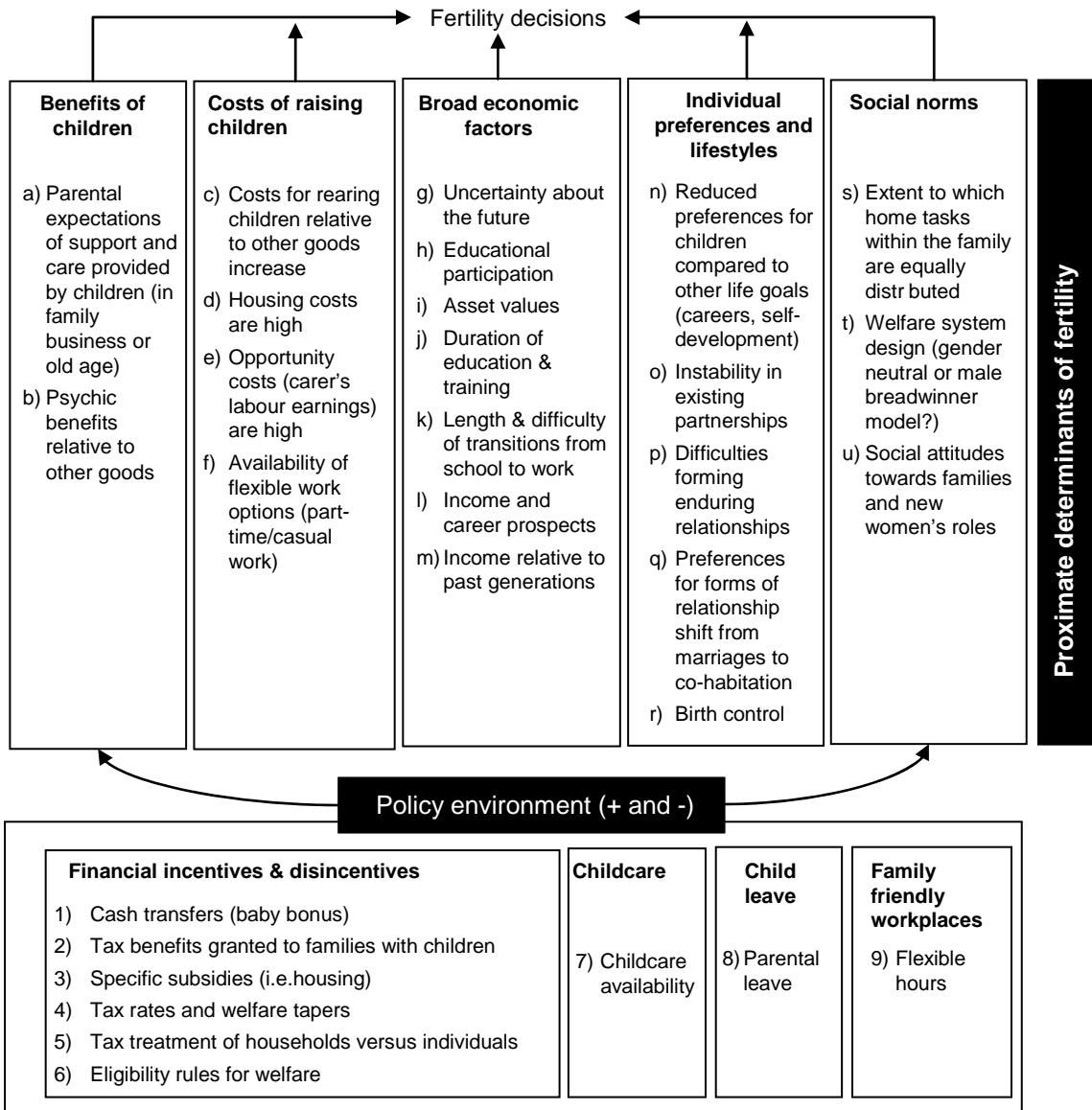

3 What has caused the increase in fertility?

Key points

- Pinpointing the determinants of fertility is difficult. As well as the observable factors considered here, community attitudes and other intangible, hard-to-measure, factors may also have played an important role in the upturn in fertility.
- House prices have probably reduced fertility below what it would otherwise have been, as has the continued rise in educational attainment by women. This implies that for the observed fertility rate to rise, other factors must have exerted a significant positive effect.
- Aside from the recuperation of previously deferred children, the major positive influence is likely to have been the recent economic environment:
 - Buoyant economic conditions and increasing access to part-time jobs have reduced financial risks associated with childbearing and lowered the costs associated with exiting and re-entering the labour market.
 - While the forgone earnings associated with caring for children have consequently grown — raising the costs of raising children — women can increasingly work while having children.
- Family policies — such as transfers and child care subsidies — are likely to have played a part. The generosity of these benefits increased significantly after the year 2000. However,
 - they have reduced the long-run costs of having children by only about 3 to 4 per cent, so that their effects on fertility are also likely to have been relatively modest.
 - since families still benefited from the additional payments even if they did not change their fertility behaviour, the average budget cost per *additional* child born will have been high. While difficult to estimate precisely, the average cost of each of these additional children may be around \$300 000.
 - the Baby Bonus, while often seen as a particularly influential policy, will have played only a partial role in the increase, given that it was only one element of a package of other measures whose generosity has also increased substantially (such as Family Tax Benefit A).
- In Australia, family policies are not designed explicitly to stimulate fertility and aim to promote other social and economic goals. Given this, finding only an incidental, supportive effect is neither surprising nor problematic.

