60 are asked about cohabitation in the Family Information Section.

These difficulties were overcome by using, where necessary, answers to the initial marital status question in the GHS (sometimes called the household box marital status question as it is part of the first set of questions - coming well before the Family Information Section - which enumerate those usually resident in the household and obtain their basic demographic characteristics - which includes *de facto* marital status). This question asks whether the respondent is: married; cohabiting; single; widowed; separated or divorced (with cohabiting having priority over subsequent statuses). The advantage of this question is that even if a household member is absent at the time of interview, the information is obtained from another household member as a proxy respondent. In addition, this *de facto* marital status question is asked of household members of all ages, not just those aged under 60.

Thus, it was possible using, as first preference, data from the Family Information Section, and supplementing it, where necessary, with data from the *de facto* marital status question to obtain matching GHS sample numbers, of all cohabiting men and women.

These categories were, in order of increasing disaggregation:

- (a) by sex;
- (b) by sex and legal marital status;
- (c) by sex, legal marital status, and age-group.

In fact, it was found that, using 1996 GHS estimates of the proportions of men and women cohabiting, the numbers of cohabiting men and women were only approximately equal at the highest level i.e. when disaggregated by sex, but not additionally by legal marital status - and certainly not by all three factors simultaneously.

Using 1996 GHS estimates of the proportions of men and women cohabiting and the 1996 population estimates of men and women, the numbers cohabiting at this highest level of aggregation were found to be 1.58 million cohabiting men and 1.53 million cohabiting women aged 16 and over in England and Wales. As the proportionate difference between these two estimates was relatively small - especially when compared with the initial rough estimates which produced a 21 per cent discrepancy - the two figures were averaged to give a definitive estimate of 1.56 million cohabiting couples in England and Wales in 1996.

Disaggregating the estimates of the numbers cohabiting by legal marital status

The next task was to disaggregate this global estimate to give estimated numbers by legal marital status. This disaggregation by marital status includes four categories: single ie never-married; separated; widowed; and divorced. GHS data were again chosen for this task, primarily because the Family Information Section incorporates checks on legal marital status - as well as collecting complete marital histories. Three years' data were used: 1994-96.

The proportions of all cohabiting men who were in the different marital statuses, obtained from the GHS, were applied to the total figure of 1.56 million cohabiting men, and the corresponding calculation was also undertaken for women. In an exactly similar way the numbers of those *not* cohabiting were also estimated - by using the GHS proportions of all non-cohabiting men, say, who were single, separated, divorced, widowed and married, and applying them to the overall population of non-cohabiting men - which, in turn, was obtained by subtracting the 1.56 million from the population estimate of the total number of men. This method, of course ensured that the total numbers of men and women - those cohabiting plus those not cohabiting - were consistent with the standard population estimates.

In fact, this operation yielded only an *initial* set of estimates of cohabiting and non-cohabiting men and women by marital status - see Table 1, below. By definition, the estimates summed to the required total of 1.56 million for both cohabiting men and for cohabiting women, and also to the total population estimate for both men and women. However, at this stage, the total numbers of men and women in each marital status - i.e. cohabiting plus non-cohabiting - did *not* agree with the standard population estimates by marital status. Indeed, for the single and married, and for divorced men, they differed considerably. Also, the total numbers of separated men and separated women differed widely. There are no official population estimates of the separated population, but it is, of course, logical to suppose that the total numbers should be approximately equal.

There were therefore effectively three constraints which had to be simultaneously satisfied: (a) the total number of cohabiting men and cohabiting women each had to remain at 1.56 million, and the total number of non-cohabiting men and women had to remain at 18.53 million, and 19.70 million, respectively; (b) the estimated numbers had to agree with the standard population estimates by legal marital status; and (c) the numbers of separated men and separated women had to be equal. These constraints were satisfied by a two-stage sequence of iterations.

In the first stage, the initial estimates were first scaled to ensure agreement with the standard population estimates by marital status. The resulting estimates were then rescaled to ensure that the original total numbers cohabiting and not cohabiting were preserved. This process was repeated, resulting in a convergence of the estimates until the change from one iteration to the next was fairly small.

The second stage repeated this process, but started with modified estimates of the numbers of separated men and women, so that the totals were equal, at a value equal to the average of the (unequal) estimates from the final estimates of the first stage. (Further details are available on request from John Haskey.)

Table 1

Initial and final estimates - from the two-stage sequence of iterations* - of the numbers cohabiting and not cohabiting, by sex and legal marital status, aged 16 and over, 1996, England and Wales

	Males						Females						Millions
	Total	Never-married	Married, but separated	Divorced	Widowed	Married	Total	Never-married	Married, but separated	Divorced	Widowed	Married	
	<i>Cohabiting</i>												
Initial estimates	1.56	1.07	0.07	0.39	0.03	-	1.56	1.05	0.05	0.41	0.04	-	
Final estimates	1.56	1.03	0.07	0.45	0.02	-	1.56	1.07	0.04	0.42	0.04	-	
<i>Not cohabiting</i>													
Initial estimates	18.53	4.46	0.29	0.74	0.77	12.28	19.70	3.62	0.50	1.24	2.66	11.69	
Final estimates	18.53	5.45	0.34	1.09	0.71	10.94	19.70	4.11	0.38	1.40	2.83	10.99	
<i>Total population</i>													
Initial estimates	20.09	5.53	0.37	1.12	0.80	12.28	21.26	4.67	0.55	1.66	2.70	11.69	
Final estimates	20.09	6.48	0.41	1.54	0.73	10.94	21.26	5.17	0.41	1.82	2.87	10.99	

* See text

Components may not sum exactly to totals, because of rounding

The resulting final estimates from this two-stage process are given in Table 1, together with the initial estimates, for comparison. It is appropriate to note at this stage that the initial estimates were modified quite considerably for certain sex/marital status categories, for example, cohabiting divorced men and cohabiting separated women – which, even before the detailed results are presented, serves to act as a warning about the uncertainty surrounding these estimates.

