

# **What do we know about men's fertility levels in Australia?**

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Although there has been dramatic increase in interest on the family formation of men, very little attention has been given to this topic in the Australian context. The demographic study of fertility has traditionally focused on women, for the seemingly obvious reason that more reliable information is gained from the mother, as they physically bear children (Hajnal, 1948; Greene & Biddlecom, 2000). However, although the importance of understanding issues of male reproduction is now being widely highlighted, frustration is expressed at the lack of available data<sup>1</sup>.

Like the demographic study of fertility, public debate has also centred on fertility rates of women, and the social settings that are associated with changing fertility levels. Merlo and Rowland (2000) have found evidence of delay in age at first birth, with decreases in the proportion of women aged 20-24 having a first birth, and increases of 24 per cent in the age group 30-34 between the years 1991 and 1997. These findings are mirrored in magazines like *The Bulletin*<sup>2</sup> which talk about 'The late shift', and *Time Magazine*<sup>3</sup> covering 'Making time for a baby', but these publications warn of the risks in leaving child-bearing too late. Unlike women, men can reproduce for a much longer span, and it has been found that men start reproducing children at a later age than women (Coleman, 2000).

### **Fertility data sources and their limitations**

In Australia it is compulsory to register still-births and live births with the *Registrar of Births, Deaths and Marriages* in the state or territory of birth. The legislation is determined by the relevant state or territory. Registrars are required to provide birth statistics to the Australian Bureau of Statistics (ABS), which compiles the information on birth registration. The National Perinatal Statistics Unit of the Australian Institute of Health and Welfare (AIHW) also provides information on births based on the *Midwives' Collection*, which is a collection of live births. There is some discrepancy between the figures collected by these two methods, and the ABS observes that birth registration suffers from under-coverage, but notes it is difficult to measure (ABS, 1998:89).

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<sup>1</sup> For example, writing for a workshop on *Improving Data on Male Fertility and Family Formation*, Driscoll et al. note 'To date, we have no institutionalized mechanism for collecting data on male fertility and sexual behavior. Yet, having indicator data to describe patterns and monitor trends among males would be useful for both policy and research purposes.'

<sup>2</sup> Bagnall, D. 'The late shift'

<sup>3</sup> Gibbs, N. 'Making time for a baby'

However, although the midwives' collection does not provide information on fathers, birth registration does provide information on paternity, including acknowledgement of paternity, age and employment status of the father. For this reason, birth registration is usually used to describe men's fertility.

The ABS also compiles information on the number of children ever born to women. This information is based on a question asked at every second Census of Population and Housing, and was last asked in 1996. The results include information on all women resident in Australia on census night. This measure includes women who have migrated after their childbearing, and does not include women who have emigrated or women who have died since giving birth. This census question is not asked of men.

Fertility information for men is calculated through birth registration, the only official data source that can be used for this purpose. If a birth does not have paternity registered, the information is missing from the calculation of men's fertility. Of the 245,700 women registering 249,600 births in 2000, 8,500 (3.5 per cent) did not have paternity<sup>4</sup> acknowledged (ABS 2000). This is the only population-based assessment of paternity available.

Although in most cases paternity is registered and birth registration is somewhat useful for measuring men's fertility, many questions on men's reproductive rates remain. No account can be made of men's completed fertility from information collected in census data. Similarly, no account of current fertility rates can be made from midwives' data. In fact, it is very difficult to make a good estimate of men's reproduction from official data sources. Other than the collection of acknowledged paternity in birth registration data, there have been few other collections of men's fertility information. One source of information is the collection of men's fertility reports from nationally-representative samples. The *Negotiating the Life Course* (NLC) survey, used in this paper, is one possible source of this information.

Although retrospective fertility histories (as collected in the first round of NLC) are a useful addition to the data available on men's fertility, findings from other countries suggest reservation in using such data (Juby and LeBourdais, 1999; Rendall et al.,

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<sup>4</sup> By ABS definition, paternity is referred to in two ways, 'paternity-acknowledged' is where the birth is nuptial or an ex-nuptial birth is registered with a father's name, and 'paternity-not-acknowledged', where an ex-nuptial birth is registered without a father's name.

