

## HAS THE AUSTRALIAN FERTILITY RATE STOPPED FALLING?

### **Peter McDonald**

*The number of births registered in 2004 was around 3,000 higher than the number registered in 2003, giving rise to the question in the title. The article provides evidence that the Australian Total Fertility Rate increased in 2004. Furthermore, if apparent under-registration of births is taken into account, Australian fertility has only dipped below 1.8 births per woman in 2003 and 2004 and is likely to be at least 1.8 for the next decade.*

The annual rate of fertility is measured conventionally using the Total Fertility Rate (TFR). As published by the Australian Bureau of Statistics (ABS), the TFR is a measure that adjusts (standardises) the annual number of registered births by the age distribution of all women of childbearing age. The age adjustment is required because, from year to year, the numbers of women at each age between 15 and 50 change. If the changes are such that women are more highly concentrated in the peak childbearing ages (now the late twenties and early thirties), there will be more births. On the other hand, if the numbers in the peak ages fall relative to the numbers in other childbearing ages, then the number of births would tend to fall.

The ABS has recently published the annual number of births registered in the calendar year, 2004. The number, 254,579, was about three thousand higher than the number recorded for 2003 and the highest annual number of births registered in Australia since 1995. Some commentary at the time of publication suggested that the higher number of births did not indicate a higher birth rate but rather that the numbers of women in the peak childbearing ages had increased. This issue will be answered in the near future (November) when the ABS publishes the 2004 TFR. However, in the meantime, we can address the empirical question as to whether changes in the age distribution of

women between 2003 and 2004 could have accounted for the additional births. This is done using a simple procedure. The Total Fertility Rate is calculated as the sum of the annual age specific fertility rates (ASFR). ASFR is defined as:

$$\text{ASFR (at age } x) = \frac{\text{Births to women aged } x}{\text{Population of women aged } x}$$

From this equation, we obtain:

$$\text{Births to women aged } x = \text{ASFR} \\ (x) * \text{Population of women aged } x$$

When the ASFRs for a given year are multiplied by the population of women at each age in the same year, then we get the actual number of births to women of that age in that year. Sum these over all ages and we get the total number of births recorded for the year. So, if we multiply the ASFRs for 2003 by the population at each age in 2003 and sum the results at each age, we get the total number of births recorded in 2003. If instead we multiply the 2003 ASFR by the population at each age in 2004, we would get the number of births in 2004 that would be expected if the age specific fertility rates of 2003 continued unchanged into 2004. The difference between the actual number of registered births in 2003 and the expected number of births in 2004 calculated in this way indicates the impact of the changes in age structure between 2003 and 2004 on the number of births. This calculation is shown in Table 1.

**Table 1: Calculation of the number of births expected in 2004 if the 2003 age specific fertility rates applied in 2004**

| Age Group | ASFR (2003) | Female Population 2004 | Expected births in 2004 |
|-----------|-------------|------------------------|-------------------------|
| 15-19     | 0.0163      | 675,855                | 11,016                  |
| 20-24     | 0.0545      | 687,815                | 37,486                  |
| 25-29     | 0.1029      | 673,487                | 69,302                  |
| 30-34     | 0.1125      | 764,747                | 86,034                  |
| 35-39     | 0.0543      | 734,843                | 39,902                  |
| 40-44     | 0.0100      | 773,382                | 7,734                   |
| 45-49     | 0.0005      | 720,661                | 360                     |
| Total     |             |                        | 251,834                 |

Sources: ASFR from ABS 2004, *Births Australia 2003*, Table 2.8; Female Population 2004 from ABS 2005, *Australian Demographic Statistics, December Quarter*, Table 6

The table shows that the expected number of births in 2004 would have been 251,834 on the assumption that there was no change in age specific fertility rates between 2003 and 2004. This is slightly higher than the number of births registered in 2003 (251,161) meaning that the change in age structure between 2003 and 2004 would have increased the number of births by 673. As, in fact, the number of births increased between 2003 and 2004 by 3,418, this means that the age specific fertility rates (and the TFR) must have increased between 2003 and 2004.

The likely extent of the increase in TFR from 2003 to 2004 can be estimated by multiplying the 2003 TFR by the factor:

$$\frac{\text{Registered births in 2004/Expected births in 2004 based on 2003 ASFR}}{\text{Registered births in 2004/Expected births in 2004 based on 2003 ASFR}}$$

This calculation yields an estimated TFR for 2004 of 1.77 births per woman, the highest level recorded since 1997.

