

# Perpetual postponers? Women's, men's and couple's fertility intentions and subsequent fertility behaviour

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## BACKGROUND

More women in England and Wales are reaching the end of their reproductive careers without having had a live birth. The figure rose from one in ten women born in 1945 to around one in five women born in 1960 (Figure 1). Whilst there appears to be some slowing between the 1965 and 1970 cohorts, the postponement of childbearing, and possibly the ultimate proportion who will remain childless, has once again increased among the 1975 cohort.

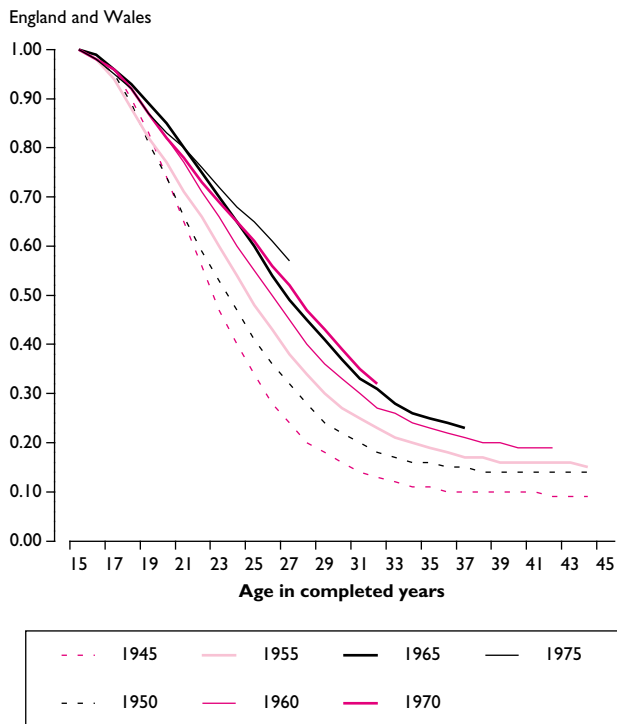
As shown in Table 1, the increase in childlessness has been the driving force behind the decline in average completed family size in England and Wales, at least up until the 1960 birth cohort. The number of women ending up with three or four biological children has been the same (19 per cent and 10 per cent respectively) for the 1950, 1955 and 1960 cohorts, with a small decrease in the number of two-child families. In contrast to other European countries, the one child family has not yet become significantly more common in England and Wales.

The 2002-based national population projections assume that the percentage of women remaining childless will increase a little further, to about 22 per cent of those born in 1990 and later, accompanied by a small increase in the number of one child families.<sup>1</sup> However, among some sub-groups – particularly those with degree level qualifications – the growth could be substantially higher. Focusing on women in their early forties at the time of the 2000 and 2001 General Household Surveys (cohorts born towards the end of the 1950s), Figure 2 shows that 28 per cent of those with degree level qualifications remained childless, compared to around 20 per cent of those with intermediate qualifications and 16 per cent of women with no qualifications. Women with degree qualifications were also more likely to have just one child, bringing the total who ended up with none or one to almost half. In contrast, women with no educational qualifications are significantly less likely to have just one child, and more

**In this article data from the British Household Panel Study (BHPS) are used to analyse gender differences in fertility intentions, and the correspondence between fertility intentions and subsequent fertility behaviour. By exploiting couple-level data, we examine whether partners have conflicting preferences for future fertility. Focusing on women who remain childless in their thirties we look at socio-demographic factors related to the intention to remain childless, or to start a family later on in life. By following up women over time, the characteristics of women who go on to have a child later on in life are considered. The importance of having a partner and the fertility intention of that partner in predicting whether a birth will occur are also examined.**

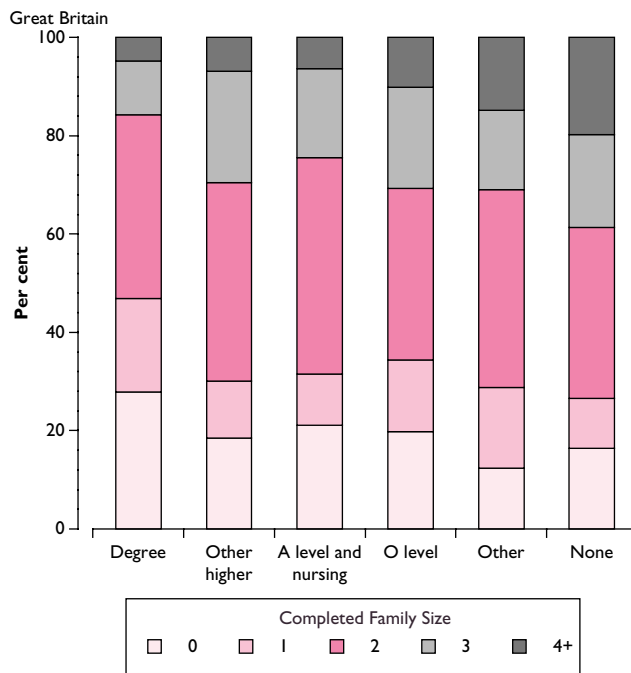
**Figure 1**

**Proportion of women who are childless by age, selected birth cohorts**



**Figure 2**

**Percentage distribution of completed family size by highest educational qualification, women aged 40-44**



**Table 1**

**Achieved family size at age 40 for selected birth cohorts**

England and Wales (percentage distribution)

Birth Cohort	0	1	2	3	4+	Average family size
1945	10	14	43	21	12	2.18
1950	14	13	44	19	10	2.05
1955	16	12	41	19	10	2.00
1960	19	12	39	19	10	1.95

Source: ONS Birth Statistics, 2002, Table 10.5

likely to have four or more children; indeed twenty per cent of women with no educational qualifications ended up with four or more children.

As noted by Rendall and Smallwood<sup>2</sup> the relationship between educational qualifications and fertility in England and Wales is the outcome of two counter pressures, balancing a tendency to postpone the start of childbearing against an acceleration in subsequent childbearing from the point of entry into motherhood. Currently the postponement effect dominates the subsequent acceleration, so that more highly educated women tend to end up with smaller family sizes. Deferring childbearing leaves less time for subsequent births – referred to in the demographic literature as the tempo-quantum interaction; impaired fecundity associated with biological ageing means that women may not explicitly choose not to have a child but may end up childless anyway.

A key question is whether the observed higher percentages of childless among more educated women are the result of planning (either early on in life, or later in their careers), or from perpetual postponement – that is to say, always maintaining either a positive or ambivalent intention to have a child but delaying to some date in the future and ultimately

reaching the end of their reproductive years childless.<sup>3</sup> In the current context of postponement of the start of childbearing, and the presence of competing activities such as the demands of a career, it has become difficult to distinguish between voluntary and involuntary childlessness.<sup>4,5</sup> For example, childbearing may be desired but no suitable partner may be available; or the opportunity costs associated with childbearing may be too great. Nevertheless, what is clear is that women need to be aware of the consequences of the 'choices' they make regarding the postponement of fertility, and have a realistic idea of the likelihood that they will end up with their desired number of children.