1999). It is suggested by Rendall et al. that there are two main issues in men's fertility reporting which may affect data accuracy. These are underrepresentation and underreporting of fertility in previous marriages, and non-reporting for nonmarital fertility. Rendall et al. (1999) propose two options to address these data-collection issues: (1). collecting fertility data regularly with panel surveys so that cohabitation fertility is captured before there is a union dissolution; and, (2). using methods which overcome non-reporting for nonmarital fertility.

These comments based on the data collection of male fertility in the US are valid in the Australian context. One of the suggestions, that of using longitudinal data to capture information on men's experiences is being addressed by the collection of NLC data. The third wave of this longitudinal study will be conducted in 2003 and analysis of fertility information over time will be possible.

Given this context of available data, the following analysis provides information on male reproduction from birth registration and survey data.

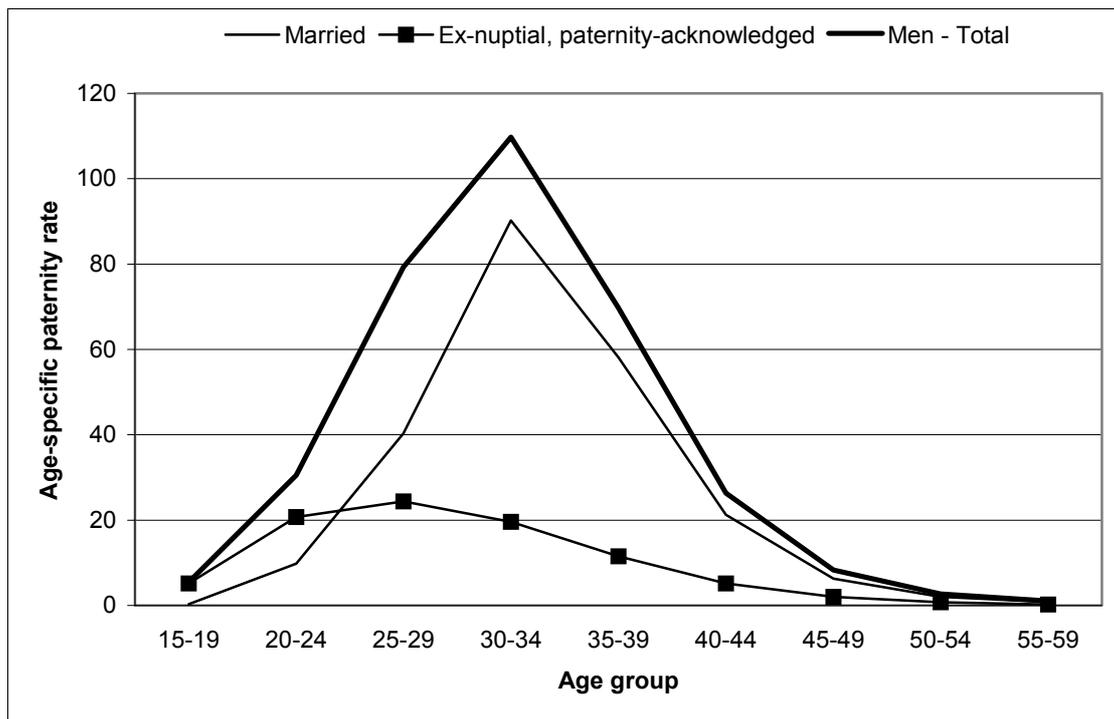
### **Measuring men's paternity**

National statistics of fertility, such as the total fertility rate, age-specific fertility rate, and completed fertility are available. These vital statistics are able to give us a good description of changes in women's reproductive experiences, but they tell us little about men's fertility (or paternity). As noted, men have never been asked their completed fertility in the census. Birth registration data are somewhat limited as men's information is under-reported, but they do provide us with some valuable information.

