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Reported childlessness: a further look at cohort estimates based on survey time-series data

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ABSTRACT

The paper investigates further the over-reporting of childlessness in the General Household Survey in recent years and finds that it is due either to respondent error or to respondent fatigue. The bias can be corrected for to some extent by using information on own children in household. Revised fertility histories incorporating own children identified from household information give period estimates of total fertility that are in close agreement with national vital registration statistics, unlike those based on original fertility histories of recent years. Misreporting in fertility histories dates primarily from the reorganization of the GHS at the 2000-01 round, and particularly from 2003-04, when the option of laptop self-completion was introduced for reporting demographic histories.

KEYWORDS

Childlessness; demographic surveys; fertility measurement; own children; reporting errors; data collection; data reporting; data quality

EDITORIAL NOTE

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The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors and should not be attributed in any manner to ONS or GROS. The General Household Survey is conducted by the Office for National Statistics. Access to the data is provided by the UK Data Archive.

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REPORTED CHILDLESSNESS: A FURTHER LOOK AT COHORT ESTIMATES BASED ON SURVEY TIME-SERIES DATA

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1. BACKGROUND

The present note investigates in more detail Murphy's (2009) anomalous and surprising findings regarding the level of childlessness reported by female cohorts in successive rounds of the General Household Survey (GHS), an annual continuous general purpose survey conducted by the Office for National Statistics. Murphy shows that the proportion of women born in 1935-39 to 1950-54 who declare no live births rises from ages 40-44 or 45-49 to age 55-59, when these cohorts are followed up in GHS rounds 1986 through to 2006. Clearly the cohort-specific proportions childless should be non-increasing, and one would expect it to flatten well before age 50, since first births to women aged 40+ are rare (Smallwood 2002). The rise with age in the implied proportions childless is very substantial in some cohorts —from 12.8% at 40-44 to 20.7% at age 55-59 among women born in 1950-54 (Murphy 2009, Table 2). These findings are surprising, since the GHS demographic histories have long been regarded as of high quality.

Murphy considers a range of potential explanations for the anomaly—migration, mortality, institutionalization, changing differential response rates, changing item non-response, change in sample design, change in question wording in 2004, and genuine forgetting by respondents—and finds that none can account for the scale of the upward shift in childlessness. He concludes reluctantly that the phenomenon is explicable only by an increase in deliberate misreporting of births in the GHS. Mean family size among parous women has been relatively stable within cohorts, implying that the bias is attributable to erroneous reports of childlessness rather than of the parity of parous women. The inference is that parous women were, as they aged, increasingly reporting themselves as childless.

The present investigation extends Murphy's study by looking at household composition in conjunction with fertility history information in the GHS. We find sizeable discrepancies in recent years between the two types of data. In particular, in recent rounds of the GHS own children are found in the households of a substantial minority of women who are declared childless in the Family Information section of the questionnaire. In the present note we show that the over-reporting of childlessness identified by Murphy in recent GHS rounds is due primarily either to error or respondent fatigue, and that it can be corrected for to some extent.

2. DATA

The data used here are a time series of the General Household Survey from 1979 to 2007 that includes in harmonized form fertility histories together with substantial sections of the Family Information section of the GHS over that period.

The GHS is a general purpose survey of the private household population of Great Britain and aims to interview all persons aged 16 and above in sampled households. It has two components, a household schedule and an individual schedule. The household schedule lists all persons present in the household, and collects for each details of sex, age, date of birth, marital status and relationships in household. Up to 1993, relationships in household were coded as the relationship to the head of household (from 2000, the "head of household" concept was replaced by "household reference person"). From 1994, a full household grid classifying the relationship of each person to every other person in the household was collected. The individual questionnaire is administered to all persons aged 16 and above in the household, and has several sections. Demographic histories are collected in the Family Information section, located towards the end of the interview.

The Family Information section has varied over time, but starts by asking for details of the current or most recent marriage/relationship, followed by a marriage history together with dates of premarital cohabitation. In 1979-85 the section was asked of all women aged 18-44 and ever married women aged 16-17, and from 1986 onwards of men and women aged 16 to 59, but male respondents are not asked about their fertility history.

3. METHODS

In addition to the birth history collected in the Family Information section of the questionnaire ("original fertility history"), we construct a revised birth history. This combines the original fertility histories and those own children recorded in the household section of the questionnaire who were not declared in the Family Information section. We refer to the latter as "recovered" births. We recovered undeclared births from the 1994-95 GHS round onwards only, because a full matrix from which relationships in household can be identified unambiguously was available only from 1994-95. Our revised birth histories therefore differ from the original birth histories from GHS round 1994-95 only; between 1979 and 1993-94, the two sets of histories are identical.