#### **SOURCES OF DATA ON THE NUMBER OF BIRTHS**

Over the past two decades, the changes in the Australian TFR from year to year have been very small, usually no more than about 0.02 of a child. As the 'official' TFR published by ABS is based on the number of births registered in a year, changes in TFR can be sensitive to fac-

tors such as delay of registration and under-registration. The ABS routinely cautions the user to be aware that the TFR published in its annual *Births Australia* publication is subject to this source of potential error. If parents are slow in registering births or if a State registrar is slow in processing birth registrations then births may shift from one registration year to the next affecting the calculation of the TFR. Thus, it is important not to base conclusions about trends in the TFR upon small movements between two adjoining years. Over a number of years, however, we would expect some balancing out of the effects of registration delays.

More important than delay, however, has been the apparent high level of under-registration of births in Australia. Australia has two, independent sources of birth statistics. The ABS publishes births that are registered by State and Territory Registrars through the official, legal system. The other collection is the National Perinatal Data collection overseen at the national level by the National Perinatal Statistics Unit of the Australian Institute of Health and Welfare (AIHW). From 1994 onwards, the number of births recorded in the two systems has diverged considerably with the AIHW collection showing a much larger number of births than the ABS collection (Table 2).<sup>1</sup> The

**Table 2: Annual number of births in the perinatal data collection compared with the numbers of births registered**

| Year | Births reported by midwives<br>AIHW collection | Registered births ABS collection | Excess of AIHW to ABS |
|------|--|----------------------------------|-----------------------|
| 1991 | 256,634  | 257,247                          | -613                  |
| 1992 | 262,726  | 264,151                          | -1,425                |
| 1993 | 260,578  | 260,229                          | 349                   |
| 1994 | 261,335  | 258,051                          | 3,284                 |
| 1995 | 260,044  | 256,190                          | 3,854                 |
| 1996 | 257,092  | 253,834                          | 3,258                 |
| 1997 | 256,198  | 251,842                          | 4,356                 |
| 1998 | 255,522  | 249,616                          | 5,906                 |
| 1999 | 257,394  | 248,870                          | 8,524                 |
| 2000 | 257,238  | 249,636                          | 7,602                 |
| 2001 | 254,326  | 246,394                          | 7,932                 |
| 2002 | 253,388  | 250,988                          | 2,400                 |

Sources: AIHW data from the annual publication, *Australia's Mothers and Babies*, AIHW/UNSW,

difference between the two collections is particularly large when compared to the annual change in the number of births. Thus, there is scope for variations in the level of registration of births to account fully for the annual change in the number of births.

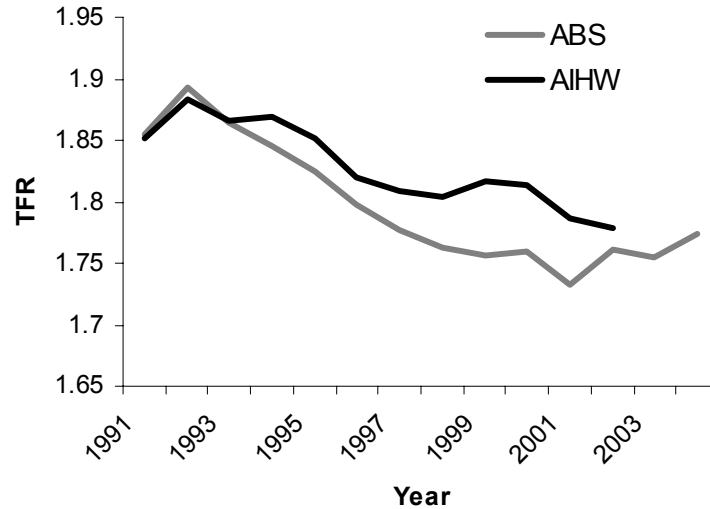
#### **HAS AUSTRALIAN FERTILITY STOPPED FALLING?**

Based on the ABS registration data, except for a dip in 2001, the TFR has been relatively stable at around 1.76 births per woman since 1998, and its value seems to have risen slightly in 2004 (see Figure 1). From these data, the conclusion must be drawn that Australian fertility appears to have stopped falling. Based on the AIHW data, however, the TFR remained relatively constant (and above 1.8 births per woman) from 1996 to 2000 but fell from 2000 to 2002. Thus, conclusions about both the levels and the trend of fertility vary according to the data set that is used. There is reason to believe that the difference between the two data collections is due to under-registration of births in the ABS official collection. While the AIHW series is more reliable, unfortunately,

well into 2005, the most recent data available from this source is for 2002.

The balance of the evidence seems to be that the Australian TFR has stopped falling and, it is likely that in 2004, it rose. The story would be clearer if the coverage of the registration data matched that of the perinatal data collection. In regard to the registration of births by parents, complete and timely registration could be guaranteed overnight if payment of the new Maternity Payment were contingent upon production of proof of registration. This would also limit the scope for fraudulent claims on the Maternity Payment and on Family Tax Benefit payments. Finally, such a policy would bring pressure to bear upon State and Territory Registrars to complete the registrations in rapid time. On the other hand, the speed of processing of the perinatal data collection can presumably be improved through allocation of additional resources to the National Perinatal Statistics Unit. As this collection contains other birth information that is not available from registration statistics, this also seems like a highly cost-effective policy direction.