Disaggregating the estimates of the numbers cohabiting by age

The population estimates of cohabiting men and women in the different marital statuses were then disaggregated by age. It was decided to use LFS data for this task for two reasons: the sample numbers were larger than those of the GHS, so that data for 1996 alone could be used; and, unlike the GHS, the LFS asks questions on both cohabitation and legal marital status for the entire age range of 16 and over. Initially, the total number of, say, divorced women who were cohabiting, was broken down by 5-year age-groups, using data from the 1996 LFS. Then, an actuarial interpolation method was used⁸ to obtain estimates by single years of age. The advantage of using such an actuarial interpolation method - which effectively fitted polynomials - was that it preserved the 'correct' 5-year total for each age-group.

A number of further adjustments were required to the age profiles of the numbers cohabiting. The most obvious adjustment needed was that some negative numbers for certain ages were generated. In addition, there were some anomalies caused by occasional rather bumpy interpolated LFS data (even within 5-year age-groups). Some manual intervention was necessary to iron out obvious anomalies, but, in general, the smoothing of the age profiles was kept to a minimum, as there was no other evidence that an extra peak here and there ought to be removed. Some minor adjustments were also needed when it was found that the implied number not cohabiting was negative in a few cases. By scaling, it was ensured that the net effect of all these adjustments did not change the total number of those cohabiting in each sex/marital status category obtained from the iterative routines, described above.

These estimates were then used - in conjunction with the standard population estimates by sex/marital status and single year of age - to derive the corresponding *proportions* cohabiting. It was found that the age profiles of the *proportions* cohabiting were less smooth than those of the *numbers* cohabiting. While some of the unevenness may be

genuine, it is more likely to be due to uncertainties in the numerator estimates - such as sampling error in the LFS and GHS - or in the denominator population estimates.

The resulting estimates

The estimates are summarised in Table 2. About two thirds of cohabiting men and women are single (never-married), and over one quarter are divorced. Relatively few are separated or widowed. Although there is comparatively little difference in the numbers of never-married cohabiting men and women, there is a considerable difference in the numbers separated and widowed; the estimated number of cohabiting separated men is double that of women, while the estimated number of cohabiting widows is double that of widowers. The age profiles of cohabiting men and women vary according to marital status as might be expected; the never-married being the youngest, followed by the separated, the divorced and the widowed. The peak age group for never-married men and women is 25 to 29; for divorced women, 30 to 34; and for divorced men 35 to 39.

In general, the proportions cohabiting are highest amongst divorced men and women, followed by those amongst the never-married, and lowest for the widowed. Between 3 and 4 in every ten divorced men and women in their late twenties and thirties are cohabiting, as also are those of the never-married. However, the prevalence of cohabitation is higher amongst never-married women than never-married men at virtually every age, whilst the proportions cohabiting amongst divorced women are generally lower than amongst divorced men. Overall, the pattern of the proportions cohabiting in Table 2 forms a coherent whole, although earlier remarks regarding the uncertainty associated with these estimates should be borne in mind.

TRENDS IN COHABITATION

Trends in the proportions cohabiting amongst single (never-married) and divorced men and women are shown in Figure 1, separately for each age group. The 1996 estimated proportions are, of course, derived from the new population estimates as shown in Table 2, while the proportions cohabiting in 1986-89 and 1990-93 are derived directly from the GHS, without any adjustment to correct for the imbalance in implied numbers of cohabiting men and women (see Box one) - or indeed any adjustment for the other two constraints mentioned above. The 1986-89 and 1990-93 proportions are not, therefore, strictly speaking, comparable with the 1996 proportions. However, for the purpose of identifying the age groups and marital statuses where the

Table 2

Estimated population cohabiting by age, sex and legal marital status, England and Wales, 1996

	Numbers cohabiting (000s)									
	Males					Females				
	Total non-married*	Never Married	Married but separated	Divorced	Widowed	Total non-married*	Never married	Married but separated	Divorced	Widowed
All adults	1560	1025	68	447	20	1560	1069	35	418	37
16-19	37	37	0	-	0	84	84	-	-	-
20-24	187	185	1	2	-	319	309	1	9	-
25-29	405	369	6	29	-	394	350	4	40	-
30-34	323	239	14	70	-	285	196	7	80	1
35-39	205	103	9	93	-	160	76	7	76	1
40-44	133	45	9	78	1	106	29	5	70	2
45-54	182	35	20	124	2	141	19	9	105	9
55-64	55	7	7	37	5	47	4	2	31	10
65-74	23	3	2	12	6	18	3	0	6	9
75+	9	1	1	3	5	7	1	0	1	5

	Percentage cohabiting in each age group									
	Males					Females				
	Total non-married*	Never Married	Married but separated	Divorced	Widowed	Total non-married*	Never married	Married but separated	Divorced	Widowed
All adults	17	16	17	29	3	15	21	9	23	1
16-19	3	3	--	--	--	7	7	2	--	--
20-24	12	12	16	33	--	23	23	8	59	--
25-29	28	27	17	46	--	36	36	8	37	10
30-34	29	28	22	39	14	36	35	10	36	11
35-39	28	24	17	39	8	29	28	9	29	14
40-44	24	19	15	32	10	25	20	9	27	11
45-54	20	11	20	28	6	18	10	10	21	8
55-64	10	4	12	16	6	7	3	6	12	3
65-74	5	2	8	11	3	2	2	0	5	1
75+	2	1	6	8	1	0	0	0	1	0

* including separated

-- denominator under 1,000

- fewer than 1,000 (on rounding)

main changes have occurred, the comparisons give some indication, albeit rather roughly.