Date of birth in the household section is collected as day/month/year, whereas dates of birth in the fertility history are based on month and year only.[1] In the relationship grid, natural children are not separately distinguished from adopted children, but step and foster children are separately coded. For each eligible woman, we identified own children in the household as those coded the natural or adopted child of the woman who were at least 15 years younger than her. These own children were then compared with each of the births declared in the original fertility history, and considered to match a reported live birth where the dates of birth were identical, or that the month of birth was the same and the year of birth differed by one year only, or that the year of birth was the same and the month of birth differed by less than 10 months.[2] Own children were added to the original fertility history, creating a revised fertility history, if (a) they did not match a reported live birth on these criteria and (b) their inclusion did not result in a birth interval of less than 9 months. The own child procedure cannot, of course, recover information on undeclared children who have died or are living outside the household. Adopted and natural children in the household cannot be distinguished, but adopted children will have had a negligible impact on our reconstruction. Between 1971 and 1978, the annual number of adoptions in England and Wales was between 2% and 3.5% of annual births; from 1979-1993, the figure is between 1% and 2% and since then adoptions have numbered no more than 1% of annual births.[3]

The recovery procedure was validated in several ways. Checks show excellent agreement between recovered children and two derived variables routinely produced

[1] Dates of birth were removed from the file made available to the research community from the 2000-01 round onwards, as they were considered potentially disclosive on confidentiality grounds. This was around the time when the problems with GHS data started to become pronounced. Murphy's original analysis therefore did not have access to these birth histories. However, the more recent years have since been made available by ONS under special licence and so the present analysis uses dated birth histories collected for GHS rounds both before and after 2000.

[2] The GHS fertility histories were largely internally consistent and only light editing was required. Defining missing dates as those with a missing year, no more than 0.5% of self-declared parous women in any survey year had one or more missing dates in the fertility history, with the exception of the 1982 and 2006 rounds. In 1982, the figure was 6.3%, due to dates with missing years but month present; this was reduced to 1.5% using information from the household schedule. In 2006, the 1.7% with missing dates in the fertility history could not be edited further. All fertility history dates with a valid year were found also to have a valid month present.

[3] In the mid-70s, when the numbers were substantial, about two thirds of adoptions were by people who were adopting a child of one of the partners. While the statistics do not distinguish between mothers and fathers, it is reasonable to assume that the majority of these were by step-fathers rather than step-mothers, since natural mothers co-reside with the child in the great majority of cases. It is therefore reasonable to assume that the proportion of adoptions of the classic type were never more than 1% of births in a year, even when the total numbers of adoptions were considerably higher than they are currently; see Table 3.9 of Central Statistical Office (1977) and Figure 2.31 of Central Statistical Office (1990).

with GHS datasets: (a) the number of own children present in the family unit according to the associated GHS derived variable; (b) the GHS derived variable on household type. We will see below also that aggregate period rates based on the revised fertility histories agree well with national rates based on vital registration data. The analyses below use weighted estimates from 1996-97 when survey weights are available and unweighted estimates before then; the weights are scaled here by the average weight in the year in question. Item non-response to the fertility question in the period 1994-2005 ranges between 0.7% and 3.9%, but increases to 10.2% in 2006 and 6.1% in 2007. These figures exclude proxy respondents, who were not asked the Family Information section, from both numerator and denominator; the corresponding figures including proxies are 6.2%-9.5% 1994-2005, rising to 15.5% and 11.6% in 2006-7. Murphy (2009) has shown that changing non-response cannot account for the intra-cohort rise in reported childlessness.

4. FINDINGS

Table 1 shows the proportion of women for whom at least one recovered (i.e. undeclared) birth is identified, by number of births declared in the original fertility history and year of survey 1994-2007.