**AIMS OF THE RESEARCH**

In this article we use prospective data from a panel study to analyse individuals' fertility intentions and subsequent demographic behaviour. We move beyond existing research in Britain in a number of ways. First, we include men as well as women in our analyses to find out if men in low fertility countries such as Britain have lower intended family sizes than women. If this were true then it might explain why desired family sizes from survey data relying on women's reports alone (for example, those from the General Household Survey (GHS)<sup>6</sup>) tend to overestimate future childbearing at the aggregate level. Secondly, because the BHPS is a household survey, both members of a couple are interviewed. We are thus able to identify the extent to which partners have conflicting preferences for future fertility. Voas argues that the way in which such disagreements are resolved can have a dampening effect on subsequent fertility – if, for example, childbearing only takes place when both partners desire an additional child. He suggests 'Modern societies typically attach greater importance to individual autonomy than to childbearing; social forces tend to support someone wishing to avoid having a child, and generally the partner's consent is expected before any attempt at conception'.<sup>7</sup> Furthermore, Voas proposes that inertia may be an additional mechanism through which the status quo (the use of contraception by a couple) will tend to prevail until there is agreement as to whether an additional child should be tried for.

Thirdly, the BHPS survey repeats the questions on fertility intentions after an interval of six years. It is thus possible to examine, at the individual level, the extent to which intended family size is revised over time. We test whether the tendency, observed for aggregate data, for intended family size to be reduced among older women, holds at the individual level.<sup>8</sup> Fourthly, panel data from the BHPS allow us to examine, again at the individual level, the relationships between intentions and subsequent fertility. We focus in this article on childless women in their thirties, and examine the characteristics of those who report that they do and do not intend having any children. Finally, we investigate the extent to which older childless women go on to have a birth at older ages and examine whether the individual's own characteristics (such as level of education, earnings, gender role attitude), the presence of a partner and the partner's reported fertility intention are related to 'successful postponement'.

In summary our research questions are as follows:

1. How do fertility intentions differ by age, parity and gender?
2. Do couples report conflicting intentions?
3. How persistent are women's fertility intentions over time?
4. How many women achieve their fertility intentions?
5. What are the characteristics of older childless women who intend to have a birth?
6. What are the characteristics of older childless women who go on to have a birth?

Before describing the BHPS and presenting our results, the next section puts forward a few words relating to the problems inherent in analysing and interpreting fertility intentions data.

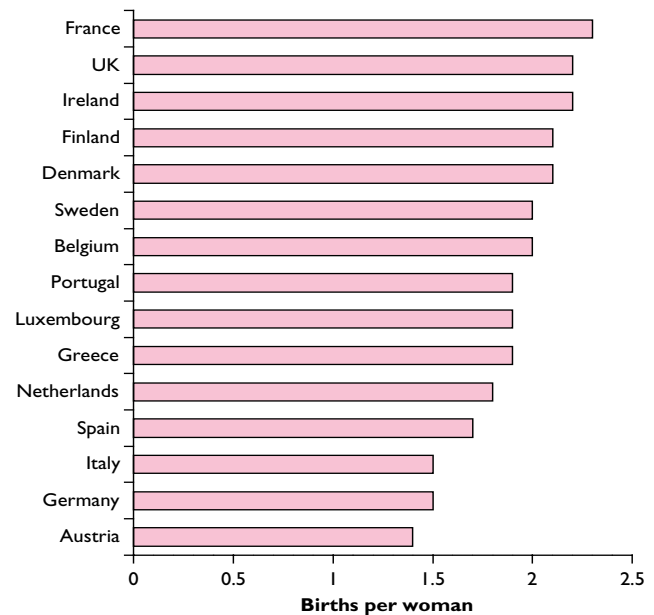
### ISSUES SURROUNDING THE ANALYSIS AND INTERPRETATION OF FERTILITY INTENTIONS DATA

Measures of intended or expected family size are usually based on survey questions which ask respondents whether they think they will have (additional) children. This type of question is somewhat different to questions which ask respondents to identify either their 'ideal' or 'desired' family size. The actual wording of such questions can make a large difference to the answers obtained. Clearly, a woman may desire an additional child, but due to constraints, for example, of time or financial resources, may not intend to have another. Common to all of these fertility questions, however, is the assumption that individuals are able to make, and report in a generalist social survey, rational choices about if and when they would like to have children. A considerable literature has debated whether this is likely to be the case. Criticisms include the inability of individuals (and couples) to make assumptions about their future ability to reproduce, the significant number of births that are reported to be unplanned, the lack of ability to foresee future socio-economic conditions, and the possibility that responses merely reflect existing social norms, for instance concerning ideal family size. Westoff and Ryder, using data from the US, found considerable mis-match at both the individual and aggregate level between intentions and subsequent fertility, arguing that 'respondents failed to anticipate the extent to which the times would be unpropitious for childbearing'.<sup>9</sup> A similar tendency for women to over-estimate their future fertility was observed in French data from the 1970s, suggesting that there is considerable uncertainty in intentions.<sup>10</sup>

The persistence through time of anticipated family sizes at or above replacement level, in the context of period fertility rates well below replacement level, has also thrown into question the usefulness of this type of survey data. Recent data from the 2002 Eurobarometer Surveys (Figure 3) suggest that expected family size has now fallen to well below replacement level for younger cohorts in Austria, Germany and

Figure 3

Average expected family size among women aged 18–39, EU 15



Source: 2002 Eurobarometer Survey, Fahey and Spéder, 2004

Italy. However, the UK is one of four EU15 countries – France, UK, Ireland and Finland – which continue to have an intended family size above two births per women.<sup>11</sup> At the same time, other research takes a more positive view on the usefulness of fertility intentions data. Using prospective data from the US National Survey of Families and Households, Schoen *et al* find that fertility intentions are important independent predictors of subsequent fertility behaviour and argue that intentions are not merely transient phenomena mediating the effects of other life course variables.<sup>12</sup>

### THE DATA

The data used come from the British Household Panel Study (BHPS) which has surveyed around 5,000 households annually since 1991. In the second wave, in 1992, and again in the eighth wave, in 1998, adults of childbearing age were asked: 'Do you think you will have any (more) children?'. Possible answers were 'Yes', 'Self, partner pregnant', 'No', 'Don't know'. If the respondent responded 'Yes', they were then asked 'How many (more) children do you think you will have?' Respondents were invited to give a number, or report 'don't know'.

We follow the usual practice of using biological parity as an indicator of parenthood status. Whilst being relatively straightforward to calculate, this approach suffers from the fact that it ignores children for whom the respondent is the mother- or father-figure but not the biological parent. Given the increase in partnership dissolution and repartnering, many individuals, particularly men, are co-resident with children who they are not the natural parent of, yet these children are likely to be of consequence in the decision whether or not to have another child.<sup>13,14</sup> Whilst it would be theoretically possible to identify step-children, the sample size of BHPS makes it infeasible to carry out a separate analysis for this group. Indeed, whilst over 5,000 households were included in the BHPS, sample sizes within gender, age and parity groups are relatively small.