As suggested by the large international variation, fertility is sensitive to a country’s environment. A host of factors are influential on both the timing and ultimate lifetime number of children — including income, general prosperity, the cost and availability of child care, female workforce participation, trends in partnering, education, and government family policies (figure 3.1). Some factors, such as community norms and changing individual preferences, are likely to be crucially important over the long run, but are less able to be quantified.

Figure 3.1 The determinants of fertility



Data source: This draws on Sleebos (2003), but is adapted significantly.

At any one time, fertility is the outcome of the positive and negative forces these factors exert. An increase in fertility could as much reflect the decrease in a

negative factor as an increase in a positive factor, making both relevant to understanding why Australian fertility levels have risen. The cumulative effects of deposits and withdrawals from a bank account provide a simple analogy of the complexities of accounting for fertility changes. A bank account balance might increase by \$20 from \$100 to \$120, with the following transactions: Jack withdraws \$90, while Jill and Jane deposit \$90 and \$20 respectively. Looked at in isolation, Jane's transaction accounts for 100 per cent of the change in the balance. However, while true, this is misleading since Jack and Jill's transactions are actually more important contributors to the change. This is why it is important to consider the range of influences on fertility and to be cautious in interpreting the role of any one factor.

While it is easy to generate a rich taxonomy of influences on fertility like figure 3.1, in many cases, the quantitative magnitude (and sometimes even the direction) of their impacts has proved elusive. This is a reflection of:

- the long list of relevant factors, but also their strong interdependence and contingency. For example, a pronatalist measure that provides significant transfers may be much more successful in a country that has generally favourable social and environmental conditions for children than one in which this is not true
- the slow moving, trending nature of some explanatory variables, such as changing social attitudes, mean they are strongly correlated with each other. This makes it hard to separately assess their influence. Given that, for the periods usually subject to investigation, the TFRs have also been trending, it is easy to get a high correlation between TFRs and any trending variable, even if the two are unrelated — the so-called 'spurious regression' problem (Granger and Newbold 1974)
- the fact that their impacts may change through time, as well as affect different groups differently. For example, the correlation between fertility and female workforce participation rates was initially negative among OECD countries, but is now positive (testimony to the development of varying supportive social institutions, like child care)¹

¹ This pattern may also reflect other aspects of the multiple and changing causal pathways between fertility and female labour force participation. On the one hand, greater labour force participation (prompted by changing social attitudes or higher real wages for women) may increase or depress fertility, depending on whether women can undertake both childrearing and work roles. This causal pathway runs from participation to fertility. On the other hand, all other things being equal, shocks that depress fertility levels allow more women to shift from unpaid child rearing to the formal labour market. In this case, the causal link is from fertility to workforce participation, not the other way round.

-
- a paucity of panel data. Such data overcome the main drawbacks of either cross-sectional or time series datasets by themselves, but there are significant problems in obtaining consistently defined measures of some important variables across countries and time. For example, family policies have different eligibility criteria that are hard to capture, or simply have not been adequately reported in the historical data
 - the suitability of the measure of fertility usually used in empirical models — the TFR. As noted in the previous chapter, the TFR is a synthetic measure, confounded by large tempo effects. It is hard enough to surmise the likely magnitude of the quantum component of changes in the TFR, let alone try to explain the strength of an array of complex, context-dependent, influences on this barely measurable component. The better measure of fertility, the completed fertility rate, is only available when a woman reaches 49 years old. This means that to understand the impacts of policies and economic conditions on the completed fertility of all childbearing cohorts in 2007 (women aged 15 to 49 years), it would be necessary to wait until 2041. This has limited public policy usefulness.

For all these formidable constraints, at least a qualitative impression of what matters most for fertility is developing, and in some instances, a body of quantitative evidence about the rough size of the effects of some variables (Sleeboos 2003 and Gauthier 2007). This can help guide an understanding of what might have stimulated Australia's recent 'mini baby boom'.