	Survey year										Sample sizes (unweighted)	
No. of births declared	1994	1995	1996	1998	2000	2001	2002	2003	2004	2005-07	Min. (across years)	Max. (across years)
0	2.9	1.5	1.7	4.1	9.4	6.6	5.3	16.2	12.8	11.8	1,748	3,844
1	0.5	1.1	0.4	1.6	0.5	1.0	1.0	1.7	1.3	1.9	808	1,663
2	0.5	0.4	0.2	0.7	0.4	1.4	0.2	0.9	1.3	1.3	1,554	3,144
3	0.6	0.3	1.0	0.8	0.2	0.8	0.4	1.3	1.1	1.4	716	1,281
4	0.8	0.0	0.3	1.4	0.8	0.0	0.8	0.9	2.2	1.1	229	387
5	0.9	1.9	3.1	3.1	0.0	1.6	1.0	0.6	2.0	1.6	68	120
Not stated/ refused	40.0	41.7	7.0	42.9	26.6	39.9	49.8	41.1	58.5	44.0	3	30
All*	1.3	0.8	0.9	2.0	3.6	3.0	2.2	7.3	6.0	5.3	5,326	10,538

Table 1 Percentage of women with at least one recovered birth by number of births declared in original fertility history and survey year, GHS 1994-2007, weighted.
Sample: women aged 16-59 who were not proxy respondents
Note: * includes parities 6+

Before 2000, the overall proportion with recovered births is low, at 2.0% and below, though somewhat higher among the self-reported childless, reaching 4.1% among such women in 1998. The overall proportion nearly doubles in 2000 by comparison with 1998, falls back to 2.2% in 2002, and then rises to reach 5.3-7.3% in

2003-2005/7. From 2000 onwards, the proportion of the childless with an undeclared own child is substantially higher, at 9.4% in 2000, falling back to 5.3% in 2002, but then turning up sharply in 2003 to 16.2% and remaining above 11% in subsequent years. In summary, discrepancies between the original birth histories and the household schedule data are concentrated among childless women, and are concentrated in the survey rounds since 2000-01. The substantial overstatement of childlessness in recent rounds of the GHS is not due to women's being unwilling to acknowledge their children, or to lapses of memory, since many undeclared births are reported at the household questionnaire stage.

	Survey year										Sample sizes (unweighted)	
Age at survey	1994	1995	1996	1998	2000	2001	2002	2003	2004	2005-07	Min. (across years)	Max. (across years)
16-19	0.0	0.0	0.2	0.0	0.9	0.5	0.0	1.0	0.6	0.0	324	653
20-24	0.0	0.0	0.2	0.8	1.6	1.6	1.7	3.3	3.3	1.6	316	643
25-29	0.8	0.5	1.0	2.4	3.2	1.8	1.7	9.4	5.3	6.4	292	582
30-34	5.1	1.1	1.9	6.7	13.8	5.7	6.3	18.4	14.1	10.2	213	469
35-39	6.1	1.4	2.8	8.9	21.6	17.0	11.6	33.7	23.1	19.9	120	361
40-44	4.7	6.9	7.3	10.0	22.2	20.2	13.8	36.8	40.2	30.8	86	339
45-49	12.4	4.3	6.3	16.3	24.5	18.0	13.1	35.2	25.4	29.6	74	291
50-54	10.3	10.1	5.2	7.4	17.0	13.9	6.1	23.3	25.5	23.5	68	248
55-59	7.6	3.3	5.3	4.3	8.6	4.6	9.8	14.9	14.5	18.6	60	234
All	2.8	1.5	1.7	4.0	9.3	6.4	5.0	16.1	12.6	11.5	1,740	3,820

Table 2 Percentage of childless women with recovered births by age at survey and survey year. GHS 1994-2007, weighted.
Sample: women aged 16-59 who were not proxy respondents

As it is mainly the apparently childless who misreport their births, the proportion of self-declared childless women with at least one own child in the household is shown in Table 2, by age and survey year. Several points are noteworthy. The misreporting of childlessness is more severe at older ages, especially ages 35 to 49. While the measured errors decline somewhat after age 50, from 1998 on, this is almost certainly because any undeclared children of the oldest reportedly childless women will be likely to be living elsewhere, so the reported fertility histories will be incorrect but consistent with household membership. The intra-cohort rise in the proportion childless strongly implies that the frequency of erroneous reports of childlessness rises with age. Younger age groups are not free of the problem—for example, from 2000 onwards 6.3%-18.4% of self-declared childless women aged 30-34 have at least one own child in household, and up to 9.4% of those aged 25-29

from 2003 onwards. The discrepancy also appears to be extending down the age range, over time.

