
H Tempo effects

As this report has emphasised, changes in the total fertility rate (the snapshot measure of fertility) can reflect changes in women's lifetime fertility or timing effects. We believe that some of the recent increase in fertility reflects recuperation, some an increase in women's expected completed fertility rates and some the decisions by women to have babies earlier than they would have otherwise. Clearly, a permanent shift in the completed fertility rate of women affects long-run population levels and the age structure of the population. However, what are the demographic effects of changing the timing of childbearing without changing the lifetime number of children had by women?

It is not well understood that timing effects can also have persistent impacts on the size and age structure of a population. A good way of illustrating this is to consider the impact of the baby boom. The baby boom was characterised by two features:

- a substantial rise in completed fertility for the relevant cohorts of women
- bringing forward of births to younger ages compared with previous cohorts (a process that was subsequently reversed). Figure H.1 shows the change in the distribution for different birth cohorts of women of when they had children over their lifetimes.

What would have happened had the first effect had been present and the second had not? The answer to that question isolates the demographic effects of bringing forward children.

This question was modelled in several steps:

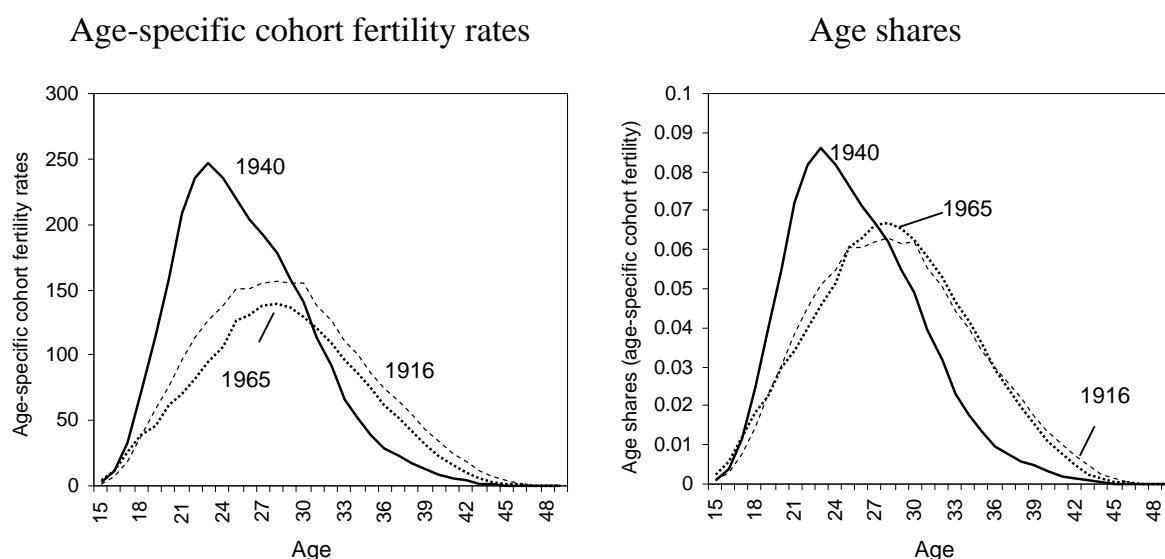
- Data on (period) age-specific fertility rates were obtained from the ABS for the period 1921 to 2006, supplemented by the 'base case' projections to 2101 used in the Commission's FERTMOD projection model of fertility.
- The average fertility rates for each year of the reproductive lives of the cohorts of women born from 1916 to 2052 were calculated.¹ These are the cohort equivalents of the period age-specific fertility rates, and provide the actual fertility rates experienced over the lifetimes of specific cohorts of women. As an illustration, figure H.1 shows the cohort-age-specific fertility rates for women

¹ Noting that data to 2101 is needed to derive the estimate of the CFR for the 2052 cohort.

born in 1916, 1940 and 1965. Summed over women's reproductive years, this gives the average completed fertility rate of the relevant cohorts.