An individual's achieved number of live births (parity) in 1992 is calculated using data from retrospective fertility histories collected in the

second wave. Men in particular may under-report the number of previous children they have fathered, especially those with whom they are not co-resident.<sup>15</sup> Subsequent fertility is indicated from the arrival of a natural child of the respondent into the household. Detailed information on the relationship of this new arrival to each household member is available from the household grid. Our measure of fertility thus assumes that children are co-resident with their parent. Since this is unlikely to be the case for a significant minority of children of male respondents, we only attempt to analyse the subsequent fertility of female panel members.

Analyses of fertility intentions reported at wave 2 are based on the total sample of males and females who responded at wave 2, irrespective of whether they responded to other waves. For these analyses (Tables 1a–c, Table 2 and Figures 4 and 5), we therefore use wave 2 cross-sectional weights to account for unequal sample selection and non-response. The responses are thus representative of the national population in 1992. Note that the sample sizes in all tables refer to the unweighted sample. For the longitudinal analyses we are interested in changes in individuals' intentions over time, and the relationship between intentions and behaviour at the individual level. We focus on women who took part in all of the first eight waves of BHPS. Since we are interested here in within-individual change, we use unweighted data.

## RESULTS

### How do fertility intentions differ by age, parity and gender?

Tables 1a to 1c show the percentage of the population intending to have a further birth according to gender, age and parity. Since men's reproductive lifespans are not limited to the same extent as women's, we include men up until age 49. Where the respondent (or their partner) is currently pregnant, the pregnancy does not count towards current parity but is included as an intended birth. (Unlike the GHS the BHPS questionnaire does not explicitly tell the respondent how they should consider their current pregnancy when responding to the fertility intention question – we argue that before the child is actually born it is an intended birth.) Row percentages refer to those who gave a definite answer to the question of how many more children they think they will have. The final column contains the number who either responded that they did not know whether they intended to have a(nother) birth, or that they did intend to have a birth, but did not know how many further children they think they will have. (Note that the latter group is very

small compared to the former.) A significant minority of men and women are uncertain about their fertility intentions – ranging from just two per cent of women in their late thirties with at least two children (Table 1c), to 37 per cent of childless men in their late thirties (Table 1a). The finding that the childless women are more uncertain about their intentions is consistent with research based on the GHS.<sup>16</sup> These data suggest that the same is true for childless men, and that differences in the level of uncertainty according to gender are small; if anything, men tend to report more uncertainty than women.

Of childless men and women in the youngest age group, the majority (over 60 per cent) intend to have two children; fewer than 7 per cent intend to remain childless; and between 4 per cent and 6 per cent intend to have only one child. Among older childless men and women the proportion intending to have children is much lower. Nevertheless one in five childless women in their late thirties intends to have a child, with one in ten intending to have at least two. Fifteen per cent of childless men in their early forties intend to have children, with one in eight intending to have two.

Table 1b shows the corresponding data for respondents who currently have one child. The percentage who intend to have no further children increases rapidly with age from one quarter of women aged 18–24 to three quarters of women aged 35–39. The trend for men is similar. Teenage parents and those in their early twenties were the most likely to intend to have an additional three or more children, giving a completed family size of at least four. Those who were aged in their late twenties were the most likely to plan a single further birth, which would result in a two-child 'norm'. Women who had achieved only one child by their late thirties are much less likely to intend to have an additional child, but given the relatively small sample size (n=50) caution should be taken in generalising from this.

The number of men and women in the youngest age group who already have at least two children is rather small, but the data shown in Table 1c suggest that it is these individuals who are more likely to intend further births. It is striking that 95 per cent of both men and women in their late thirties said they did not think they would have an additional birth. The latter may reflect a strong social norm that two children represent 'a complete family'.

Total intended family size is calculated as achieved fertility plus the number of future intended births. As has been found for women

**Table 1a** Distribution of number of further children intended by childless respondents, by gender and current age

Age in 1992	0	1	2	3+	Number giving an intention (100 per cent)	Number reporting 'don't know'	Percentage reporting 'don't know'
<b>Women</b>							
18–24	6.7	4.3	61.4	27.6	326	51	13.5
25–29	17.0	9.9	57.3	15.9	173	37	17.6
30–34	37.5	14.4	35.0	13.2	93	37	28.5
35–39	81.3	7.6	9.7	1.4	57	21	26.9
<b>Men</b>							
18–24	6.2	5.8	66.9	21.1	320	109	25.4
25–29	11.8	5.8	60.2	22.1	166	69	29.4
30–34	27.0	8.5	55.2	9.4	118	55	31.8
35–39	59.1	11.3	24.8	4.8	68	40	37.0
40–44	84.2	3.4	12.4	0	54	11	16.9
45–49	97.6	0	2.4	0	45	10	18.2

Source: author's analysis of British Household Panel Survey

**Table 1b** Distribution of number of further children intended by respondents with one child, by gender and current age

Age in 1992	0	1	2	3+	Number giving an intention (100 per cent)	Number reporting 'don't know'	Percentage reporting 'don't know'
<b>Women</b>							
18–24	23.6	34.7	25.6	16.2	54	6	10.0
25–29	27.4	43.6	13.9	15.1	86	14	14.0
30–34	38.9	41.7	14.2	5.3	76	14	15.6
35–39	77.3	18.5	3.5	0.7	50	9	15.3
<b>Men</b>							
18–24	32.7	20.6	31.4	15.3	23	5	17.9
25–29	24.9	42.1	22.1	10.9	60	14	18.9
30–34	37.1	36.5	15.7	10.6	78	9	10.3
35–39	53.7	33.2	4.0	9.2	39	8	17.0
40–44	94.5	3.6	1.9	0	43	10	18.9
45–49	96.8	0	0	3.2	57	6	9.5

Source: author's analysis of British Household Panel Survey

Table 1c

**Distribution of number of further children intended by respondents with two or more children, by gender and current age**

Age in 1992	0	1	2	3+	Number giving an intention (100 per cent)	Number reporting 'don't know'	Percentage reporting 'don't know'
<b>Women</b>							
18–24	63.7	20.9	7.5	7.8	48	3	5.9
25–29	76.4	18.3	4.6	0.6	141	29	17.1
30–34	86.1	9.6	2.0	2.3	251	27	9.7
35–39	95.4	3.1	0.1	1.4	267	6	2.2
<b>Men</b>							
18–24	46.7	21.3	28.8	3.2	10	4	28.6
25–29	67.3	25.5	5.3	1.9	67	15	18.3
30–34	79.3	9.9	6.7	4.1	157	20	10.3
35–39	95.8	2.4	1.4	0.4	210	24	11.3
40–44	98.6	1.5	0	0	235	14	5.6
45–49	98.3	0.9	0.3	0.6	253	5	1.9

Source: author's analysis of British Household Panel Survey

using data from the GHS, all age groups continue to report an average completed family size of just over two births, with this uniformity hiding larger differences in intended parity distribution (Table 2). There is no evidence of a substantial difference between men and women either in the overall average intended family size, or in the pattern of intended family size distribution by age. Older men and women are significantly more likely to intend to remain childless. 13 per cent of the 35–39 year olds expect to remain childless compared to 5 per cent of those aged 18–24. Older men and women are also more likely to intend to have just one child, whilst younger men and women are more likely to aspire to two children exactly. The low percentages intending to remain childless or to have just a single child are striking and in contrast to recent estimates for other European countries, notably Germany and Austria where over 30 per cent of those aged 20–34 years report that they intend to either remain childless or have just one child.<sup>17</sup>