It may be seen from Figure 1 that the largest increases in the proportions cohabiting have occurred amongst single (never-married) men and women aged over 30, and particularly for those aged from 35 to 44. Overall, the increase in the proportion cohabiting amongst the single contrasts with the decline in their marriage rates - which have been particularly steep at ages under 30.^{2,9} The increase in the proportions cohabiting of single men and women in their thirties, and the decline in first marriage rates at the youngest ages is consistent with research findings that age at first partnership - whether marriage or cohabitation - has become progressively older; that is, the formation of first partnership is being postponed.^{9,10}

Trends in the proportions cohabiting by legal marital status are considered further in the projection assumptions section below.

PROJECTION METHODOLOGY

Background

GAD's 1996-based projections of legal marital status have been produced by a component methodology i.e. one based on assumptions of underlying marriage and divorce rates.² Ideally, projections of *de facto*

marital status would be produced by including transitions into and out of cohabitation within such a model. However, whereas detailed historical data on transitions between legal marital status categories are readily available from registration data, data on cohabitation formation and dissolution are very limited. Theoretically, the necessary transitions could be estimated from sources such as the GHS or the British Household Panel Study (BHPS). However, in practice, the data are not of sufficient quality for this purpose. In particular, sample sizes are far too small to produce reliable data for individual ages. In addition, survey data are, of course, subject to non-response errors and data from surveys such as the GHS and BHPS are not necessarily consistent with each other. As the model used for the *de jure* projections is a dynamic model, assumptions made about cohabitation transitions would effect the results for legal marital status. It would therefore be likely that inclusion of necessarily speculative data on cohabitation would actually reduce the quality of the legal marital status projections.

Therefore, cohabitation has been treated as it was in the previous 1992-based projections. Assumptions have been made about the proportions cohabiting in each age/sex/legal marital status group and these have been applied to the results of the *de jure* projections. It was still, of course, possible to relate the cohabitation assumptions to those made for the *de jure* projections. And by combining the results of the *de jure* and *de facto* projections, it can be verified that the implied trends in overall partnership (i.e. combining marriage and cohabitation) are plausible.

Two sex constraints

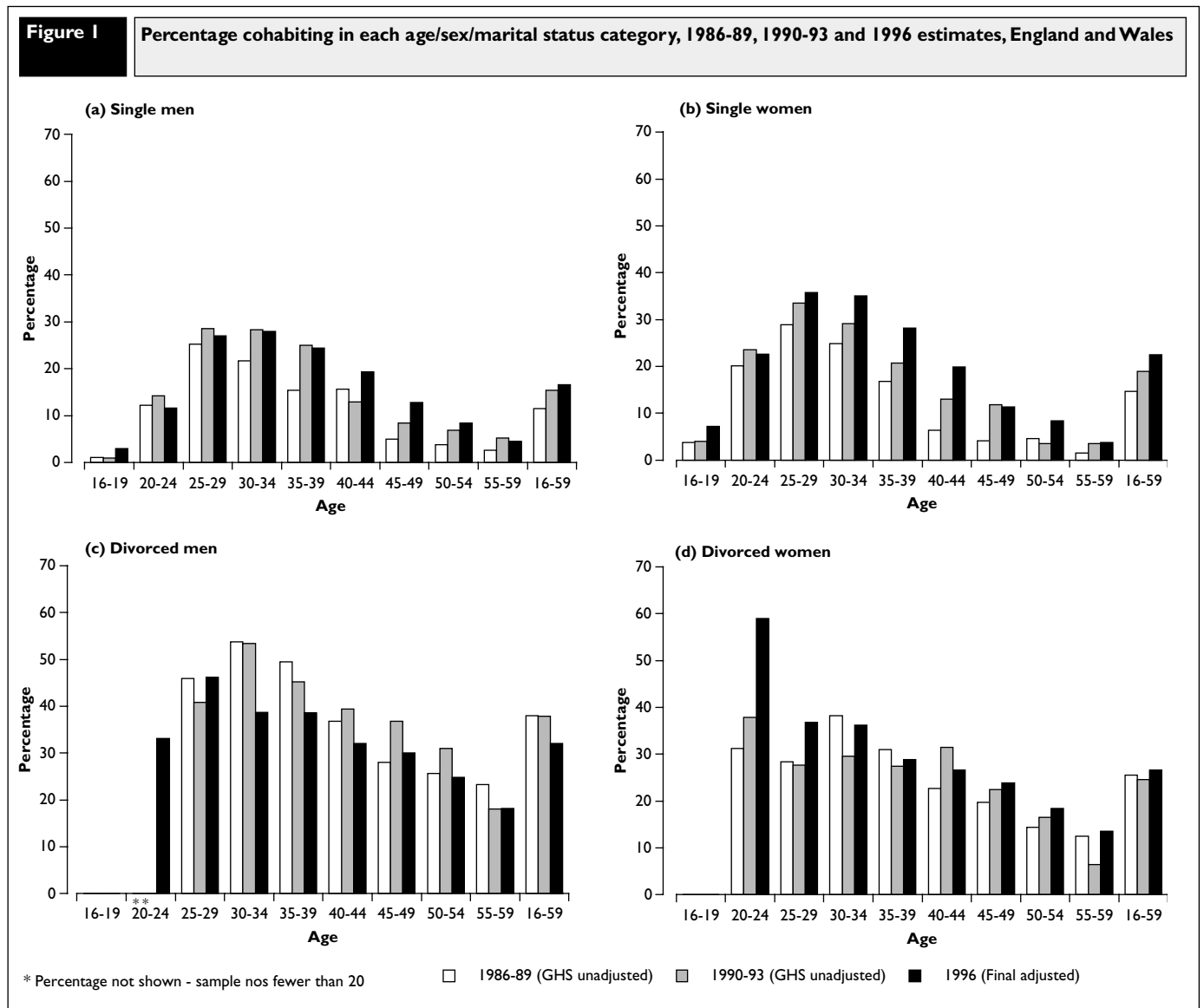
As one partner in a marriage may be temporarily resident abroad, the number of married men and women are never exactly equal in population estimates and have not been constrained to be equal in the legal marital status projections. A similar argument could apply to the cohabiting population but, as noted above, the available data does not allow an accurate estimate to be made of any imbalance. Therefore, as in the estimates described above, the *de facto* projections have been constrained so that the total number of cohabiting males equals the total number of cohabiting females. In order to achieve this, the 'input' assumptions described below are slightly modified during the running of the projection model.