Moreover, by their nature, some factors can probably be eliminated as suspects in explaining the recent increase in fertility because they are slow moving and do not appear to have fundamentally changed in the 2000s. For instance, female educational attainment has progressively increased, as has the decline in the marriage rate — with both factors probably providing a continuing negative pressure on fertility rates through the 2000s:

- The long-run trend towards higher educational attainment for women (and duration spent in education) has continued unabated in the 2000s. The share of the female population with a bachelor's degree or higher in the key age group 25-34 years old increased by around 9 percentage points (compared with 7 per cent for men) between 1996 and 2006. In 2006, around 45 per cent of women had such a qualification (compared with about 35 per cent of men).²
- Stable relationship formation, typically taking the form of marriage, is a common precursor to childbearing. Marriage rates have progressively fallen for many years and have continued to do so. Partnering rates (the sum of de facto

² (ABS, *2006 Census of Population and Housing*).

and marriage rates) also declined between 1986 and 2001 (Birrel, Rapson and Hourigan 2004) and have continued to fall between 2001 and 2006, albeit at a slower pace (Weston and Qu 2007).

Accordingly, these factors are unlikely to explain slowly declining fertility over the long run, and yet, without altering their long-run trajectories, explain a (relatively abrupt) rise in fertility in 2000s.

For these reasons, this report examines a selective set of factors that have been put forward by commentators as influential or/and that have varied significantly over the last decade. These are Australia's relative prosperity and buoyant labour markets in the 2000s (section 3.1), house price inflation (section 3.2), child care availability (section 3.3); and finally, family policies (section 3.4). Given the policy relevance of the latter, this chapter intensively examines the nature of the changing interventions in this area and their possible impacts on the fertility rates for women in aggregate and for those in some key sub-groups.

3.1 Prosperity and fertility

Over the 15 years from 1992, Australia experienced a remarkable period of economic growth (figure 3.2). Such a sequence of growth has not been evident since the post-war boom years.

Although this growth has not made everyone better off, many Australians have benefited substantially from increased income. Real wage growth averaged 1.5 per cent per annum for full time adults from 1992 to 2007 compared with 0.1 per cent from 1982 to 1992³. This economic buoyancy has been associated with stronger perceptions of financial security (figure 3.3).

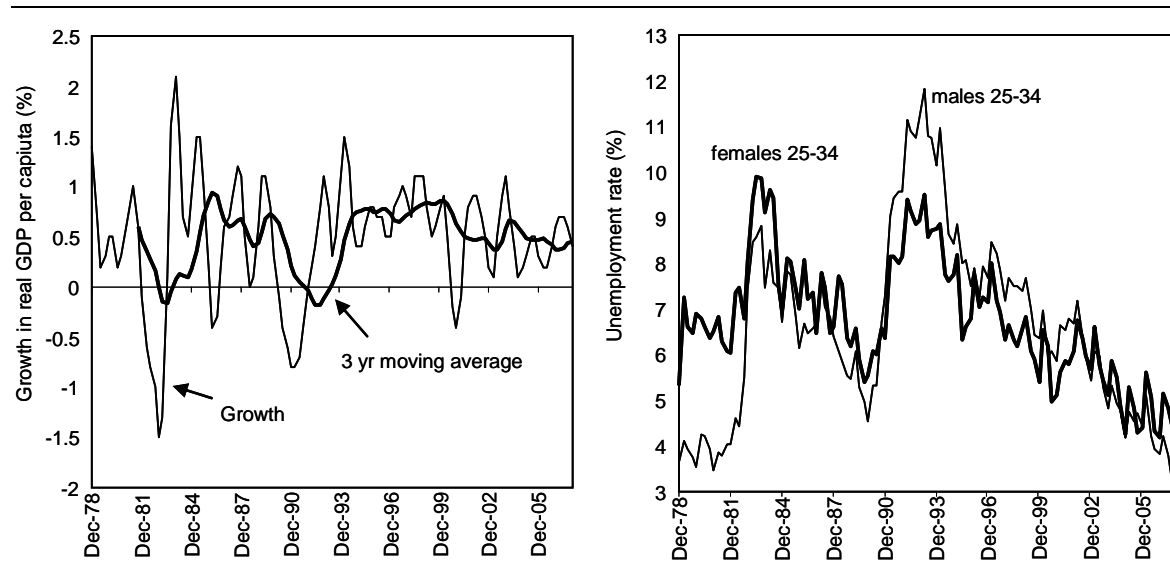
What does this prosperity imply for fertility?

The theoretical and empirical links between income and fertility have been contested for more than 200 years. Early theorists argued that there was a strictly positive relationship between fertility and income (a 'quantity' effect). This underpinned Malthus's (1798) prediction that population growth would stop per capita income from ever exceeding its 'natural level', as any rise in income would elicit a proportionate increase in fertility. This has been refuted by the strong negative correlation between fertility and GDP per capita across time and between

³ PC calculations based on ABS, *Average Weekly Earnings, Australia*, Cat. no. 6302.0 and ABS, *Consumer Price Index, Australia*, Cat. no. 6401.0.

countries. Rich countries have significantly lower fertility rates than poorer countries, and the pathway to development is invariably associated with falling fertility rates.