A significant minority of both men and women, across all age groups, intend to have a third or higher order birth. The percentage ranges from 24 per cent of men aged 18–24, to 37 per cent of women in their early thirties. At first sight these intentions seem unrealistic, given that period fertility rates are well below replacement level – but in fact if we refer to recent estimates of achieved true birth order based on General Household

Table 2

**Distribution of total intended family size distribution and average family size by gender and current age**

Age in 1992	0	1	2	3+	4+	Average intended family size	Number giving intention (100 per cent)
<b>Women</b>							
18–24	5.1	6.4	56.3	20.2	12.0	2.29	428
25–29	7.9	10.1	51.1	22.2	8.6	2.15	400
30–34	8.6	10.3	43.7	24.7	12.7	2.28	420
35–39	13.1	11.2	45.7	19.1	10.9	2.07	374
<b>Men</b>							
18–24	5.7	7.4	63.3	17.9	5.7	2.18	353
25–29	6.8	8.6	53.1	23.3	8.1	2.19	293
30–34	9.2	11.0	47.4	22.3	10.1	2.17	353
35–39	13.0	9.5	49.7	17.5	10.4	2.05	317
40–44	14.6	13.4	42.3	18.8	10.9	2.01	332
45–49	11.4	15.6	45.7	16.0	11.4	2.08	355

Source: author's analysis of British Household Panel Survey

Survey data from the early 1990s, around 26 per cent of women in their late thirties had already achieved 3 or more births.<sup>18</sup>

In summary, women's aggregate fertility intentions derived from the BHPS are similar to those found by Smallwood and Jefferies (2003). Moreover, we suggest that men express similar levels of uncertainty to women and that their fertility intentions develop with age and parity in a similar way to women's; there is little evidence, at the aggregate level at least, that men intend to have fewer births than women. This does not preclude the possibility, within couples, of individuals disagreeing about their intended fertility – a question to which we now turn.

### Do couples report conflicting intentions?

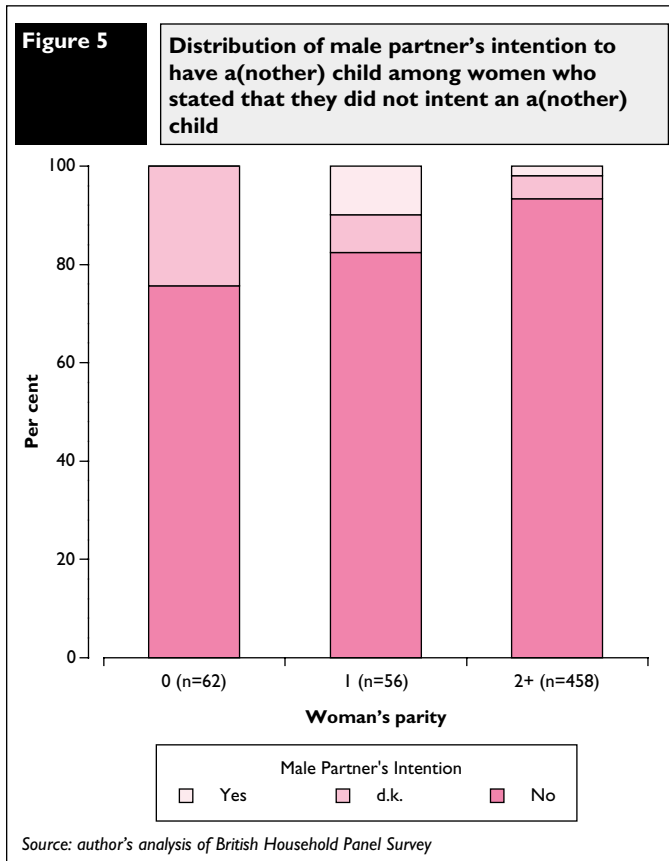
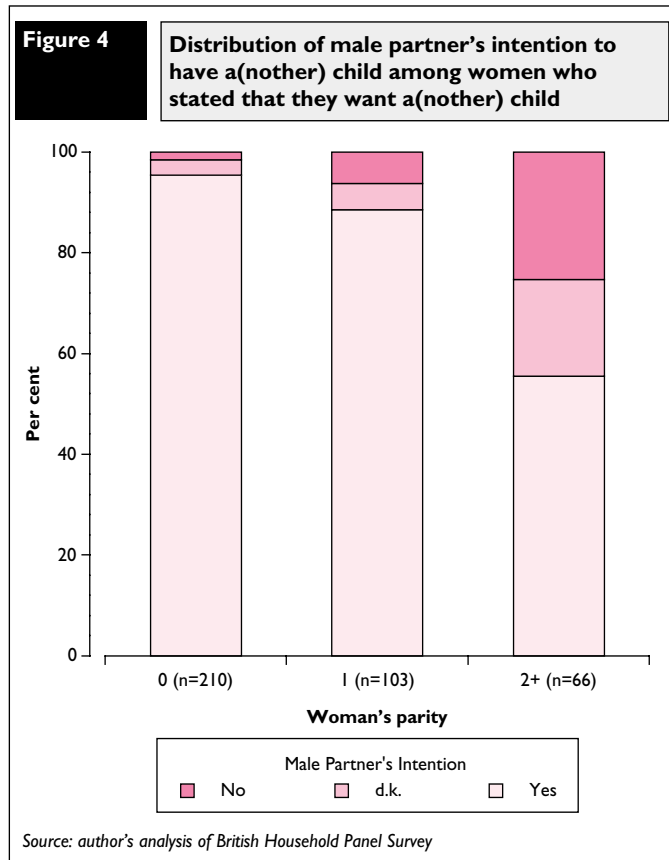
In order to examine conflicting intentions between male and female partners, we select couples where the woman was aged 18–39 in 1992. Of our original sample of 1,876 women aged 18–39, 1,229 reported having a partner at wave b. 118 of these partners did not provide a full interview at wave 2, so our sub-sample of couples for whom we have both partners' intentions is 1,111. Our conclusions regarding the consistency of partners' intentions are based on fully responding couples and may, therefore, be biased towards homogeneity of response. Furthermore, as Voas argues, consistency in the expressed intentions of partners within survey data may hide initial differences in preferences since 'one would generally expect differences to be resolved (whether by negotiation or domination), and many partners will subsequently adopt the agreed position as their own'.<sup>19</sup> We must be aware too that both partners may be present at the survey interview, with the result that the reporting of intentions is not independent. To declare an intention to have another child in the knowledge that the partner does not share that wish could easily be interpreted as implying that the union is impermanent, and one supposes that few respondents are likely to give such answers. In the BHPS survey the interviewer is asked to note who was present during this section of the interview, so we know that for four in ten cases the woman's partner was present when she answered the questions on fertility intentions.