PROJECTION ASSUMPTIONS

In the 1992-based projections, it was assumed that proportions cohabiting (for each age/sex/legal marital status category) would remain constant throughout the projection at their current level as estimated from 1989-92 GHS data. This assumption has been subject to some criticism,¹¹ largely following the close scrutiny of the latest (1992-based) household projections for England⁷ for which the GAD marital status projections were an important input.

Figure 2 shows the GHS cohabitation time-series for Great Britain for each marital status, including people who are married but separated. The graph shows the raw proportions recorded in the GHS. The data have not been adjusted to reflect the fact that, as discussed above, these GHS proportions when applied to official legal marital status estimates, imply significantly more cohabiting men than women. However, while this adds uncertainty to estimates of the number of people cohabiting, it should not significantly affect the trends in these time-series.

Except for the first and last years in the series, the data are based on three-year averages. The vertical line at 1992 indicates the data that were available at the time of the previous projections. In the early 1990s, there was evidence of a general levelling off in the upward trend in cohabitation; indeed, for five out of the eight series in Figure 2, the 1992 proportion was below that recorded in 1989. Even for never-married men, where proportions were still rising, the rate of increase appeared to be slowing down. Further, at that time, only single year data was available for 1992 and, for never-married women, the 1992 GHS recorded a significantly lower level of cohabitation than in both 1991 and 1993. Thus, the single year figure (shown in Figure 2a) strengthened the impression, misleadingly in hindsight, of a levelling off in this series.



Since 1992, there has been little discernible trend in the various series for previously married groups. The series for divorced women has risen in the last two years, but the relatively high value for 1996 is again based on only one year's data and should, in the light of the previous paragraph, be treated with caution. However, there has been a renewed faster increase in cohabitation for the never-married, starting from around 1993, for both males and females. These contrasting trends for never-married and previously married groups are likely to largely reflect recent trends in marriage where first marriage rates are still changing rapidly, but remarriage rates have become much more stable.²

Assumed cohabitation for the previously married

Figure 2 shows that the overall proportion of divorced men aged 18 to 49 who are cohabiting has been declining very gradually since the late 1980s. For divorced women, the recent trend has been fairly stable until the slight rise, noted above, in the last two years.

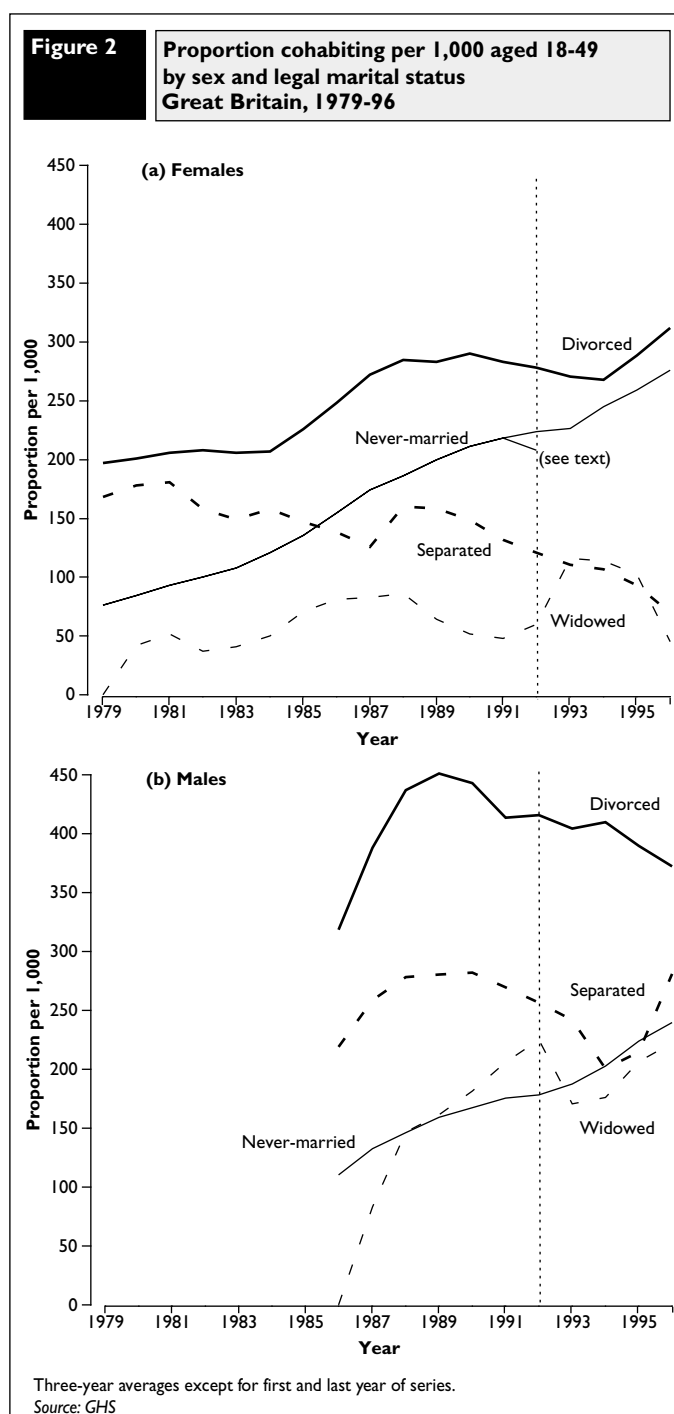


Table 2 shows that the separated and widowed groups combined are estimated to account for only about 5 per cent of the total cohabiting population in 1996. Even when aggregating data over three years, GHS sample numbers for these groups are extremely small. Bearing this in mind, it is difficult to draw any firm conclusions from the relevant time-series in Figure 2, although there does appear to be some suggestion of a decline in the proportion of separated women who are cohabiting.