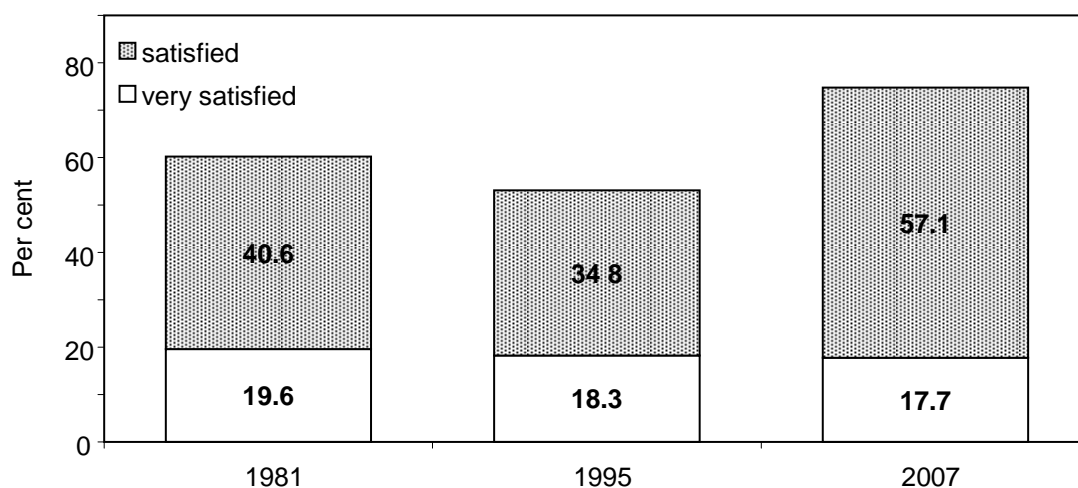
Figure 3.2 Indicators of prosperity
December 1978 to December 2007^a



^a The unemployment rates are the weighted average over the three months in each quarter. The rates for 25-34 year olds have been chosen as these are the prime childbearing years.

Data source: ABS, *Australian National Accounts: National Income, Expenditure and Product*, Cat. no. 5206.0 and ABS, *Labour Force, Australia, Detailed - Electronic Delivery*, Cat. no. 6291.0.55.001.

Figure 3.3 Surveyed assessment of personal financial security in Australia



Data source: Markus and Dharmalingham (2008), based on World Values Surveys; 2007 national survey.

The obsolescence of the Malthusian view posed the question of why income and fertility were *not* positively linked. After all, in most instances, higher income

increases the demand for things people value highly, and children are clearly highly valued by their parents. Several rival explanations have emerged.

Quality versus quantity

The original simple characterisation of the link between income and fertility ignored the capacity for parents to invest in the quality of children as well as their number. As people's income increases, they tend to spend more on each child through material support, education, time and energy (Becker 1960). If these investments are valued highly enough, then fertility and income can be negatively related.

Relative cohort size and tolerance to income

Alternatively, Easterlin (1987a and 1987b) argues that the nature of the link between income and fertility depends on relative cohort sizes of young adults. The Easterlin model combines several inter-related conjectures.

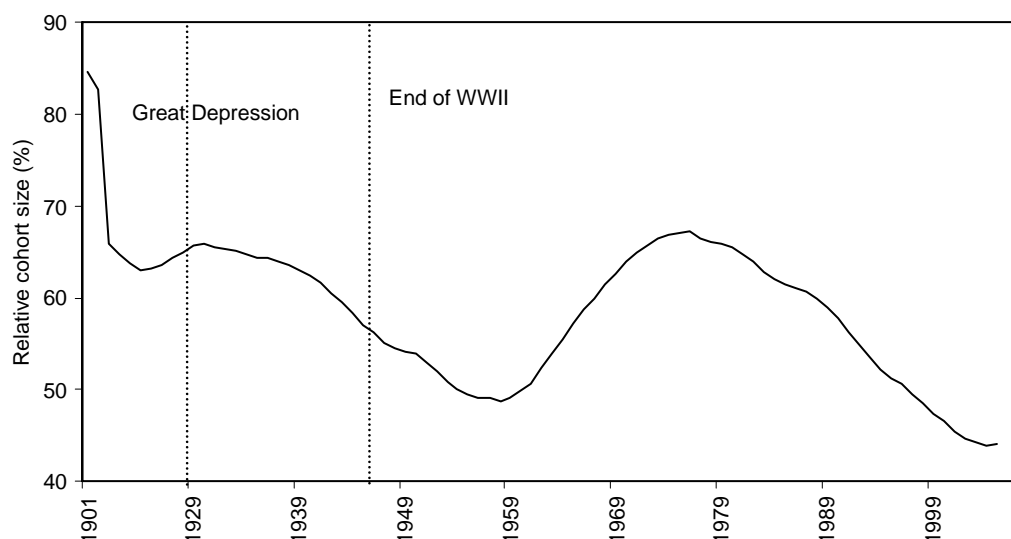
- The age structure of the population affects the income and labour market experiences of young adults. When young workers are relatively scarce compared with older workers they command higher wages and expect faster promotions.
- Younger cohorts assess their material affluence, not in absolute terms, but in comparison with previous generations.
- People make fertility decisions based on these perceptions of material affluence and not income per se.