Figure 4 shows for women of different parity who intended to have a(nother) child, the percentage of male partners who also intended to have a(nother) child, the percentage who did not know, and the percentage who did not intend to have an additional child. The three bars correspond to childless women, those with one child, and those with two or more children. Women's positive fertility intentions are generally shared by their male partner. However, the percentage of men also reporting that they intend to have a birth declines with the number of children already born. Among childless women who want at least one child, 95 per cent of men also report a positive fertility intention. Yet among women who have two children but expect another child, only 56 per cent of male partners express the same intention. If, as Voas suggests, lower preferences dominate, these additional births may not occur.

Agreement with partner's intention is also high for women not intending (additional) children (Figure 5). In this case however, the percentage of men who agree with their partner is highest for women who already have two children (93 per cent), and lowest for childless women (76 per cent). In fact, in cases where a childless woman did not intend to have a further child no men in our sample said that they thought they would have a(nother) child, but 24 per cent were unsure. Disagreement here refers to men being more uncertain. Replication of these remarkable levels of agreement on larger samples would be desirable before making additional inferences but the findings are certainly very striking.

For all parities, agreement is slightly lower among couples where the male partner was not present at the woman's interview. The general patterns shown in Figures 4 and 5 are the same, however, and differences in the overall level of agreement are not statistically significant.

In the last section of the article we carry out a multivariate analysis to see if partner's fertility intentions add any power to models predicting whether childless women subsequently have a birth. We first exploit the fact that the BHPS repeated the fertility intention questions six years later to examine the persistence of individual women's intended family size over time.



### How persistent are women's fertility intentions over time?

We now turn to the persistence of respondents' fertility intentions between waves 2 (1992) and 8 (1998), taking account of their intermediate fertility experiences. Since we need to know about children born subsequent to 1992, we can only undertake this analysis for women who took part in all of the waves between 2 and 8 inclusive. 26 per cent of the women reporting in 1992 did not continuously take part in each sweep up to 8. Comparison of intended family size distributions of this sub-sample with the original sample present at wave 2 suggests that those followed up slightly over-represent more educated women, older women, and under-represent those with initial intentions to have three or more births.

The figures shown in Table 3 suggest that after six years there are significant alterations of intended family size, especially among the youngest women. Whilst it is not always the case that intended family size is reduced over time, there does seem to be a tendency for women to revise their intention downwards rather than to increase it. Half of the women aged 18–24 at the start had the same intended family size six years later, almost a third had reduced their intended family size, and one fifth had increased it. Older women were more likely to remain constant in their intended family size, but any change was more likely to be downward. Monnier argues that this systematic over-estimation of future fertility results from respondents reporting a possibility of future fertility rather than expressing a well thought out strategy.<sup>20</sup>

**Table 3** Individual consistency in total intended family size reported in 1992 and 1998

Age in 1992	Smaller intended family size 1998	Same intended family size in 1998	Larger intended family size in 1998	Sample giving an intention in both 1992 and 1998
18–24	30.3	51.2	18.5	254
25–29	23.0	59.5	17.5	252
30–34	13.3	76.5	10.3	302
35–39	5.5	92.4	2.2	275
<b>Total</b>	<b>17.5</b>	<b>70.6</b>	<b>11.8</b>	<b>1,083</b>

Source: author's analysis of British Household Panel Survey

### How many women achieve their fertility intentions?

At the aggregate level unintended and unachieved births may cancel each other out, so that fertility intentions might match achieved fertility. Data from BHPS allow us to examine gross 'error' at the individual level. Table 4 shows the percentage of women who had a birth within six years according to their original intention.

In total, 50 per cent of women who intended a (further) birth actually had one. 11 per cent of those who originally intended not to have a birth did so. There are significant differences according to age. Clearly the younger women have a number of childbearing years left to them and so the fact that only just over a third of those who were intending to have a birth did so within six years should not necessarily be interpreted as a non-fulfilment of their intention. For the oldest age group, approaching the end of their reproductive years, almost half (44 per cent) did not have the child they originally intended. Unintended fertility was quite rare among the oldest women, only 2 per cent having such a birth. However, somewhat surprisingly, a third of the youngest women, and one-fifth of those in their late twenties who did not intend to have a child, did so within six years. We might hypothesise that for young adults, many life course events can occur within six years. In particular, women not currently in a partnership may be reluctant to report intentions to have children, but once they enter into a partnership childbearing becomes

Table 4

**Percentage of women having a birth within six years according to age and intention to have a (further) birth in 1992**

Age in 1992	Not intending, in 1992, to have (further) birth	Intending in 1992, to have (further) birth	Did not know in 1992
18–24	33.3	36.3	45.8
25–29	21.1	63.5	45.8
30–34	9.8	58.5	30.2
35–39	2.3	56.0	11.5
<b>Total</b>	<b>10.5</b>	<b>49.8</b>	<b>34.4</b>

Note: Sample excludes women pregnant in 1992.

Source: author's analysis of British Household Panel Survey

much more of a reality. The impact of time-varying covariates such as partnership formation on women's intentions and behaviour could be analysed using BHPS data, but in practice the sample size of women aged 18–24 who originally intended to be childless is too small (50 women) to obtain useful results.

When we break down Table 4 by parity the numbers become rather small but suggest that women with one child are the most likely to fulfil an intention to have a further birth – 84 per cent of such women aged 25–29 and 77 per cent of those aged 30–34 doing so. However, slightly less than half of childless women aged 30–34 and 35–39 who intended to have a child succeeded within six years. For many of these women the increase in sub- and in-fecundity associated with age means that time will be running out. We focus in the next section on these older childless women, and examine which factors are related to the intention to begin a family at older ages (that is, to be a postponer), and the characteristics of older women who do go on to have a child.

### What are the characteristics of older childless women who intend to have a birth?

The BHPS provides an opportunity to investigate the characteristics of older women who do and do not intend to remain childless. We take the sample of childless women in their thirties present at wave 2 (n=199) and perform a multinomial regression analysis of the probability that they either intend to have a further birth, don't know, or do not intend to have a further birth. Age is entered in continuous form as a control variable. Since lack of a partner is an important constraint facing childless women we include a binary variable indicating whether the woman was in a co-residential partnership (including both marriage and cohabitation).<sup>21,22</sup> Given the postponement effect of higher education on childbearing we expect that the percentage intending to have a birth at older ages will be higher for more educated women. We compare childless women with higher qualifications, and O level & above qualifications, with the reference group who have below O level or no educational qualifications. In order to identify the group of professional childless women with the greatest potential economic opportunity cost resulting from foregone earnings associated with leaving the paid labour force to care for children, we identify those who have net earnings in the highest quartile. Finally, research in the US suggests that voluntarily childless women are more likely to hold egalitarian attitudes towards women's roles and the importance of women's paid work outside the home.<sup>23</sup> We therefore include a measure of gender role attitude (derived from the sum of the response to six attitude statements asked in wave 1 – see Box 1 for details). Gender role attitudes are more egalitarian among younger women, and among more educated women.<sup>24</sup> Once these factors are controlled we hypothesise that those with the most egalitarian attitudes will be less likely to intend to have a future birth.