		Original fertility histories	Standard error	Revised fertility histories	Standard error	Sample size (unweighted)
1935-39		%		%		
	40-44	11.1	0.59	11.1	0.59	2801
	45-49	12.2	0.57	12.2	0.57	3248
	50-54	13.9	0.62	13.9	0.62	3102
	55-59	15.0	0.71	14.6	0.70	2513
	change 40-44 to 55-59	3.9		3.5		
1940-44						
	40-44	11.6	0.52	11.6	0.52	3772
	45-49	11.9	0.55	11.9	0.55	3420
	50-54	13.1	0.64	13.6	0.65	2757
	55-59	17.5	0.87	16.8	0.86	1896
	change 40-44 to 55-59	5.9		5.2		
1945-49						
	40-44	11.9	0.50	11.9	0.50	4206
	45-49	12.2	0.54	11.7	0.53	3649
	50-54	16.7	0.77	14.8	0.73	2360
	55-59	19.2	0.74	16.4	0.70	2832
	change 40-44 to 55-59	7.3		4.5		
1950-54						
	40-44	13.5	0.59	13.1	0.58	3363
	45-49	18.3	0.82	14.9	0.75	2237
	50-54	20.9	0.78	16.7	0.72	2721
	change 40-44 to 50-54	7.4		3.6		

Table 3 Proportion childless according to original and revised histories. Birth cohorts 1935-39 to 1950-54, weighted.
Note: simple standard errors are given; standard errors taking account of the complex survey design cannot be calculated as details of the primary sampling units are not available.

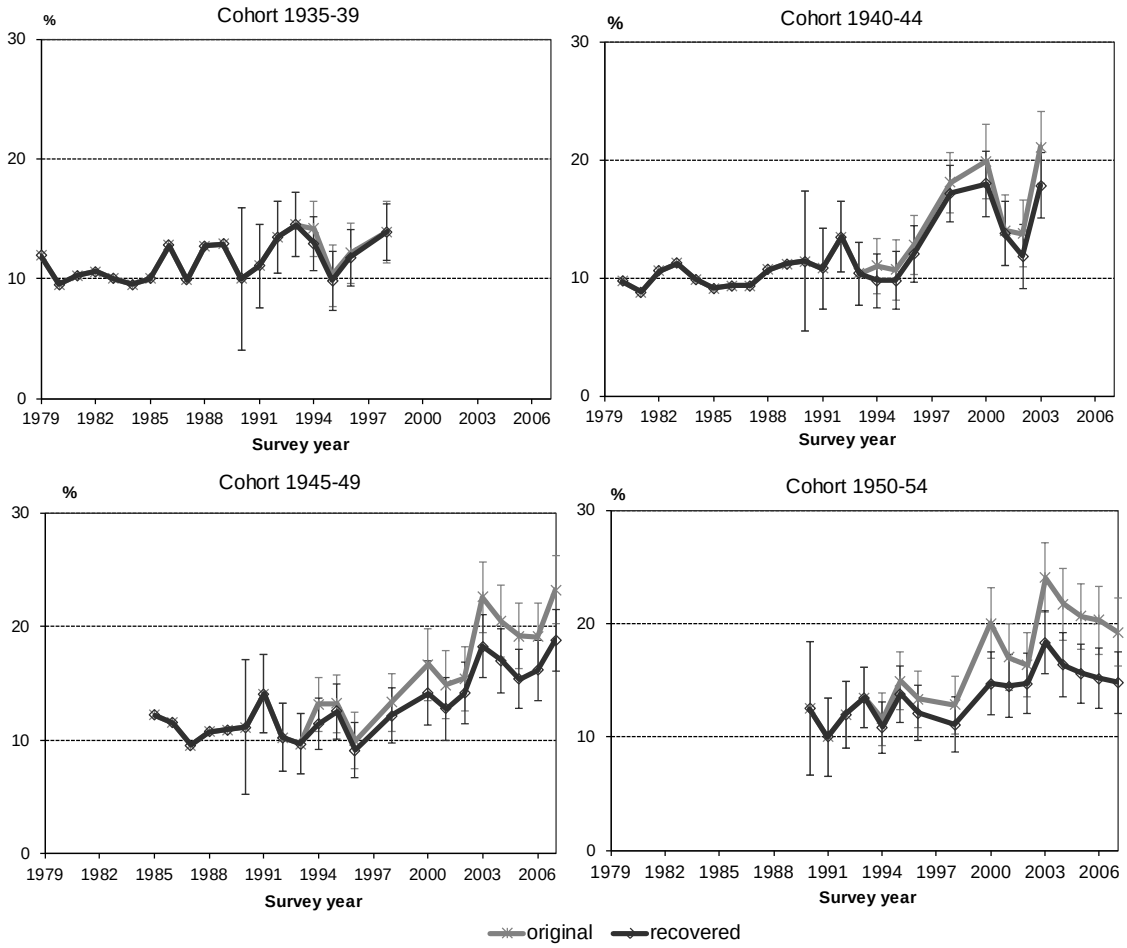

Figure 1 Percentage of women childless according to the original and revised fertility histories, by birth cohort and survey year. Women aged 40-59 at survey and born between 1935-39 and 1950-54. GHS 1979-2007, weighted.