So, what do we know from the estimates of men's fertility? Using birth registration data, there is evidence that median age of fathers is increasing. In 1980 the median age of acknowledged fathers was 29.4 and increased to 32.3 by 2000. Increases are also evident for women's age at childbirth. Women's median age at childbirth was 25.4 years in 1971 (this was the lowest recorded in the 20th century), and has increased to a median age of 29.8 years in 2000 (the highest recorded median age at birth) (ABS, 2000:12).

Figure 1 shows the peak age at birth for men from birth registration data. For unmarried fathers (paternity-acknowledged) the peak is in the 25–29 year age group, while for married fathers it is 30–34 years. Overall, men are most likely to have a child in the 30–34 year age group (109.8 registered births per 1,000 men). In 2000 this was also true for women, with the age-specific fertility rate being highest in the 30–34 year age group (110.5 births per 1,000 women) (ABS, 2000:47).

**Figure 1: Age-specific paternity rates (men), Australia 2000.**



Source: ABS, Catalogue no. 3301.0

In 2000, the total fertility rate for women was 1.75, and the equivalent fertility rate for men (based on registered births) was 1.67<sup>5</sup>. The main reason that the fertility rate is lower for men than for women, is that the number of males in reproductive ages is higher than females, although paternity acknowledgement is part of the explanation.

Although these data provide some information on men's fertility patterns, a number of questions remain unanswered from this overview of published data on men's fertility. These questions include (but are certainly not limited to):

<sup>5</sup> This figure is calculated in the same way as the TFR is calculated for women, and is based on age of parent information available in *Births Australia*, ABS, 2000

1. At what age do men enter parenthood, and is this different for men and women?
2. Has the fertility of men changed over time—how do older cohorts compare to younger cohorts on median age of entering parenthood and number of children ever born?
3. How many men remain childless?

Attempts can be made at providing this information from survey data. Although not a population-level analysis of men's fertility, the use of the NLC data is a step forward in understanding men's completed fertility experience in Australia.

### **Using survey data to illustrate men's fertility**

This section presents an examination of the fertility experiences of men who are represented in the NLC survey. For the purpose of these analyses, men's experience will be compared with women's experience in order to highlight how men's fertility differs, if at all, from women's reproductive patterns.

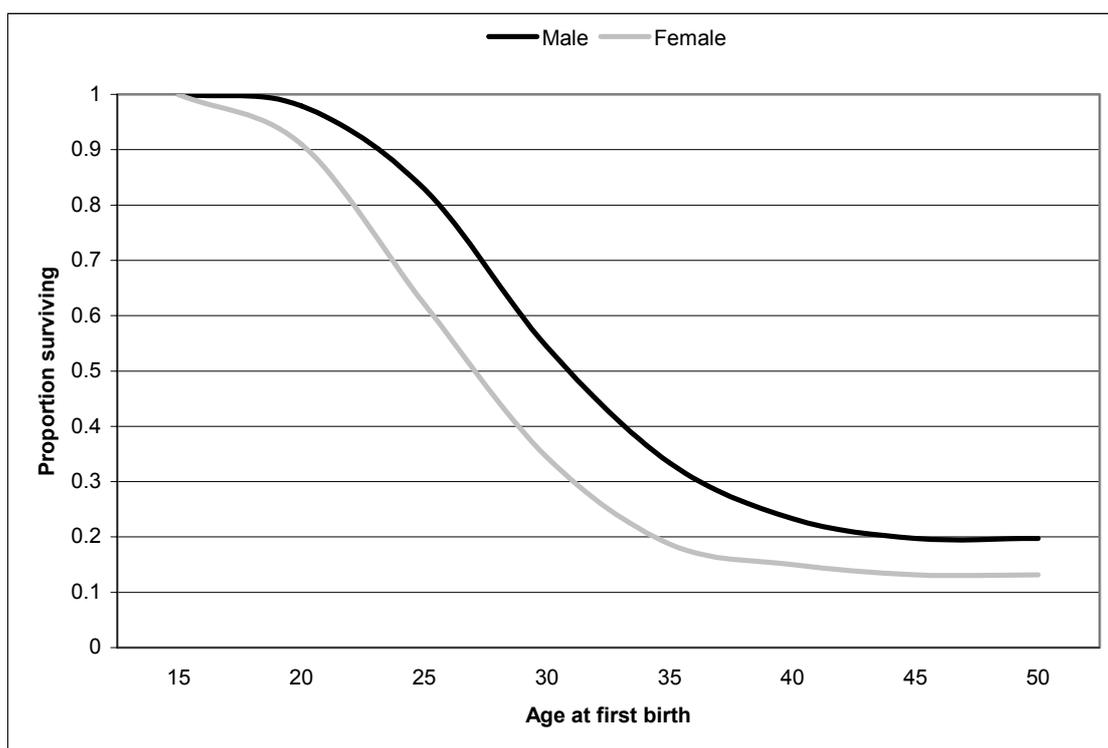
Men have a pattern of later reproduction than women. This was suggested by the 2000 birth registration data, and is evident when examining the NLC data. Survival analysis was applied to the NLC sample<sup>6</sup>, to determine the age of men and women at the birth of their first child. A survival model is used in this instance to examine the time to age at first birth, while accounting for censored cases (those people who have not had a child at the time of the survey).