Consequently, the benchmark against which people assess their relative wellbeing continues to rise with economic growth. In effect, people develop 'tolerance' to a given income. They then need more to believe themselves well off enough to have children. For instance, Easterlin suggested that the baby boom was fuelled by the post-war growth in the relative income of young adults compared with their parents.⁴ Notably, the share of young cohorts in the working age population is

⁴ While the role played by perceptions about generational income may well be influential, other aspects of Easterlin's model have less clear conceptual validity. In particular, the notion that relative generational wage rates, and therefore income, are a function of relative cohort size (rather than something reflecting chance technological or other economic circumstances) entails the strong underlying assumption that the young and slightly older are not close substitutes. Moreover, gradual changes to cohort size need not have wage effects if businesses can change their capital structure and technology according to emerging shortages or surpluses of a certain type of worker. In any event, the systematic operation of the model suggested by Easterlin is only possible in the instances when cohort size dominates any number of the other factors that determine wages.

currently at its lowest levels since Federation — also consistent with an Easterlin effect on fertility (figure 3.4).

Figure 3.4 The young are scarce
Relative cohort size of the young 1901 to 2007^a



^a The relative cohort size is defined as the number of people aged 15-29 years divided by the population aged 30-64 years. This is the measure used by Jeon and Shields (2005) in a study confirming the importance of the Easterlin effect in OECD countries.

Data source: ABS, *Australian Historical Population Statistics*, Cat. no. 3105.0.65.001 and *Population by Age and Sex, Australian States and Territories*, Cat. no. 3201.0.

Labour market effects — children involve forgone earnings

Another aspect of economic growth even further confuses the income effects on fertility. Childbearing is usually associated with an interruption to maternal employment and earnings. Where this interruption is enduring, it can also lower skills and affect career prospects, with potentially pronounced effects on lifetime income. Accordingly, fertility choices entail forgone income now and in the future (as well as other ‘opportunity costs’ such as less leisure time). As real wages rise over time, so do the opportunity costs of childbearing. This effect will be stronger if female wages rise faster than males, as women tend to forgo more income than men when couples have children. This explains why, all other things being equal, falling fertility rates coincide with increases in female wages (while more often than not, male wages are positively associated with fertility — appendix C). This ‘substitution’ effect is also stronger if parents cannot combine work with the care of young children.

Implications

So, in the case of fertility, there are three factors that confound the usually strong positive relationship between rising income and demand: the opportunity costs of children, the demand for quality, and the relevance of relative income. The first exerts a negative influence on fertility, while the other factors will impede the usual income effects, but still could allow for a positive link. Collectively, does this imply that Australia's recent prosperity is likely to have had a depressing effect on fertility?

To the contrary, there is a reasonable case that recent prosperity has spurred rather than retarded fertility. The historical experiences in Australia provide one strand of evidence. There have been several episodes when fertility has moved in the same direction as income:

- Although fertility rates were falling prior to the Great Depression, the resultant falls in per capita income greatly increased the decline.
- Martin (2003) found that the fertility rate dropped, at least temporarily, in several periods of recession in Australia.
- In the immediate post war period,⁵ rising incomes coincided with a dramatic rise in fertility. This period of prosperity appears to have induced a rise in fertility that is consistent with Easterlin's general concept that fertility is conditional on achieving or surpassing certain material aspirations.⁶

The current period of prosperity resembles that of the immediate aftermath of the Second World War, with a protracted period of economic expansion, low unemployment rates and rising wages. Interestingly, both prosperous periods contrast starkly with the decade that preceded them, which were associated with higher unemployment and relatively slow growth in wages. Almost all of the English-speaking countries with the greatest cultural and institutional similarities to Australia have experienced an era of accelerated economic growth accompanied by an upturn in fertility.