How far does the recovery of undeclared own children mitigate the bias in reported childlessness at older ages? Figure 1 plots the (weighted) proportions of women aged 40-59 at survey childless according to the original and revised birth histories for birth cohorts 1935-39 to 1950-54, by survey year. We see that the revised histories modify but do not remove the intra-cohort increase in childlessness present in the original fertility histories. Table 3 gives the proportions childless by birth cohort and 5-year age group, in the original and revised fertility histories.[4] The recovery has a relatively small impact on c1935-39 and c1940-44, the increase being reduced by under 15% in each case. In c1945-49 and c1950-54, the estimated increase

[4] Note that the figures within each cohort-age group are standardised for the distribution across single year cohorts and single years of age. This is because the gaps in the survey time series in 1997-8 and 1999-2000 create some irregular distributions by single years of age within 5-year cohorts, and because the distributions alter at the latest age for which each of these cohorts is observed.

in proportions childless is reduced by around two fifths and a half, respectively. The effect is more substantial in these cohorts because proportionately more of their person years at older ages occur in 2000 and after, when the major part of the measurement error appears to have arisen. Recovery of own children in the household thus reduces the bias in the fertility histories of female cohorts at ages 40-44 and above from 1994 onwards, but does not eliminate it.

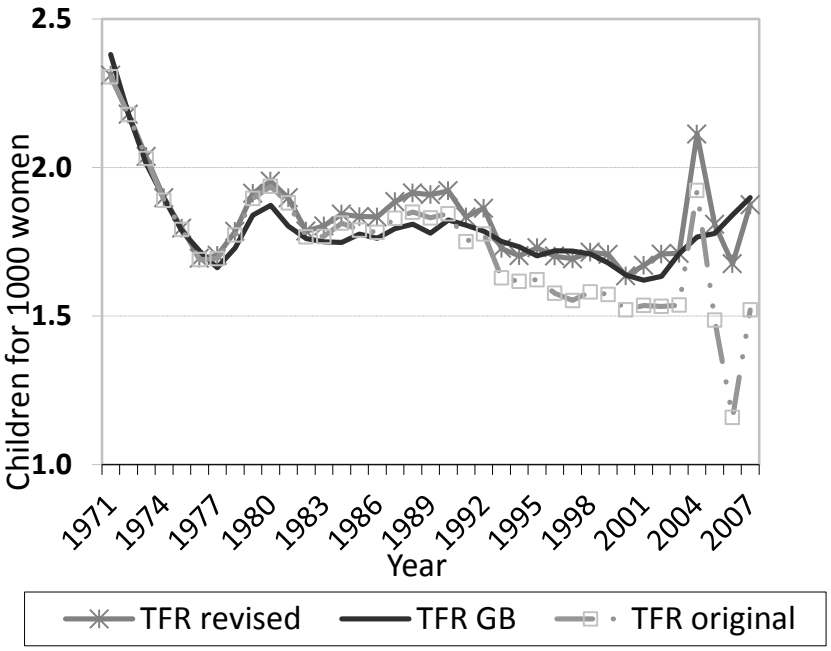

Figure 2 Comparison of annual total fertility based on original and recovered fertility histories with national vital registration, GB, 1971-2007, weighted.

Finally, Figure 2 presents a comparison of period total fertility based on the original and revised fertility histories, and on vital registration data for Great Britain.[5] The figure shows that from 1991-2007, the revised fertility histories give a total fertility figure very close to national levels, while the original fertility histories are well below. From 1971-1982 all three series agree fairly well. Between 1983 and 1990, however, the revised histories are somewhat above the national level, while the original histories are closer to the vital registration figure. The discrepancy here may result from the absence of survey weights for GHS rounds prior to 1996. Since 1996, women of reportedly zero parity have had average (normalised) weights in excess of 1.0, and those reporting one or more births weights below 1.0, reflecting the greater

[5] These do not measure precisely the same variable. For example, GHS contains births to women occurring outside Great Britain.

likelihood of response by women with children at home. It seems probable that introducing weights to adjust for differential response in earlier years would bring the GHS period estimates closer to vital registration figures, given the likelihood that parous women are slightly over-represented among respondents to the GHS.