The survival curves to age at first birth for men and women are provided at Figure 2. These survival curves are significantly different (determined using the Wilcoxon (Gehan)  $\chi^2$  statistic), with men more likely to enter parenthood later than women. In 1997, the median age at birth of first child for all men in the NLC sample was 31 years. For women the median age at first birth was 27.

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<sup>6</sup> The 1997 NLC sample consists of 2,231 respondents, 1,247 of whom were women and 984 of whom were men. Details of the NLC sample are available in McDonald, Evans, Baxter, and Gray (2000).

**Figure 2: Survival curves to age at first birth by sex, Australian NLC sample, 1997.**



Source: *NLC data 1997, [computer file]*. P. McDonald et al. Canberra: Social Science Data Archives, The Australian National University, 1999

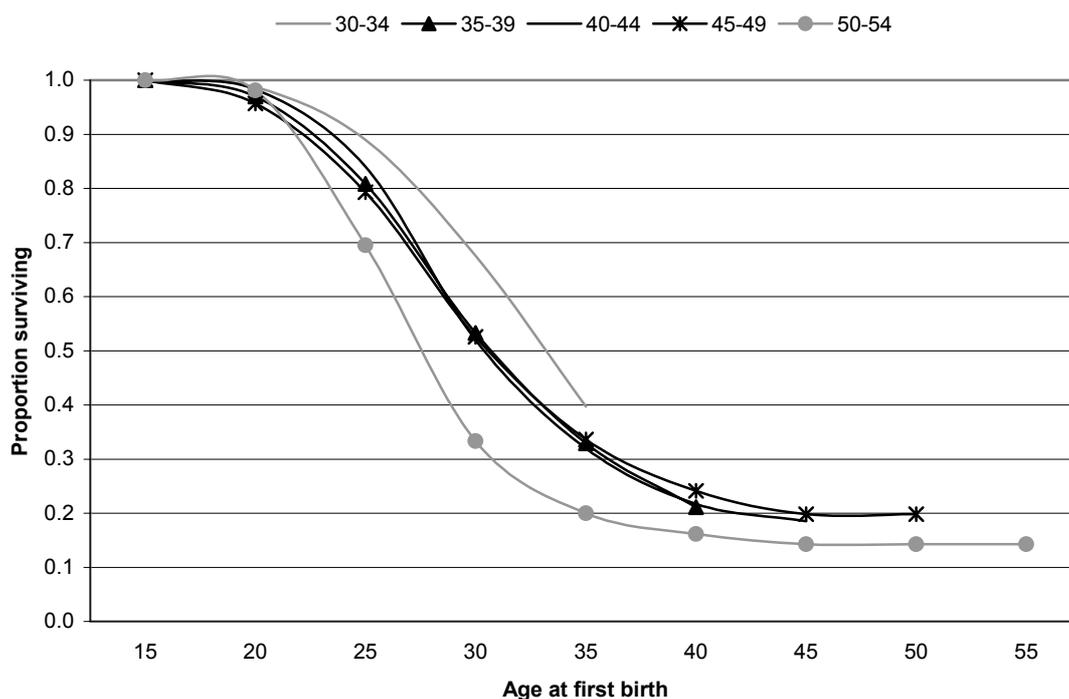
The survival curves also show that at age 50 almost 20 per cent of men are estimated to remain childless. This figure for women is about 13 per cent. However, these survival curves are for all men or women aged 18 to 54 in the sample, and there is a difference in the age at entering parenthood evident by cohort.