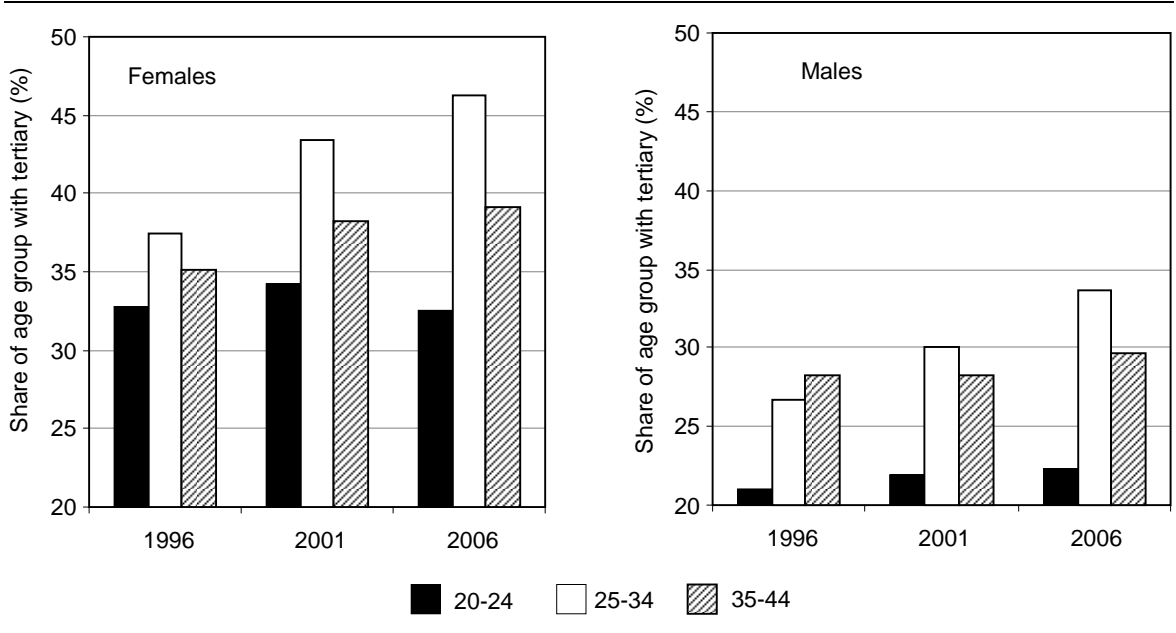
⁵ In Australia, this period can be roughly characterised as 1945-1960. There was a fertility spike immediately after the war, partly due to the recuperation of forgone childbearing. However, this cannot account for the entire rise in fertility that occurred over the entire fifteen years.

⁶ Literature reviews by Pampel and Peters (1995) and Maconovich (1997) find equivocal evidence of Easterlin's explicit description of the dependence of fertility on relative cohort income. However, Maconovich finds strong evidence that changes in material aspirations affect fertility, both across populations and through time. In addition, Maconovich finds strong support for the role of rising material aspirations as a determinant of the post war baby boom and bust. A recent study that draws on the richer insights provided by panel data across OECD countries also provides support for this story (Jeon and Shields 2005).

Moreover, there are several factors associated with the recent period of prosperity that reduce the opportunity costs of childbearing:

First, the costs of leaving a job in order to have children are reduced if there are improved prospects of getting another job in the future. If jobs are plentiful, the economic future looks positive, and primary carers have higher human capital than in the past (figure 3.5), then they will be more willing to leave existing jobs because they expect easier subsequent re-entry into the labour market. Very low unemployment rates and shorter durations of unemployment (figure 3.6 and 3.7) in the mid 2000s are likely to have created these conditions. Indeed, many people currently in their prime fertile years have never experienced a recession in their working lives. The recent period of prosperity has also been characterised by very low quarterly volatility in growth, decreasing people’s uncertainty about future income prospects. This reduced volatility has been empirically associated with fundamental shifts in economic institutions in Australia, for example, greater labour market flexibility (Kent et al. 2005) — which suggest that lower average volatility than in the past may persist into the future.

Figure 3.5 Rising human capital provides insurance for families
Share of females and males with tertiary attainment by age



Data source: ABS, 2006 Census of Population and Housing Australia, Cat. no. 2068.0, Non-school qualification: level of education.

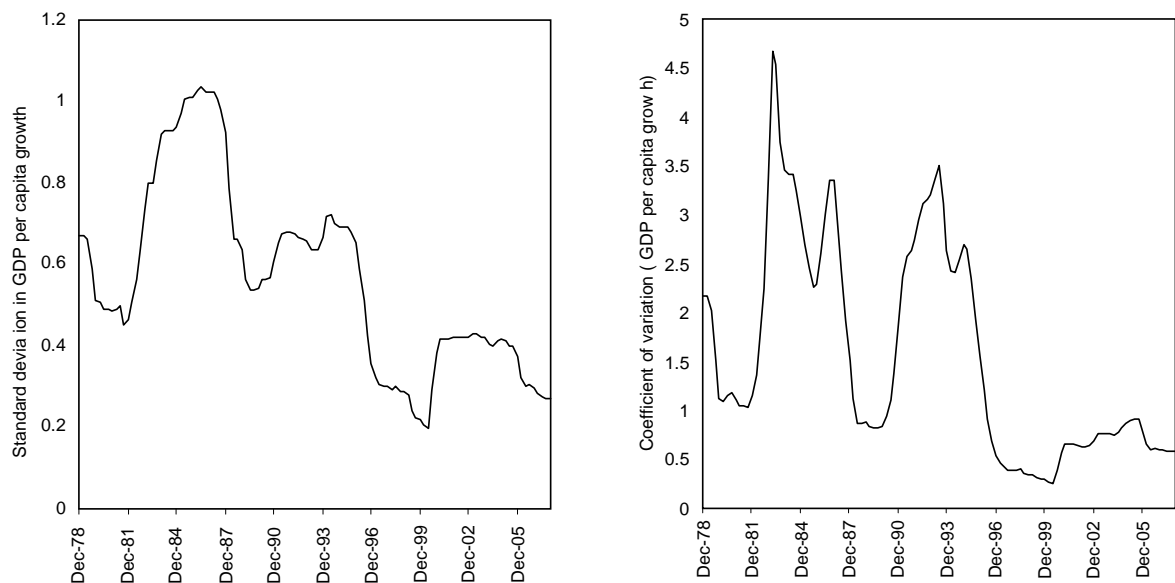
Figure 3.6 Unemployment duration has fallen
Share of females unemployed for more than 13 weeks^a