Against this background of relatively stable cohabitation levels in recent years, it has been assumed that, for the divorced, separated and widowed groups, proportions cohabiting by age and sex will remain constant at 1996 values.

Assumed cohabitation for the never married

Figure 2 shows how the rise in cohabitation for the never-married which slowed down in the late 1980s and early 1990s has quickened again since 1993. It is clear from this graph that an assumption of constant cohabitation is no longer defensible for this group. Instead, it is now assumed that cohabitation levels for the never-married will continue to rise, eventually levelling off and remaining constant from 2011. Further details are given in Box Two.

Cohabitation assumptions by individual age consistent with the projected overall trend at ages 18 to 49 were then calculated. The assumed age profile for 2011 and beyond is compared with the estimated profile in 1996 in Figure 3. Because of the very limited data available on cohabitation trends by age, the assumed future age profile is necessarily somewhat arbitrary. However, as cohabitation becomes longer established, it is reasonable to assume that there will be a gradual 'rectangularisation' of the age profile. This would be expected as attitudes to cohabitation change, in particular as it moves from being seen as a prelude to marriage to being an accepted alternative to marriage.¹² This argument is consistent with the analysis in Figure 1 which shows cohabitation rising faster at ages over 30 than at younger ages. Further, although comparable international data on cohabitation is extremely limited, there is evidence of this trend occurring in countries such as Sweden, Norway and France where cohabitation is higher and/or longer established than in Great Britain.¹³

PROJECTION RESULTS

Cohabitation

Applying the above assumptions to the results of the 1996-based legal marital status projection gives projections of cohabitation to 2021 which are summarised in Table 3 and Figure 4. Table 3 shows that under these assumptions, the total number of cohabiting couples would nearly double over the next 25 years, rising from 1.56 million in 1996 to nearly 3 million by 2021. Unsurprisingly, as it is the only group for which rising cohabitation proportions are assumed, the never-married population accounts for virtually all of the increase. However, the number of cohabiting divorced people also rises over the next ten years before starting to fall, as a result of projected trends in the size and age structure of the total divorced population.

Although the numbers cohabiting are projected to rise at all ages, the increases are much greater at ages over 35. Currently, only about 40 per cent of cohabiting men are aged over 35, but by 2021 it is projected that this would rise to nearly 60 per cent. For women, the proportion would rise from about 30 per cent to 50 per cent. As a result, the median age of cohabiting men is projected to rise from 32 years in 1996 to 38 years in 2021, and from 30 years to 35 years for women.

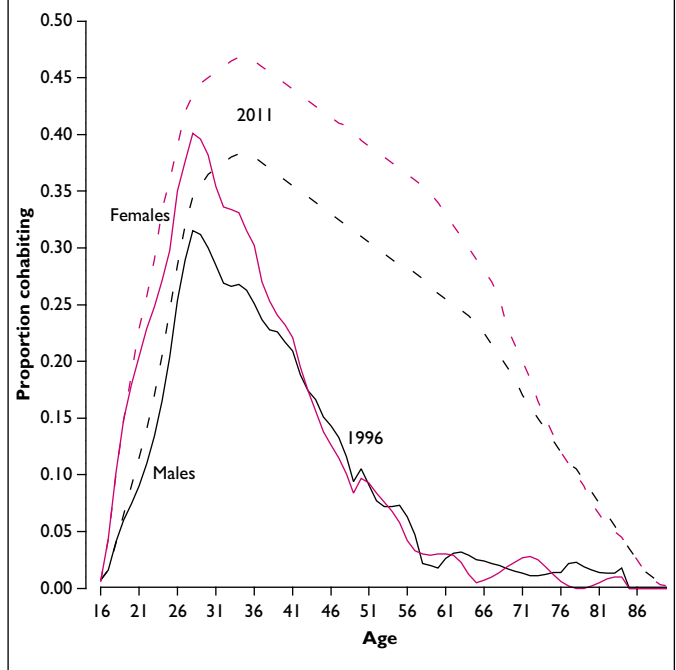
VARIANT PROJECTIONS

Population projections are, of course, subject to uncertainty and this grows the further forward they are carried. The rapid changes that have occurred in the recent past in family formation and dissolution emphasise the difficulty of making accurate projections about relationship patterns more than a few years into the future. Projections of cohabitation are particularly uncertain, most obviously because of the inadequacy of existing data. Unlike births, deaths, marriages and divorces, moves into and out of cohabitation are not formally recorded and cohabitation statistics have to be based on survey data. However, sample sizes, non-response errors etc. mean that even the estimate of total cohabitation in 1996, let alone projections twenty-five years ahead, is subject to uncertainty. These data problems are not, of course, confined to the United Kingdom. Prinz, for example, concludes that "Sweden is the only European country with adequate data [for projection purposes] on the formation and dissolution of consensual unions."¹⁴