Again, survival analysis is applied here to examine the survival time to first birth; for each age cohort, and is presented separately for men and women. It shows for each age cohort the probability of having a first birth at each age, and determines the proportion who remain childless at the end of each age interval.

Results show that each cohort of men is progressing to parenthood at a slower rate than previous cohorts (Figure 3). Men aged 50–54 years are the cohort closest to completing their fertility, given that the age-specific paternity rate is very low for the age groups 55–59 (1.1) and 60+ (0.2). Figure 3 also shows that there is little difference between cohorts in the proportion of men remaining childless, although the oldest age cohort, aged 50–54 years, seem to have a slightly lower proportion remaining childless than

other age cohorts. At age 20, a large proportion of men (98 per cent) in the oldest age cohort had not yet had first child. At aged 25 this proportion is 70 per cent, and drops to 33 per cent by age 30. This indicates that for men aged 50–54, 30 per cent of men had a first child by their 25th birthday. By their 30th birthday, this proportion was over 65 per cent. The median age at first child for this cohort of men was 28 years.

**Figure 3: Survival curves to age at first birth by age cohort (men), Australian NLC sample, 1997.**



Source: *NLC data 1997, [computer file]*. P. McDonald et al. Canberra: Social Science Data Archives, The Australian National University, 1999

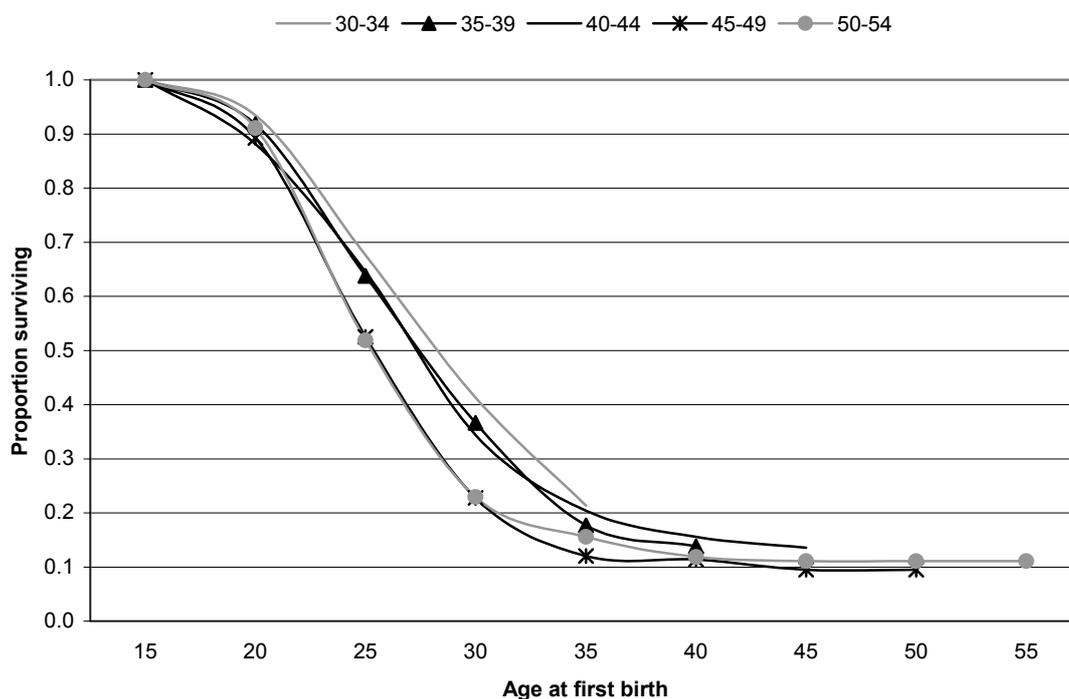
There is a striking distinction between cohorts in respect of the age at which men have a first child. Men aged 40–44 years in 1997 had a slower rate of having a first child than the men in the 50–54 cohort. The median age at the birth of the first child for the 40–44 year age cohort was 31 (compared to 28 years for the previous cohort). About 96 per cent of men in the 40–44 year age group, had not had a first child at age 20. However, by age 25 this had only fallen to 79 per cent, which was higher than the proportion realised by the 50 and over age group. Over one third of men in the 40–44 age group had not had a first child by time they turned 35, a figure well above the 20 per cent found for the oldest cohort at that age. At the final period measured (end of age interval 40–44), 20 per cent had not had a first child. This proportion is well above the level of fatherhood experienced by the older cohort.