## Box one

### BRITISH HOUSEHOLD PANEL SURVEY QUESTIONS USED TO CONSTRUCT GENDER ROLE ATTITUDE SCORE

- (1) a pre-school child is likely to suffer if his or her mother works
- (2) all in all, family life suffers when the woman has a full-time job
- (3) a woman and her family would all be happier if she goes out to work
- (4) both the husband and wife should contribute to the household income
- (5) having a full-time job is the best way for a woman to be an independent person
- (6) a husband's job is to earn money, a wife's job is to look after the home and family.

Responses were given on a 5-point Likert Scale, strongly agree (1 point) to strongly disagree (5 points). The scoring for questions 3, 4 and 5 is inverted so as to make consistent with the rest. The gender role score is the sum of the individual scores and thus has a minimum of 6 and maximum of 30. Among the 199 childless women aged 30–39 the mean was 17.98 with a standard error of 0.19. We use a cut off of score of 20 or more to indicate egalitarian attitude. This corresponds to 13 per cent of women.

Table 5 contains the parameter estimates from the multinomial logistic regression model with their statistical significance.<sup>25</sup> See Box 2 for details of how to interpret the coefficients from logistic regression models and the meaning of odds ratios. The three levels of the dependent variable indicate whether the woman 'intends to have a birth', 'does not know whether she will have a birth', and 'does not intend to have a birth'. The reference group for the dependent variable is 'does not intend to have a birth'. Therefore the parameter estimates in column one refer to the log odds ratio of 'intending to have a birth' relative to 'not intending to have a birth' for that category of the covariate relative to the baseline category of the covariate. More positive parameter estimates in column one refer to an increased likelihood of intending to have a birth. Similarly, more positive parameter estimates in column 2 are associated with increased likelihood of being uncertain, as opposed to not intending to have a birth. To facilitate interpretation, we calculate predicted probabilities of being in each of the response categories of the dependent variable for selected populations and display them in Figures 6 and 7.

Consistent with the earlier cross-tabulations, age is seen to be strongly related to the probability that women intend to start a family. However, contrary to expectations, whether or not the woman has a partner is not significantly associated with intention. Educational level is strongly associated with fertility intention. Figure 6 shows the predicted probabilities of a childless woman aged 35 being in each of the response categories, according to highest level of education. The remaining covariates are set so that they represent women with a partner, who have average earnings and are more traditional in their gender role attitude. Women with intermediate level qualifications are the most likely to report that they think they will start a family (30 per cent did so), compared to 19 per cent of women with higher qualifications and just 6 per cent of women with below O level and equivalent qualifications. Among those who remain childless at older ages, we find a positive relationship

**Table 5** Parameter estimates from multinomial logistic regression of fertility intentions of childless women aged 30–39

Baseline of dependent variable is 'does not intend to have a birth'

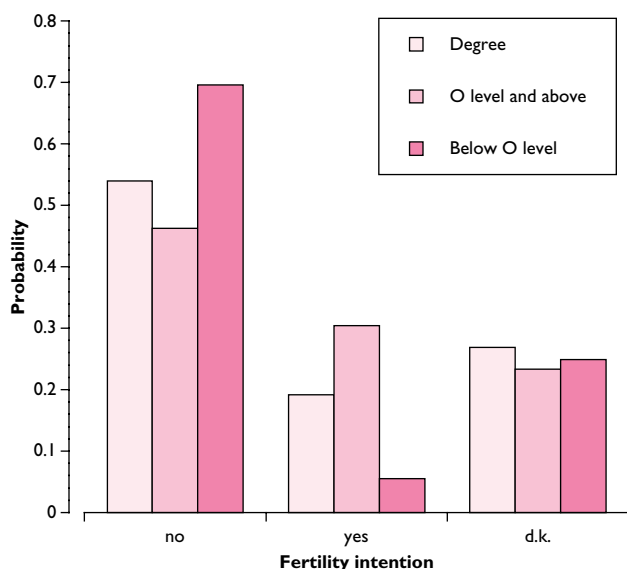
Variable	'Intends to have a birth' β (s.e.)	'Does not know' β (s.e.)
Intercept	14.21 (2.81)	7.27 (2.40)
Age in years	-0.48*** (0.07)	-0.23** (0.07)
Has a partner		
Yes	0.14 (0.42)	-0.19 (0.38)
No	0	0
Highest educational qualif.		
Higher level	1.50** (0.76)	0.33 (0.57)
O level & above	2.12*** (0.74)	0.34 (0.55)
Below O level & none	0	0
Earnings		
Highest quartile	0.87* (0.52)	0.66 (0.50)
Rest	0	0
Gender role attitude		
Egalitarian	-1.12* (0.61)	-0.31 (0.54)
Traditional	0	0

Sample = 199 childless women aged 30–39 at wave 2.

\* p<0.10 \*\* p<0.05 \*\*\* p<0.01

Source: author's analysis of British Household Panel Survey

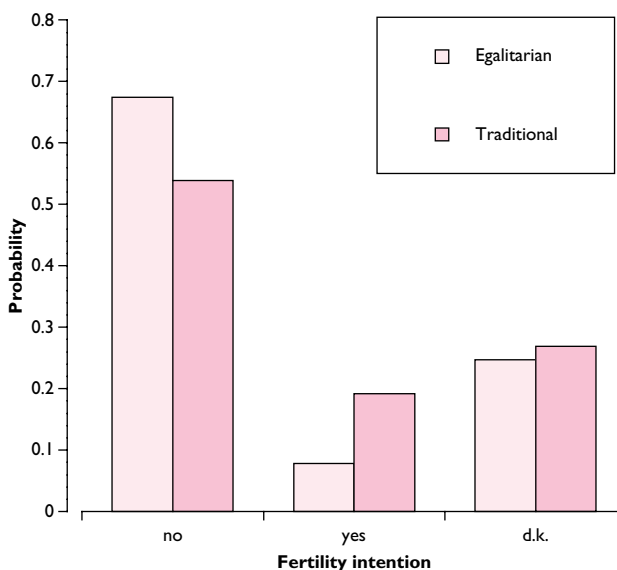
**Figure 6** Predicted fertility intention among childless women aged 35, according to highest level of education



Source: author's analysis of British Household Panel Survey

between high earning status and the anticipation of starting a family. For highly educated women in the top earnings quartile, the probability of intending to start a family increases from 19 per cent to 30 per cent. Lastly, we find that gender role attitude has an independent effect on fertility intention. Once age and education are held constant, women with more egalitarian attitudes are significantly ( $p<0.10$ ) less likely to intend to start a family. Figure 7 shows the predicted probabilities according to gender role attitude for 35 year old, degree educated women with average earnings. Whilst 19 per cent of degree educated women with traditional attitudes think they will start a family, only 8 per cent of those with the most egalitarian attitudes did so.

**Figure 7** Predicted fertility intention for degree educated childless women aged 35 according to gender role attitude



Source: author's analysis of British Household Panel Survey

In summary, data from the BHPS suggest that women who have postponed starting a family into their thirties but who continue to expect to start a family are characterised by higher levels of education and higher earnings. Fertility intentions of older childless women do not seem to be affected by whether they are currently in a partnership, but, given their level of education, women who have more egalitarian attitudes about women's paid work outside the home are less likely to intend to start a family.