To give an indication of the underlying uncertainty, variant projections have been carried out based on alternative assumptions about the future level of cohabitation. Like the principal projections described above, these have been applied to the results of the principal legal marital status projection i.e. they make the same assumptions about future marriage and divorce rates. Similarly, they are also controlled to be consistent with the 1996-based national projections by age and sex. Variant legal marital status projections and variant national projections are described elsewhere.^{2,15}

The main purpose of these variants is to give an indication of the sensitivity of the results to changes in the assumptions, and *not* to represent upper or lower limits for future cohabitation. Further, although the variants consider cohabitation in isolation from marriage and divorce, in reality changes in cohabitation are likely to be associated at least with changes in marriage. For example, if cohabitation gained popularity as an alternative to marriage, then one would see higher cohabitation prevalence but lower marriage rates. But

Figure 3 Actual and assumed proportions of never-married population cohabiting by age and sex, England and Wales, 1996 and 2011



if the trend toward individuals living on their own, rather than in either kind of partnership, gained strength, then levels of cohabitation and marriage could both be lower than indicated in the principal projection.

The variant projections are summarised in Table 4. They allow for some uncertainty in the base population by using initial proportions cohabiting in each age/sex/legal marital status group which differ from the initial proportions used for the principal projection by ± 2.5 per

Table 3 Projected population cohabiting by age, sex and legal marital status, 1996-based projections, England & Wales Thousands

		Cohabiting males							Cohabiting females						
		16+	16-24	25-34	35-44	45-54	55-64	65+	16+	16-24	25-34	35-44	45-54	55-64	65+
1996	Total	1,560	225	728	338	182	55	32	1,560	403	679	266	141	47	25
	Never married	1,025	222	608	148	35	7	4	1,069	392	546	105	19	4	4
	Separated	68	1	20	18	20	7	3	35	1	12	11	9	2	0
	Divorced	447	2	99	171	124	37	15	418	9	120	147	105	31	7
	Widowed	20	0	1	1	2	5	11	37	0	1	3	9	10	14
2001	Total	2,001	240	809	534	259	105	54	2,001	435	797	437	205	82	45
	Never married	1,419	238	724	316	86	34	21	1,481	428	693	248	63	26	23
	Separated	61	0	14	18	19	7	3	32	1	9	12	8	2	0
	Divorced	501	1	70	198	152	59	20	454	6	95	174	125	44	10
	Widowed	19	0	0	1	2	5	10	34	0	1	3	8	9	13
2011	Total	2,654	298	856	715	485	209	91	2,654	512	897	636	394	151	63
	Never married	2,043	296	803	550	265	90	39	2,147	505	829	485	222	72	34
	Separated	55	0	10	14	19	7	3	27	1	6	9	8	2	0
	Divorced	538	1	42	150	199	107	39	452	6	61	140	157	69	19
	Widowed	19	0	0	1	2	5	10	29	0	0	2	7	8	11
2021	Total	2,926	281	929	688	549	341	139	2,926	473	963	656	483	262	90
	Never married	2,345	279	871	560	379	194	62	2,464	466	891	540	348	168	51
	Separated	50	0	11	12	15	8	4	24	1	7	7	7	2	0
	Divorced	514	1	47	116	153	134	63	414	6	65	107	123	84	29
	Widowed	18	0	0	1	2	5	11	24	0	0	1	5	7	11

Figure 4

Estimated and projected population cohabiting by age, sex and legal marital status, England and Wales, 1996 and 2021