4.1 TIMING AND ORIGIN OF BIAS

It is useful to explore further when and how these anomalies arose in the GHS. Changes in the administration and content of the GHS is the principal issue addressed. The early 1990s saw the introduction of new questions on step, foster, and adopted children into the Family Information section. In 1994-95, computer aided personal interviewing (CAPI) was introduced. In 2000-01, the GHS was redeveloped following a comprehensive review and questions on cohabitation history were added to the Family Information section. Finally, laptop self-completion—computer assisted self-interviewing (CASI)—was introduced for the Family Information section in 2003.

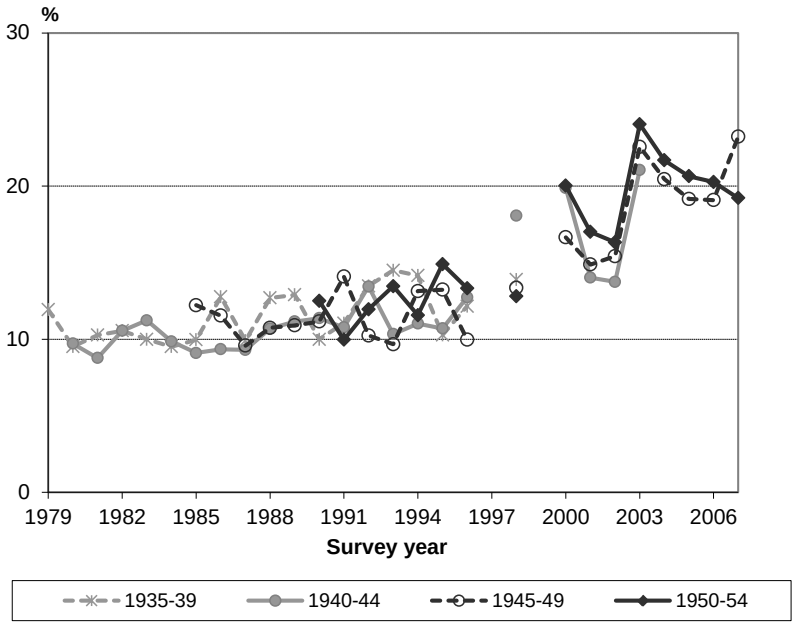

Figure 3 Proportion of women childless according to the original birth histories, by birth cohort and survey year. Women aged 40-59 at survey. GHS 1979-2007, weighted

Figure 3 shows proportions self-reported childless in the original fertility histories by age group at ages 40-44 to 55-59 by birth cohort and survey year. We see that while there is some tendency towards increasing intra-cohort proportions childless between 1994 and 1998, this is relatively minor; but a step change occurs in GHS round 2000-01, and a further upward shift in 2003. This is explored further in Figures 4a-c which show the proportion of self-reported childless women in the

original fertility history, who had at least one own child in the household, overall and according to interview mode. In Figure 4a we see a decided break at the year 2000 and again in 2003. Prior to 2000, the proportion of women childless according to the Family Information section who had own children in the household was at or below 10% in all age groups. After 2000, the figure is above 10% in most age groups. From 2003, the frequency of undeclared own children in household among the self-reported childless is in excess of 15% in most age groups, and reaches 40% among 40-44 year old women in 2004.