^a Data are for calendar years from 1979 to 2007. The data relate to the duration of unemployment since last full-time job.

Data source: ABS, *Labour Force, Australia, Detailed - Electronic Delivery*, Cat. no. 6291.0.55.001.

Figure 3.7 Output volatility is at record lows^a



^a The measures of volatility (the standard deviation and the coefficient of variation) are based on a five year 'window'. The coefficient of variation is the standard deviation divided by the average — this makes it possible to compare the variation of series with changing means.

Data source: ABS, *Australian National Accounts: National Income, Expenditure and Product*, Cat. no. 5206.0.

Second, family formation usually increases dependence on a single income as the primary carer reduces their employment. This reduces the scope for new families to diversify the household risk of unemployment. A strong labour market can mitigate this risk by lowering the probability of losing a given job, while increasing the

probability of finding alternative employment at similar or better salary and conditions. This works to ease concerns about, and lessen the effects of, losing a particular job.

Finally, the capacity to strike a balance between work and caring responsibilities is an important factor in childbearing decisions. Enhancement of social institutions supporting families (such as access to child care) is likely to have weakened the tradeoffs between working and having children. In developed countries, the link between employment rates of women and fertility was negative in 1980, but strongly positive by 2005 (OECD 2007). In that case, the positive impacts of prosperity on female employment rates are likely to have contributed to rising fertility. A particular feature of this story may be the greater availability of part-time and casual employment, which, with easier access to, and acceptability of, formal child care, make childrearing and employment more compatible.⁷ The lack of part-time and casual work opportunities is a common feature of many low fertility countries.

In summary, the prosperity of the Australian economy has probably contributed to the slowing of the decline of fertility in the late 1990s and the upturn from 2001.

In reaching this conclusion, it is important to distinguish this effect from what is likely to hold in the longer run. There can be no persistent positive or negative relationship between economic growth and fertility. If there were, continued economic growth would eventually herald vast overpopulation or universal childlessness. However, the Easterlin effect can lead to ongoing cyclical income-fertility effects, while reductions in unemployment and decreased uncertainty about future income could be expected to permanently raise fertility. Both of these facets appeared to be at work during the recent period of prosperity.

There are concerns that the Australian economy may slow down in the immediate future. If that materialises, then it will exert a transitory downward pressure on fertility rates.

⁷ The ready availability of such part-time and casual work is sometimes seen as an indicator of the rationed availability of full-time jobs. Were this true, then this environment might be actually prejudicial to fertility by reducing prospective earnings. However, Abhayaratna et al. (2008) have found evidence that many people prefer part-time work and that, in part, its greater availability stems from employers trying to cater for the preferences of employees.

3.2 House prices and rents

Buying or renting a home is the major expenditure item for most households. Changes in house prices and debt servicing costs⁸ have major budgetary and labour market implications, potentially deferring or reducing fertility. In this vein, Bettina Arndt (2003) has characterised mortgages as the ‘new contraception’. Since the mid 1990s house prices and mortgage costs have risen substantially in real terms and relative to household income (Kryger 2006 Parliamentary library). Rents have risen more moderately than home prices, but have still increased from a median weekly cost of \$159 (in 2006 dollars) in 1996 to \$190 in 2006 (ABS 2007b).

As houses are both a consumption good and an asset, the increase in house prices may affect the childbearing of different groups differently. For those who have benefited from an increase in the value of their assets, the effect should be, in theory, similar to that of an increase in income. The main difference is that a rise in the value of an asset does not entail any forgone wage earnings, and so should be unambiguously positive in its impact on fertility. The size of the effect is less clear-cut. Housing equity is still relatively illiquid, many people do not know its value well and the attractiveness of realising equity through downgrading would probably be low for people intending to increase the size of their households. That said, for people who bought in the mid to late 1990s, the effect on fertility is more likely to be positive than negative. This may have contributed to the increase in fertility rates of women above thirty.