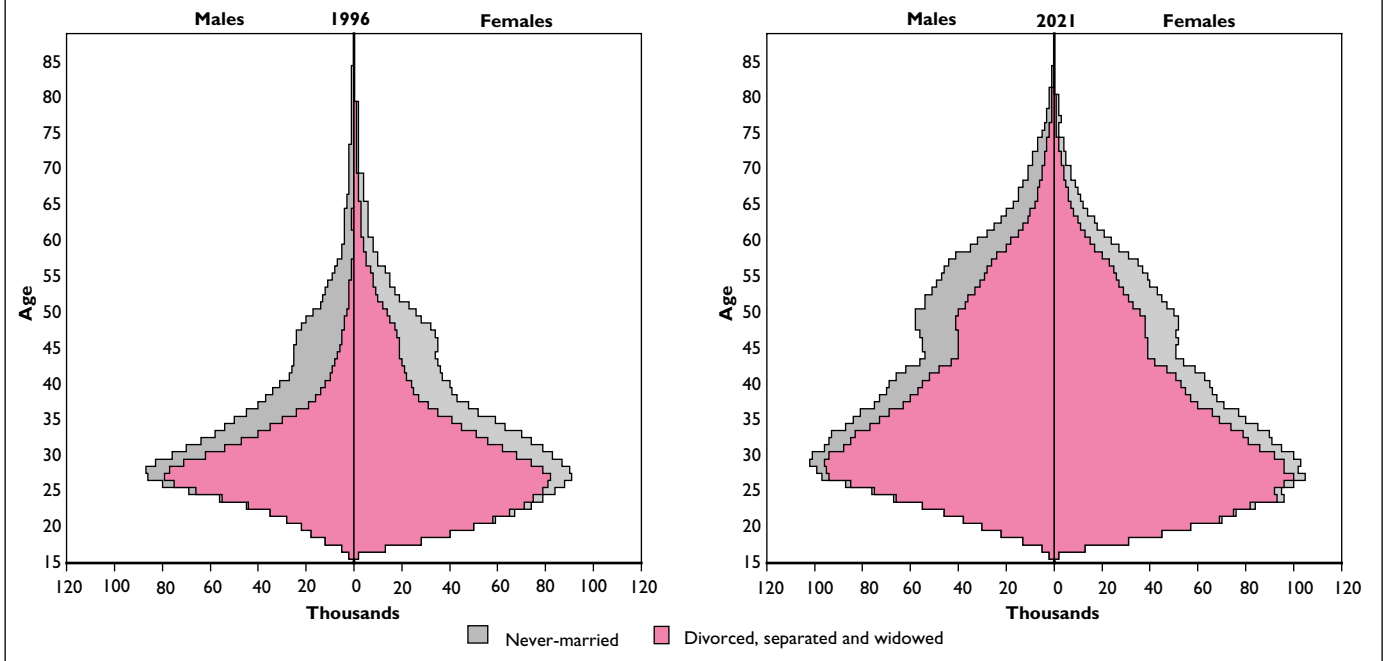


Table 4

Comparison of cohabitation variants, England and Wales, 1996-2021

Thousands

	Males			Females			
	All cohabiting Couples	Never married	Divorced	Separated or Widowed	Never Married	Divorced	Separated or Widowed
Principal projection							
1996	1,560	1,025	447	88	1,069	418	72
2001	2,001	1,419	501	80	1,481	454	66
2011	2,654	2,043	538	73	2,147	452	55
2021	2,926	2,345	514	68	2,464	414	49
High cohabitation variant							
1996	1,599	1,050	458	90	1,096	429	74
2001	2,149	1,538	526	85	1,603	476	69
2011	3,129	2,456	593	81	2,572	496	61
2021	3,459	2,818	566	75	2,951	454	53
Low cohabitation variant							
1996	1,521	999	436	86	1,043	408	70
2001	1,852	1,300	476	76	1,358	431	63
2011	2,179	1,630	483	66	1,722	408	50
2021	2,393	1,871	461	61	1,976	373	44

cent. Thereafter, the variants assume that the proportions cohabiting in each group will diverge further from the principal projection, so that from 2011 onwards they differ by ± 20 per cent for never-married individuals and ± 10 per cent for others. The lower margin of uncertainty assumed for the latter reflects the greater stability of the recent cohabitation time-series for previously married groups. With these alternative assumption, the total number of cohabiting couples at 2021 would be around 3.45 million in the high variant and 2.40 million in the low variant. Therefore, even the low variant assumptions produce an increase of over 50 per cent in the total number of cohabiting couples over the next twenty-five years.

Total partnership

Finally, by combining the results of the *de jure* and *de facto* projections, we can look at future trends in total partnership. These are summarised in **Table 5**. This shows that while the number of married couples is projected to fall by over 1.1 million by 2021, this is outweighed by a projected rise in cohabiting couples of about 1.4 million. So the total number of couples would rise by about quarter of a million (2 per cent) over this period. However, the total adult population is projected to rise by 10 per cent by 2021, so the *proportion* of people who are in couples would fall. In fact, the proportion of people in couples is projected to

Table 5 Projected population by age, sex and partnership status, 1996-based projections, England and Wales

	Population (thousands)							Percentages						
	16+	16-24	25-34	35-44	45-54	55-64	65+	16+	16-24	25-34	35-44	45-54	55-64	65+
Males														
1996	Total	20,091	2,960	4,265	3,602	3,378	2,512	3,375	100	100	100	100	100	100
	Married	11,271	106	1,774	2,431	2,552	2,008	2,398	56	4	42	67	76	80
	Cohabiting	1,560	225	728	338	182	55	32	8	8	17	9	5	2
	Never-married (unpartnered)	5,457	2,625	1,615	509	287	182	238	27	89	38	14	9	7
	Previously married (unpartnered)	1,803	3	147	324	356	267	706	9	0	3	9	11	21
2001	Total	20,597	2,955	3,826	4,123	3,487	2,734	3,473	100	100	100	100	100	100
	Married	10,865	70	1,281	2,472	2,478	2,106	2,459	53	2	33	60	71	77
	Cohabiting	2,001	240	809	534	259	105	54	10	8	21	13	7	4
	Never-married (unpartnered)	5,710	2,643	1,629	735	308	177	219	28	89	43	18	9	6
	Previously married (unpartnered)	2,020	2	107	382	442	346	741	10	0	3	9	13	21
2011	Total	21,759	3,224	3,396	3,852	4,065	3,290	3,932	100	100	100	100	100	100
	Married	10,352	74	898	1,893	2,457	2,307	2,723	48	2	26	49	60	70
	Cohabiting	2,654	298	856	715	485	209	91	12	9	25	19	12	6
	Never-married (unpartnered)	6,422	2,850	1,581	953	565	247	225	30	88	47	25	14	8
	Previously married (unpartnered)	2,330	2	62	291	557	527	893	11	0	2	8	14	23
2021	Total	22,543	2,991	3,652	3,430	3,804	3,869	4,798	100	100	100	100	100	100
	Married	10,161	70	979	1,568	2,004	2,383	3,157	45	2	27	46	53	62
	Cohabiting	2,926	281	929	688	549	341	139	13	9	25	20	14	9
	Never-married (unpartnered)	6,939	2,638	1,676	956	816	521	330	31	88	46	28	21	13
	Previously married (unpartnered)	2,518	2	68	218	435	624	1,172	11	0	2	6	11	16
Females														
1996	Total	21,265	2,805	4,077	3,544	3,380	2,574	4,884	100	100	100	100	100	100
	Married	11,371	249	2,191	2,564	2,594	1,869	1,904	53	9	54	72	77	73
	Cohabiting	1,560	403	679	266	141	47	25	7	14	17	8	4	2
	Never-married (unpartnered)	4,101	2,147	991	309	164	124	366	19	77	24	9	5	8
	Previously married (unpartnered)	4,233	6	216	405	481	535	2,589	20	0	5	11	14	53
2001	Total	21,568	2,830	3,658	3,979	3,482	2,801	4,818	100	100	100	100	100	100
	Married	10,955	175	1,641	2,640	2,545	2,014	1,940	51	6	45	66	73	72
	Cohabiting	2,001	435	797	437	205	82	45	9	15	22	11	6	3
	Never-married (unpartnered)	4,270	2,217	1,049	436	175	104	290	20	78	29	11	5	4
	Previously married (unpartnered)	4,343	3	171	467	558	601	2,543	20	0	5	12	16	53
2011	Total	22,413	3,102	3,311	3,683	3,933	3,347	5,037	100	100	100	100	100	100
	Married	10,440	181	1,183	2,060	2,539	2,261	2,217	47	6	36	56	65	68
	Cohabiting	2,654	512	897	636	394	151	63	12	17	27	17	10	5
	Never-married (unpartnered)	4,819	2,405	1,122	602	333	140	217	21	78	34	16	8	4
	Previously married (unpartnered)	4,501	4	109	385	667	795	2,541	20	0	3	10	17	50
2021	Total	23,106	2,874	3,571	3,340	3,640	3,799	5,882	100	100	100	100	100	100
	Married	10,243	171	1,281	1,716	2,080	2,334	2,661	44	6	36	51	57	61
	Cohabiting	2,926	473	963	656	483	262	90	13	16	27	20	13	7
	Never-married (unpartnered)	5,233	2,227	1,209	678	536	324	259	23	77	34	20	15	9
	Previously married (unpartnered)	4,704	3	118	290	542	878	2,872	20	0	3	9	15	23