Figure 1: Total fertility rate (TFR), Australia, 1991 to 2004



Sources: ABS data, 1991-2003 from *Births Australia* (various issues). The 2004 figure is calculated in this article; AIHW data are obtained by multiplying the ABS TFR for a given year by the ratio of births in that year in the AIHW collection to the number of registered births (see Table 2).

#### THE LIMITATIONS OF THE TOTAL FERTILITY RATE

Improvement of the quality of birth registrations is not the end of the story. As is well known, the Total Fertility Rate is a very difficult measure to interpret because its trend is affected not only by the number of children that women have during their lifetime but also by the timing of their births. When births are delayed, the TFR falls; when births are brought forward in time, the TFR rises — even when women do not change the number of births that they have across their lifetimes.

Low fertility has given rise to discussion among demographers about the best methods to employ in projecting future fertility. The conclusion from this international discussion is that we can gain a much better understanding of the trend in fertility by examining time-specific parity progression ratios (for example, the probability that a woman with  $x$  births will

have an  $x+1$  birth within a given time period). These measures require regular collection of statistics on the number of women according to the number of births that they have had (children ever born) and inclusion of the number of previous births that a woman has had in birth collections. Unfortunately, Australia has given little priority to either of these statistical sources despite much lobbying on the part of demographers.

Over the past 20 years, the census question on number of children ever born has been dropped regularly from Australian censuses and, at each census, it is included on the list of marginal questions requiring special justification. Indeed, in its information paper prior to the 2001 Census, the ABS canvassed the possibility that the question might be excluded from both the 2001 and the 2006 Censuses: ‘the need for such a question will be reviewed before determining the content of the 2006 Census’.<sup>2</sup>

Fortunately, the question is included in the 2006 Census but, based on present ABS policy, the question will not be asked at the 2011 Census.

The AIHW perinatal statistics collection obtains parity data of a high quality but its usefulness is limited by the fact that processing of the data is very slow. Demographers have argued on many occasions over the past 40 years that State and Territory Registrars should collect reliable parity data. Most now do so but not all. A recent detailed discussion of the need for parity data is provided by Corr and Kippen.<sup>3</sup>

### CONCLUSION

The above discussion suggests that the Australian Total Fertility Rate has stopped falling. However, it also suggests that the apparent fall in fertility in the 1990s may have been exaggerated by the

apparent increasing under-registration of births across the decade. Under-registration introduces a degree of uncertainty into what the trend in fertility actually is but it seems very likely that Australian fertility has been higher than the 'official' figures have indicated. Indeed, based on the AIHW collection, the Australian TFR may never have fallen below 1.78 births per woman. If the apparent level of under-registration of births in 2002 applied in 2004, the TFR in 2004 would have been 1.79 births per woman. In my opinion, recent policy changes (increases in family payments in 2004 and the decisions of the Australian Industrial Relations Commission in the Family Provisions case) and the recent widespread public discussion of the risk of 'waiting too long' are very likely to maintain Australian fertility at least at 1.8 births per woman for the next decade.

### References

- <sup>1</sup> The AIHW collection is described fully in the annual publication: *Australia's mothers and babies*, (see reference in Table 2). There is no research available on why the AIHW collection is more complete. This effectively comes down to why some parents do not register their births in the legal system. The registration is a piece of paper that costs money. So there is a disincentive to register unless you need the birth registration for the issuance of a passport for the child. Registration might also be required when the child goes to school or when the child goes to child care. I imply that underregistration is due to lack of incentive for some parents to register their birth in the legal system - hence the policy suggestion, later in this paper, of a stick — limiting access to the Maternity Payment unless the birth is registered. There is no reason to believe that there is double counting in the AIHW system (although that system does include a very small number of births to foreign mothers that would never be registered in the legal system). The ABS itself implies underregistration in the legal system when it discusses the difference between the two collections see, for example, *Births Australia 2003*, pp. 67-69. The ABS says (p. 67) that 'The trends also reflect changing propensities of parents to delay or fail to register the birth of a child'.
- <sup>2</sup> Australian Bureau of Statistics, *ABS Views on Content and Procedures: 2001 Census of Population and Housing*, Information Paper, 2007.0, 1998, p. 85
- <sup>3</sup> P. Corr and R. Kippen, 'The case for parity statistics', Session 2A, Fertility Preference and Behaviour, Conference of the Australian Population Association, Canberra, 15-17 September 2004 ([www.austpop.org](http://www.austpop.org))