The youngest cohort to be examined was aged 30–34 in 1997. The speed at which men have become parents is slower again than that exhibited by the 40–44 age group. The median age at first birth was 33 years, three years later than the previous cohort examined. At age 25 only 11 per cent of this group had had a child, and at the last period measured (age 34), 40 per cent remained childless.

It is not yet known whether the later cohorts will eventually reach the proportion of those who had children in the older age groups. Discrepancies in levels of fatherhood among successive cohorts may simply be a function of delayed fertility, and by the time younger cohorts reach older ages, similar proportions of childless men may be evident in each cohort. However, given the pattern that is evident in the survival curves, there does not appear to be much progression to first birth after age 45, let alone between ages 40 and 44. As these survival estimates are based on a national random survey it can be assumed that these estimates approximate those characteristics of all Australian men. This suggests that there will be many men remaining childless and that these proportions are larger than for women in similar age cohorts.

The pattern of surviving to first child at later ages among younger cohorts of men is also evident for women (Figure 4). Women in the two oldest cohorts under investigation have very similar patterns of survival to first birth. Just under half of all women in both cohorts had experienced their first birth before their 25th birthday. The proportion that had experienced a first birth by that age in the next two cohorts is about 35 per cent. The percentage of women remaining childless to age 45 years is ten, nine and fourteen per cent for the cohorts 50–54, 45–49 and 40–44 respectively.

**Figure 4: Survival curves to age at first birth by age cohort (women), Australian NLC sample, 1997.**



Source: *NLC data 1997, [computer file]*. P. McDonald et al. Canberra: Social Science Data Archives, The Australian National University, 1999