### What are the characteristics of older childless women who go on to have a birth?

Next we investigate the characteristics of women who start a family whilst in their thirties, identifying the predictive effect of the woman's own fertility intentions, and those of her partner (where present). Table 6 shows the coefficients from a binary logistic regression of whether the woman had a birth within six years, for childless women aged 30–39 in 1992 (see Box 2 for details of method). We run three separate models. The first model contains covariates describing the woman's demographic and socio-economic characteristics as discussed in the previous section. The second model includes an additional variable describing the woman's original intention in 1992. The reference category is 'did not intend to have a child'. If the parameter estimate associated with intending to have a child is significantly different from the reference category given the other socio-demographic characteristics of the woman, this provides evidence of an independent effect for intentions. The final model uses a composite variable to identify the effect on subsequent fertility of having a partner with similarly positive intentions to have a child (the reference category); a partner who does not have similarly positive intentions; having a partner but not intending to have a child (recall that in almost all of these cases the woman's partner also did not intend to have a child); and having no partner at all. Comparison of the parameter estimates for the first two categories provides an indication of the additional impact of the male partner's intention.<sup>26</sup>

Age is a key factor predicting whether childless women in their thirties will go on to have a birth, in all three models. Whilst being in the upper earning quartile is positively associated with starting a family at older ages, no difference in the actual observed fertility is found according

## Box two

### INTERPRETING ODDS RATIOS FROM LOGISTIC REGRESSION MODELS

#### What are odds?

Set the probability of a woman having a birth within six years to be 0.6, thus  $p = 0.6$ . Then the probability of not having a birth which is  $(1 - p)$  is 0.4. The odds of the woman having a birth within six years are  $p/(1-p) = 0.6/0.4 = 1.5$ .

#### What is an odds ratio?

Suppose that eight out of ten women with no educational qualifications have a birth within six years, compared to four out of 10 women with degree level qualifications.

The odds of a women with no qualifications having a birth =  $0.8/0.2 = 4.0000$ .

The odds of a degree educated woman having a child =  $0.4/0.6 = 0.66667$ .

Next we compute the odds ratio for having a child =  $4.0000/0.6667 = 6$ .

Thus the odds of having a birth are 6 times higher among women with no educational qualifications.

#### What is binary logistic regression?

Logistic regression models the logarithm of the odds of an outcome as a linear combination of predictor variables.  $\text{Logit} = \ln(p/(1-p)) = b_0 + b_1X_1 + b_2X_2 + \dots$

#### How do we interpret the coefficients from binary logistic regression?

The coefficients from the regression shown in Table 6 are the increase in the log odds ratio associated with a one unit increase in  $X$ . If the predictor variable is categorical then the coefficient represents the increase in the log odds ratio of achieving an outcome associated with that category of the predictor variable compared to the reference category of the predictor variable.

For example, in Model 1 of Table 6, the coefficient for having a partner present is 1.18. This is the increase in the log odds ratio of having a birth within six years for women who did have a partner as compared with those who did not. The odds ratio can be computed

by raising  $e$  to the power of the logistic coefficient. In our example the odds ratio is thus  $e^{1.18} = 3.25$ . That is to say that the odds of having a birth within six years are 3.25 times higher for women with a partner than for women without a partner, taking account of the other factors included in Model 1.

#### How are predicted probabilities calculated?

We can demonstrate the effect of a predictor variable on the probability of an outcome by calculating the predicted probability of each outcome for different populations with chosen characteristics. For example, in Figure 8 we examine the probability of having a birth within six years according to the woman's and her partner's fertility intention. All other variables are held constant at a chosen level – here we choose to refer to a 35 year old childless woman with a degree who has average earnings and more traditional gender role attitudes.

The predicted probability,  $\pi_1$ , of having a birth within six years for a childless woman where both she and her partner intend to have a child, is thus

$$\begin{aligned}\pi_1 &= \frac{e^{(b_0 + b_1X_1 + b_2X_2 + \dots)}}{1 + e^{(b_0 + b_1X_1 + b_2X_2 + \dots)}} \\ &= \frac{e^{(7.82 + (35 - 0.24) + 0.02)}}{1 + e^{(7.82 + (35 - 0.24) + 0.02)}} \\ &= 0.5712 / 1.5712 = 0.3635\end{aligned}$$

The predicted probability,  $\pi_2$ , for a woman with no partner and who does not intend to have a child is

$$\begin{aligned}\pi_2 &= \frac{e^{(7.82 + (35 - 0.24) + 0.02 - 2.47)}}{1 + e^{(7.82 + (35 - 0.24) + 0.02 - 2.47)}} \\ &= 0.0483 / 1.0483 = 0.0461\end{aligned}$$

#### What is multinomial logistic regression?

Multinomial logistic regression is an extension of binary logistic regression used when the dependent variable has three or more categories. In the section of the article 'What are the characteristics of older childless women who intend to have a birth?' we model the probability that a woman either a) intends to have a birth, b) does not know, or c) does not intend to have a birth. We choose the baseline for the dependent variable to be does not intend to have a birth. The multinomial logistic model breaks the regression up into a series of binary regressions comparing each of the possible outcomes to the baseline outcome. Thus the first column of coefficients in Table 5 are the log odds ratios of intending to have a child, versus not intending to have a child associated with the particular category of the predictor variable. As for binary logistic regression the coefficients can be exponentiated to give odds ratios and predicted probabilities of being in each of the categories of the dependent variable calculated for a population with given characteristics of predictor variables.

to educational level. Despite the fact that having a partner was not associated with the intention to have a birth, the odds of having a birth are found to be three times higher for women with a partner (odds ratio =  $\exp^{(1.18)} = 3.25$ ). Model 2 shows that fertility intentions have an independent effect on actual fertility, with the odds of a birth being ( $\exp^{(2.00)} = 7.22$ ) seven times higher for those who said that thought they would start a family. Notice that once the woman's fertility intention is accounted for in Model 2, the parameter estimate for gender role attitude becomes more positive – that is to say, egalitarian women are less likely to intend to have a child, but among those who do intend to have a child, they are more likely to do so ( $p < 0.10$ ). Finally, in Model 3 we estimate the combined effect of having a partner and this partner's

intentions. (Figure 8 shows the predicted probabilities based on a degree educated childless woman aged 35 who has average earnings and more traditional gender role attitudes). Women in a couple where their partner also intends to have a child are the most likely to achieve a birth (36 per cent). The chances of having a birth may be slightly lower for couples where the woman does, but the man does not, intend to have a child (29 per cent) – but the difference is not statistically significant. Women without a partner, especially those who do not intend to have a birth, are significantly less likely to start a family (4 per cent).