Note: People who are separated and cohabiting are included in the cohabiting category, and excluded from the married category, in this table.

fall in each age group except for women aged 65 and over. A rise in the proportion of elderly women with partners will occur both because the proportions of women ever marrying are higher for cohorts now aged 40 and 65 than for older cohorts,¹⁶ and because projected improvements in male mortality will lead to a significant fall in the number of widows.

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Key findings

- The estimated number of cohabiting couples in 1996 is 1.56 million and it is projected to rise to nearly 3 million by 2021. About two thirds of the cohabiting population in 1996 are single i.e. never-married, while most of the remainder are divorced.
- Currently, only about 40 per cent of cohabiting men and 30 per cent of cohabiting women are aged over 35, but by 2021 it is projected that they would outnumber those cohabiting at younger ages.

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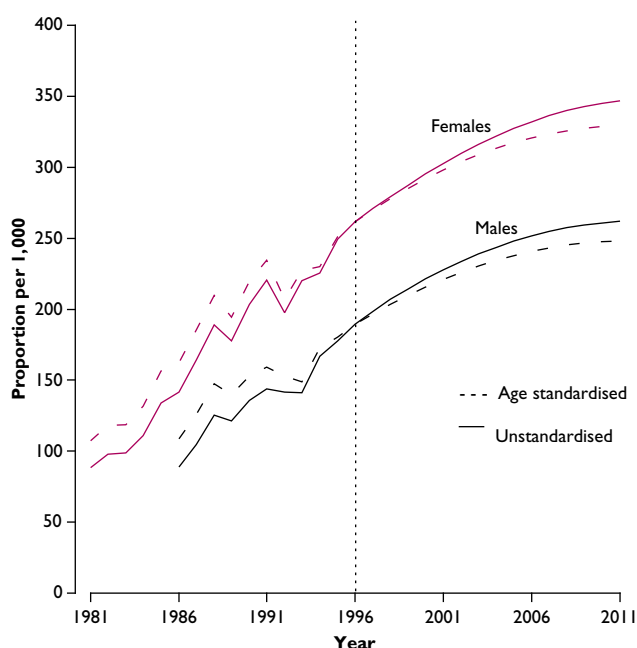
Box two

ASSUMED COHABITATION FOR THE NEVER-MARRIED

The time-series shown in Figure 2 relate to a very wide age range and so, before attempting to project this series forwards, we need to determine whether changes in the age structure of the never-married population might be a factor in explaining trends in the overall 18 to 49 series.

Figure A

Estimated and projected proportion of never-married persons aged 18 to 49 who are cohabiting, England and Wales, 1981-2011



Note: Unlike Figure 2, Figure A shows single year GHS data to 1996, rather than smoothed three year averages. The series in this chart have also been adjusted so that they are on a consistent basis with the cohabitation estimates for 1996 given in Table 1, in particular so that they are consistent with equal numbers of men and women cohabiting.

To do this, the cohabitation estimates for 1996 have been used to produce an age standardised version of the GHS series. Applying the estimated proportions cohabiting in 1996 to the estimated never married population in earlier years provides an estimate of the effect of the changing age distribution which can then be removed from the GHS series. The chart below shows that the resulting standardised series still has a clear upward trend, although not as great as the unstandardised series i.e. the changing age distribution of the never-married population does explain part of the overall increase for the 18 to 49 group. This is because the recent steep fall in first marriage rates at young ages² has increased the relative number of young never-married people for whom cohabitation levels are highest.

The standardised series for ages 18 to 49 i.e. the dotted lines in the graph were then projected forward. This was done in a similar fashion to the way marriage, remarriage and divorce rates were projected forwards in the legal marital status projections,² with the upward trend assumed to eventually level off and remain constant from 2011. The recent steep falls in first marriage at young ages will partly reflect young people replacing marriage with cohabitation (whether permanently, or temporarily with marriage being delayed to later in life), and partly people preferring to live alone rather than in either kind of partnership. A small allowance has been made to reflect the likelihood that, with the tendency for young people to delay entry into first partnership, there may be a time lag before the GHS cohabitation series fully reflect the recent fall in first marriage rates at young ages.

The chart shows that the projected unstandardised proportions (derived from the results of the projection) are slightly higher than the projection of the age standardised series. This is because of a projected further small shift in the age distribution of the never-married population toward ages where cohabitation levels are highest.