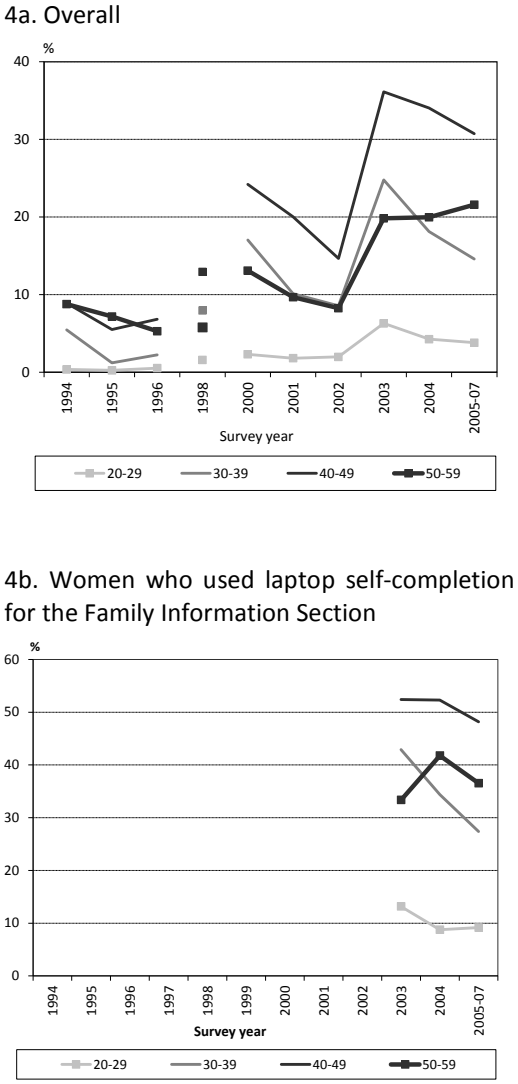

Figure 4: Proportion with at least one own child in household by age group and survey year. Women declared childless in the original fertility histories, who were not proxies and did not refuse the entire section. GHS 1994-2007, weighted.

4c. Women responding by interview or paper self-completion

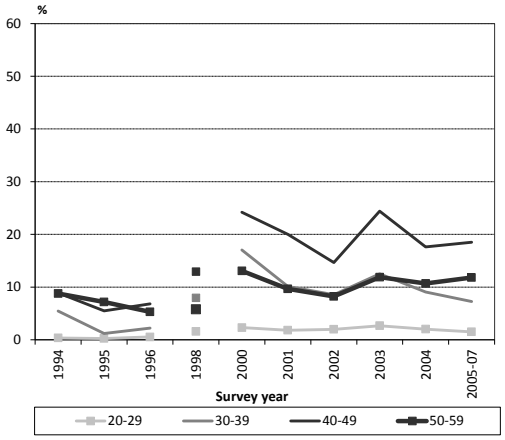

Figure 4: Proportion with at least one own child in household by age group and survey year. Women declared childless in the original fertility histories, who were not proxies and did not refuse the entire section. GHS 1994-2007, weighted.

Interview mode is strongly associated with the frequency of errors. From 1979-2002, respondents could complete the Family Information section either by interview or by paper self completion; from 2003, laptop self-completion (CASI) was added as an option.[6] The frequency of erroneous reports of childlessness does not differ between interviewer and paper self-completion. However, CASI respondents have a much higher frequency of erroneous reports of childlessness than those answering either via interview or paper self-completion (compare Figures 4b and 4c). From the introduction of CASI in 2003, over a quarter of self-reported childless women aged 30+ who responded using laptop self-completion had own children in household, rising to half of self-declared childless women aged 40-49; in addition, some women who report themselves as childless at these ages will have children living elsewhere.

CASI is therefore one part of the explanation for the over-reporting of childlessness in recent rounds of the GHS. We have no hard evidence on what aspect of laptop self-completion may be responsible. One possible cause is that lack of

[6] In 1979-82, 60% responded by interview and 40% by paper self-completion; by 2000-02, the figures were 95% and 5%, respectively. Between 2003 and 2007, 72% responded by interview, 26% by CASI, and 2% by paper self completion.

computer literacy affected the quality of response to the Family Information section as a whole. If that were the case, it should apply to all histories collected in this section of the questionnaire. However, the histories of partnership and marriage appear to have been answered with much greater accuracy than the birth histories, judging by internal consistency checks. A second possible explanation is respondent fatigue, in that the fertility history is the third occasion during the interview when respondents are asked about their children. Earlier in the interview questions are asked on children in household and on step, foster and adopted children. This could be combined with a learning effect in that respondents could infer from previous sections, in which multiple questions were asked for every instance of marriage, cohabitation, and step/foster/adopted children reported, that answering "yes" to the filter question on whether they had ever had a baby would also result in numerous further questions, and so lengthen the interview; for studies in other areas see Hart et al (2005) and Savage and Waldman (2008). No hard check against the earlier household relationship questions is incorporated into the Family Information section, as such checks have been found to reduce response rates. A third possibility is that women choosing CASI are deliberately misreporting for other reasons; however, it is difficult to reconcile this with the high proportions who have already reported children in the household.. A final explanation is that some feature of the fertility questions as implemented in CASI was confusing and generated unintentional errors; this, together with fatigue, seems most likely in our view, but we have no firm evidence to back up this hunch.