**Table 6**

**Coefficients from logistic regression of whether childless women aged 30–39 had a birth in subsequent six years**

Variable	Model 1		Model 2		Model 3	
	$\beta$	(s.e.)	$\beta$	(s.e.)	$\beta$	(s.e.)
Intercept	7.83	(2.98)	3.11	(3.33)	7.82	(3.14)
Age in years	-0.31***	(0.09)	-0.20**	(0.10)	-0.24**	(0.10)
Had a partner in 1992						
Yes	1.18**	(0.50)	1.27**	(0.52)		
No	0		0			
Highest educational qualification						
Higher level	0.33	(0.70)	-0.07	(0.75)	0.02	(0.74)
O level & above	0.14	(0.69)	-0.36	(0.75)	-0.30	(0.74)
Below O level & none	0		0		0	
Earnings						
Highest quartile	0.90*	(0.49)	0.93*	(0.53)	0.93*	(0.52)
Rest	0		0		0	
Gender role attitude						
Egalitarian	0.66	(0.57)	1.11*	(0.62)	0.95	(0.59)
Traditional	0		0		0	
Woman's fertility intention						
Yes			2.00***	(0.62)		
Did not know			1.11*	(0.65)		
No			0			
Joint fertility intention						
Partner, both intend					0	
Partner, woman intend, man not intend					-0.32	(1.11)
Partner, woman not intend					-1.51***	(0.52)
No partner, woman intends					-1.53**	(0.72)
No partner, woman not intend					-2.47***	(0.78)

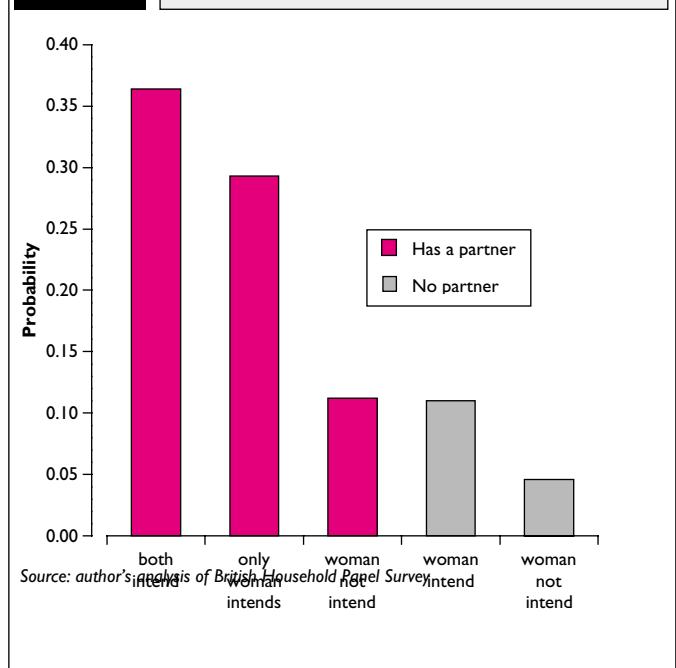
Sample = 151 childless women aged 30-39 at wave 2 who remained continuously in the survey until wave 8 1998.

\* p<0.10 \*\* p<0.05 \*\*\* p<0.01

Source: author's analysis of British Household Panel Survey

**Figure 8**

**Probability of a birth within six years among childless women aged 35 according to her own and her partner's fertility intention**



Source: author's analysis of British Household Panel Survey

**CONCLUSIONS**

The BHPS has proved a valuable source of individual level data on fertility intentions and behaviour. However, the relatively small sample sizes within any one gender, age and parity group mean that our conclusions must remain tentative. At the aggregate level, data from the BHPS provide similar results regarding age specific patterns of women's fertility intentions as are obtained from the General Household Survey. Data for men from the BHPS suggest that aggregate men's fertility intentions are remarkably consistent with women's, in terms both of patterns by age and current parity, and intended completed family size. No evidence is found to suggest that men in Britain intend to have smaller families. Prospective longitudinal data from the BHPS suggest that women tend to overestimate their future fertility, and that this is particularly the case for childless women. Not all the 'error' is in terms of lack of births, however. A considerable minority of younger women did not intend to have a birth, but ended up having one anyway. We have shown that as women age, they do tend to revise their fertility intentions downwards. These findings lend support to arguments which question the usefulness of fertility intentions as predictors of actual fertility and for use in population projections. At the same time, the multivariate analyses suggest that, despite many women over-estimating their future fertility, fertility intentions among older childless women have the greatest power in predicting who will actually go on to have a birth. This may be interpreted as meaning that intentions have an independent value and should not be dismissed. Fertility intentions over the life course are likely to be modified by individuals' fertility experience and changing socio-economic and demographic circumstances. Whilst in theory the BHPS provides prospective longitudinal information on such changes – for example, on partnership formation and dissolution, employment status and health – the sample sizes are not large enough within particular age and parity groups to warrant the inclusion of these additional time-varying characteristics into an analysis.

Of particular interest are the significant number of women who have postponed childbearing into their thirties and who continue to intend to start a family. Data from the BHPS suggest that only around half will manage to do so in the subsequent six years. Further research is required to investigate the extent to which those who did not achieve a birth (the perpetual postponers) were unable to for biological reasons as opposed to social or economic constraints. Whilst level of education is strongly correlated with the intention to start a family among older women, no educational differences in the likelihood of actually having a child are seen. Instead, it is women in the top earnings quartile who have postponed childbearing into their thirties who are the most likely to have a child at older ages. Whilst these women have the greatest opportunity cost of childbearing in terms of foregone earnings if they leave the labour force or reduce their hours to undertake childcare, they also have the greatest amount of money to pay for formal care. Analyses of the BHPS suggest that a lack of a partner is a key variable affecting the chance of starting a family at older ages, supporting the qualitative evidence of popularist writers.<sup>27</sup>

Having a partner with conflicting fertility intentions will affect the likelihood of a future birth. Comparison of matched partners' intentions has demonstrated considerable consistency in the responses. The desire to present a unified front to an interviewer, especially when both partners may be present at the interview, does not mean that there are no underlying differences of intention in both the number and timing of births. BHPS data suggest that conflicting responses are likely when the woman already has two or more children and intends to have a further birth. In such cases almost half of the men were either uncertain or did not intend to have other child; if couples tend only to go for an additional birth when both parties are in agreement, then it is possible that such differences of intention will result in lower observed fertility than intended family size estimates would suggest. For childless women

in their thirties who intended to have a birth, we found only weak support for the hypothesis that having a male partner with a conflicting intention reduced the probability of actually achieving the birth. What is clear is that, statistically speaking, a childless woman's intention is more important in predicting future fertility than her partner's. Future research should consider whether this dominance of the woman's intentions changes with parity – one might speculate that women who are keen to have children will overcome opposition to start a family, but that with each additional child it becomes increasingly unlikely that pronatalist intentions will prevail if the partner is reluctant to have more.

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## Key findings

- At the aggregate level, data from the British Household Panel Survey (BHPS) suggest that men's and women's fertility intentions are consistent. No evidence is found that men intend to have smaller families than women.
- Within couples there is considerable consistency in the reported future intended fertility.
- Conflicting responses are more likely when the woman already has two or more children and intends to have a further birth. In such cases almost half of the men were either uncertain or did not intend to have another child.
- Prospective individual level data from the BHPS show that women overestimate their future fertility.
- Of the childless women aged in their thirties who intended to start a family only around one half managed to do so in the subsequent six years.
- Whilst the fertility intentions of older childless women do not seem to be affected by whether they are currently in a partnership, having a partner is a key factor affecting the likelihood that the woman will have a child.
- Starting a family when aged in their thirties is more common among women in the highest earnings quartile.

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