- The shares of the completed fertility rate accounted for by each year of women's reproductive lives were calculated (with figure H.1 showing the shares for selected years, and revealing the distinctive nature of the distribution for women who gave birth during the baby boom generation).
- The cohort-age specific fertility rates applicable to all cohorts born after 1939 were calculated, with the assumption that each cohort's completed fertility rates stayed the same as before, but that the age-shares of the completed fertility rates were fixed at those applying for the 1916 birth cohort.
- The implied period age-specific fertility rates were then derived from the cohort data, as was the total fertility rate. This alternative set of data can then be used in the standard cohort-component population model to project Australia's population from 1955 to 2101. The difference between demographic outcomes from these and the original data reflect the impact of bringing forward childbearing during the baby boom (and subsequent tempo effects).

Figure H.1 **The changing picture of cohort fertility behaviour**
1916, 1940 and 1965 birth year cohorts of women



Data source: Data provided by ABS to 2006, with subsequent years derived from the 'base case' scenario of FERTMOD.

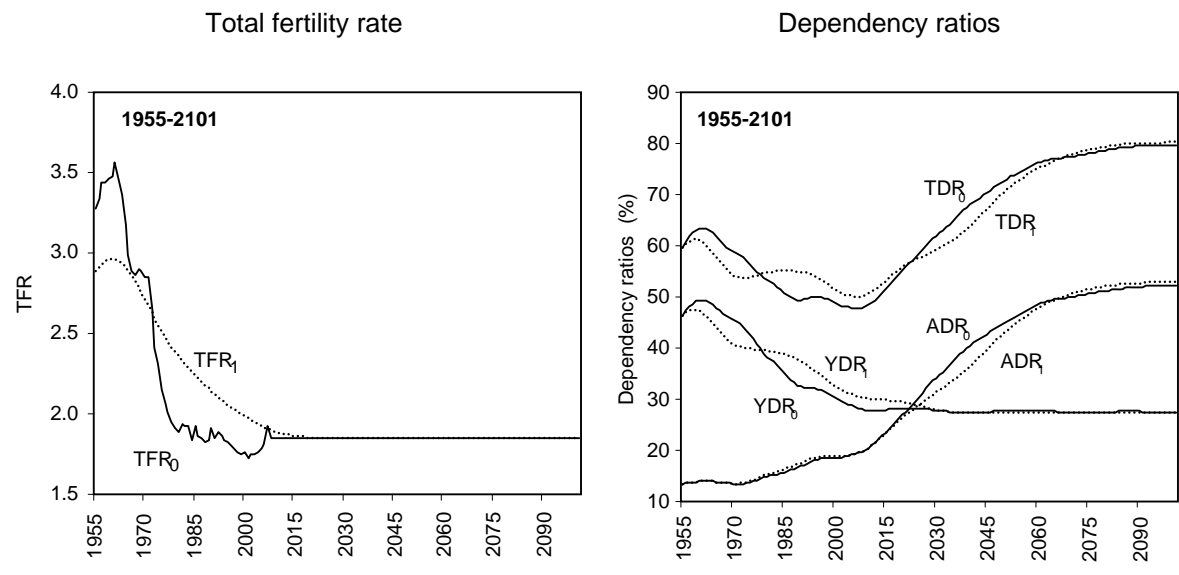
A significant part of the rise in the total fertility rate apparent during the baby boom era reflected decisions by women to bring childbearing forwards. TFR_0 in figure H.2 is much higher (initially) than the total fertility rate that would have prevailed had the baby boom occurred without any change in the timing of children (TFR_1). This tempo element of the baby boom meant that the dependency ratio rose

significantly above the level that would have applied had no timing effects been apparent. As the baby boom subsided, women started to shift back to the timing pattern characterised in the earlier period (and indeed have since pushed childbearing into even older ages).

This meant that the number of children born declined compared to the situation in which timing effects were held fixed. This is why the youth and total dependency rates would have been higher in the half century from the 1980s had the timing of childbearing stayed fixed.

Figure H.2 Demographic effects of bringing forward childbearing

A baby boom without a change in the timing of children



^a ADR is the aged dependency ratio (the number of people aged 65 years or more expressed as a percentage of the number aged 15–64 years); YDR is the youth dependency ratio (the number of people aged under 15 years expressed as a percentage of the number aged 15–64 years). The TDR — the total dependency rate — is the sum of the two. A 0 subscript denotes the base case (the dependency rates anticipated had the age-specific cohort shares of the CFR changed), and 1, the alternative (fixed age shares).

Data source: PC calculations.