CASI, however, does not account for all errors. Though less common than among those self-completing by laptop, erroneous reports of childlessness among those responding by the normal CAPI interview or paper self-completion are decidedly more frequent from 2000 onwards than before (Figure 4c). Errors are most common among women aged 40-49, at around 20% from 2000 on. Beyond CASI, another possible source of such errors may be the substantial extensions made to the number and nature of questions asked in the Family Information section over the years. Questions on birth history have always been placed at the end of the Family Information section, followed only by questions on fertility intentions, and on contraception when occasionally included. In 1986, a person might have answered at most 24 questions before the questions on fertility history were reached. In 1990, with

the elaboration of the marriage history and the addition of questions on step, foster, and adopted children, this figure reached 47. In 1994, the maximum potential number of questions before the fertility questions rose to 63, and in 1998 to 85, though some of these were subsequently dropped. By the year 2000, a woman could, in principle, have answered up to 88 questions, within the Family Information section, before reaching the questions on fertility history. The expansion in the length of the Family Information section is thus a further candidate explanation for the errors, via either or both respondent fatigue and a learning effect.

5. DISCUSSION

In all, some aspect of CASI is the origin of a sizeable part of the inaccuracies in the GHS fertility histories since 2003, but there are non-negligible errors in data collected by interviewer also, particularly since 2000. While we cannot rule out deliberate misreporting for reasons other than fatigue, the step change in the level of erroneous reports of childlessness in the 2000-01 round, and to a lesser extent 1998-9, would suggest survey re-organisation, a lengthened questionnaire, and the implementation of CASI as a more likely explanation for the errors.

That CASI should be associated with high levels of respondent error is unexpected, since the survey methods literature generally emphasizes the advantages of CASI in contrast either with paper self-completion or with interviewer completed questionnaire (Nicholls 1997, de Leeuw 2008, de Leeuw et al. 2008, Australian Bureau of Statistics 2010, Betts and Lound 2010). However, there is at least one report of a deterioration in response rates and a change in the characteristics of respondents following a change from paper questionnaires to CASI in a large scale social survey (Kim et al. 2010). These authors also note that studies comparing the quality of data collected via paper and pencil self-administered questionnaires with CASI are relatively few, and based largely on special populations. Furthermore, the advantages of CASI tend to be regarded as established if sensitive behaviours are reported more frequently in CASI than in personal interview (see e.g. (Tourangeau and Smith 1998). That is only a partial criterion, as it reflects an assumed improvement in reporting due to CASI relative to personal interview, rather than the absolute validity of CASI reports. By contrast, in the present case the existence of some types of erroneous reporting can be established from the analysis of pseudo

cohorts in a time series of annually collected fertility histories, as Murphy (2009) notes.

A report on field trials preparatory to the re-launch of the GHS in 2000-01 recommended against the use of CASI in the GHS. Bridgwood (2000) found that laptop self-completion had several disadvantages for the Family Information section. It was potentially less confidential than self-completed paper questionnaires due to the time taken by each adult to respond, it lengthened interviews in households with several adults and could result in boredom among other eligible adults, thus impacting on non-response. While the recommendation not to adopt CASI was followed initially, the option to respond to the Family Information section by CASI was introduced in 2003-04.

GHS fertility histories have been of high quality, as evidenced by the close correspondence between vital registration and GHS estimates of annual total fertility into the 1990s, demonstrating that accurate fertility histories could be collected successfully in household surveys in the very recent past in the British context. Furthermore, period estimates from our revised fertility histories agree well with vital registration, and so the GHS continues to be useful for fertility analysis, though care is required. That the errors appear to have coincided with the reorganization of the GHS in 2000-01 underlines the well-known potential for discontinuities in survey time-series due to alterations in survey procedures (van den Brakel et al. 2008, van der Laan and van Nunspeet 2009).

Further issues potentially impacting on data quality are pressures experienced by all survey organisations for cost efficiencies for the timely release of data files. The latter may have been the rationale for a further change to GHS procedures, when the annual GHS report produced by Social Survey Division was discontinued, and the production of a summary annual report assigned to the GHS survey unit itself from the 2003-04 round onwards. The integrity of the data collected in an annual continuous survey such as the GHS may depend not only on monitoring the more technical aspects of survey data production, but also on involving subject specialists in scrutinizing results on an annual basis, particularly in time-series form.

While it has been assumed recently that fertility histories collected in developed country settings are of a high quality, there have been few recent studies evaluating these (Murphy 2009). There is, however, growing awareness of the need to validate demographic histories collected in surveys and of their potential for error. For example, Kreyenfeld et al (2010) find irrecoverable biases in the fertility and partnership histories of the 2005 Gender and Generations Survey (GGS) data for Germany, evaluated against vital registration and the micro-census. Further recent validation studies include those of Jaschinski and Zeman (2010) and Pötsch (2010).

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