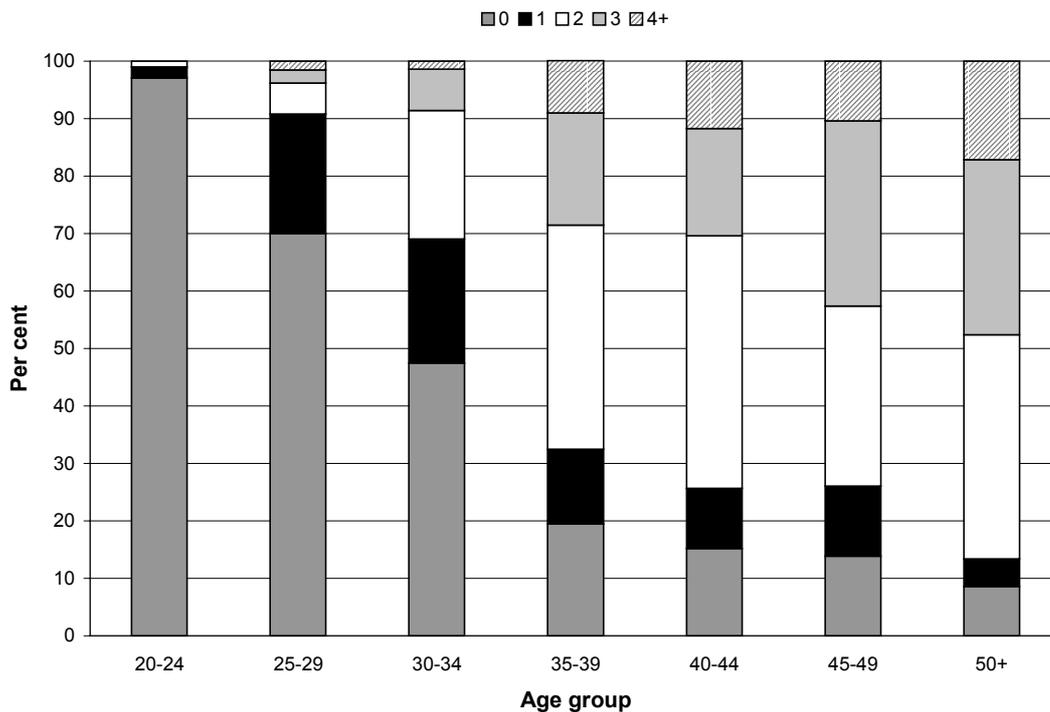
A statistically significant difference in the timing of the first birth is found between cohorts of women. Median age at first birth for the 50–54 cohort is 25 years, while it is 27 for the 40–44 age group, and 28 for the 30–34 age group. Like men, younger cohorts of women are becoming parents at older ages, but the difference between cohorts is not as dramatic as it is for men. Further the proportion remaining childless is less for women than for men, and this is true for each cohort.

While it is evident that younger cohorts of men are entering into parenthood at older ages than those experienced by older cohorts, we can also use survey data to compare the number of children ever born for each cohort. Of course at the younger ages completed fertility is only an indication, as people, particularly men have long reproductive spans. However, it can give us some useful information.

At each age, men are less likely to have had a child than women. Figure 5 shows that in 1997, of those men aged 25–29, 70 per cent had not had a child, and 21 per cent had one child. This compares with around 52 per cent of women in that age group having no

children, while 22 per cent had one child, and 18 per cent had two children. This gap between the number of children men have had, and the number of women have had does narrow at later ages, but at age 40–44 men are still less likely to have had a child, and have fewer children. In the 40–44 age group, 15 per cent of men had no children, 11 per cent had one, 44 per cent had two, and the remaining 31 per cent had three or more. This compares with 11 per cent of women that had no child, 13 per cent had one child, 36 per cent had two children, and the rest (41 per cent) had three or more children.

**Figure 5: Children ever born (CEB) by age cohort (men), Australian NLC sample, 1997.**



Source: NLC data 1997, [computer file]. P. McDonald et al. Canberra : Social Science Data Archives, The Australian National University, 1999

## Conclusion

By bringing up the next generation, parents provide an important role to society. Unfortunately, there has been little attention to men's fertility in Australia. No doubt, this is partly because of the limitations to assessing male reproduction due to few data sources. Further, men's reports may be inaccurate.

Although the results provided are a positive step in understanding male fertility, calculations of children ever born should be regarded with some caution, as the male reproductive life-span is longer for men than for women. We should also be aware that

other researchers have found that men's responses to questions about fertility can be unreliable, underrepresented, or underreported.

Although these issues restrict the investigation of men's reproductive experiences, it was found that a substantial proportion of men remain childless, men have a later pattern of child reproduction than women, and men's median age at reproduction is increasing over time. However, it should be acknowledged that this may be related to underreporting of paternity by men.

As suggested by Rendall (1999), longitudinal data will assist in measuring men's paternity, and paternity acknowledgement. In Australia, no research has been conducted to assess the extent that men underreport fertility of previous relationships. The use of future waves of the NLC survey or other longitudinal surveys, will help in assessing men's reporting of reproduction in Australia.

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