For prospective buyers, higher prices have sizeable negative implied income effects, while higher real interest rates affect owners with high mortgages relative to income. The Fertility Decision Making Project survey confirmed that the inability to buy/renovate or move house had a negative impact on fertility (but its ranking among factors was relatively low).⁹

Price changes also alter the relative costs of alternative expenditures. Whether this increases or decreases childbearing by renters or purchasers depends on whether housing and children are complements (a price-induced decrease in the demand for

⁸ The effect of interest rates may have more complex effects on fertility, which we ignore here. For example, Becker (1988) has argued that altruistic parents maximise a ‘dynastic’ utility function, and are willing to give up consumption now to benefit their children in the future. In this model, there is a positive relationship between interest rates and fertility. The recent increase in fertility rates does in fact coincide with a period of increasing interest rates but there is little suggestion of an historical correspondence between the two. In any case, there is limited support for the underlying model that leads to such a positive correlation (Hondroyiannis and Papapetrou 1999 and Poot and Siegers 2001).

⁹ It was ranked 15th (males) and 17th (females) in terms of its importance for childbearing (Weston et al. 2004).

one is accompanied by a decrease in the demand for the other) or substitutes (demand for one displaces demand for the other). While in some situations, children and houses may be substitutes, at some point they must be complements because larger families demand larger dwellings. So rising house prices increases the cost of an additional child and is likely to exert a negative influence on fertility for renters and new purchasers, although the magnitude of the effect may differ across parities.

Overall, the net effect of recent trends in house prices and interest rates on observed fertility trends depends on the balance of the impacts on those making capital gains and those facing higher rents and mortgage payments. The international literature provides at least a partial guide to resolving which is more powerful, suggesting that rising house prices reduce fertility. For example, Ermisch (1988) found that a doubling of real house prices decreased fertility by around 15 per cent. Were this parameter estimate to hold for Australia, then with a rise in real house prices of around 54 per cent from 1998-99 to 2005-06 (Kryger 2006), the TFR would have fallen by around 8 per cent (or around 0.14 babies per woman). Even were fertility in Australia to be less responsive than this, it appears that some other factors must have offset the influence of house prices.

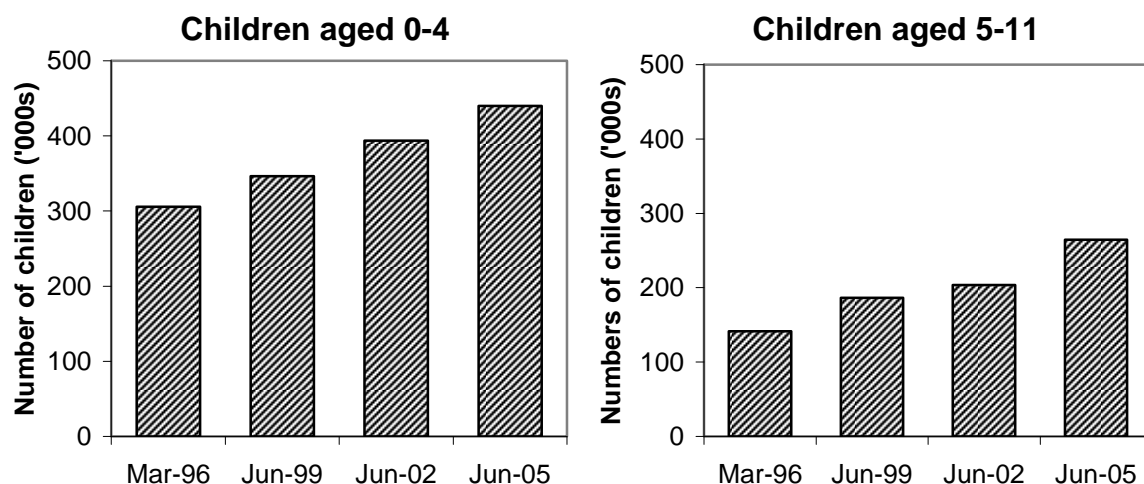
3.3 Cost and availability of child care

As apparent above, one of the key costs of raising children is forgone (maternal) earnings. The availability of affordable child care increases female employment rates, lowering the costs of raising children.

The availability of child care

In June 2005, almost half of the children aged 0-12 years were in some form of child care (ABS 2005). While some parents use informal arrangements with friends and family, many working parents rely on the formal, paid provision of child care. The strong growth in both the use of formal child care (figure 3.8), and its price, indicates a sustained increase in demand for child care. There was a marked increase in utilisation rates between 1999 and 2002 (table 3.1), which was matched by an increase in the percentage of day care facilities with no vacancies. However, between 2002 and 2004 average utilisation declined slightly, suggesting a growing capacity of the child care industry to cater for the growth in demand. The ABS measure of excess demand broadly corroborates this picture (figure 3.9).

Figure 3.8 Number of children who used formal child care



Data source: ABS, *Child Care, Australia, Jun 2005*, Cat. no. 4402.0.

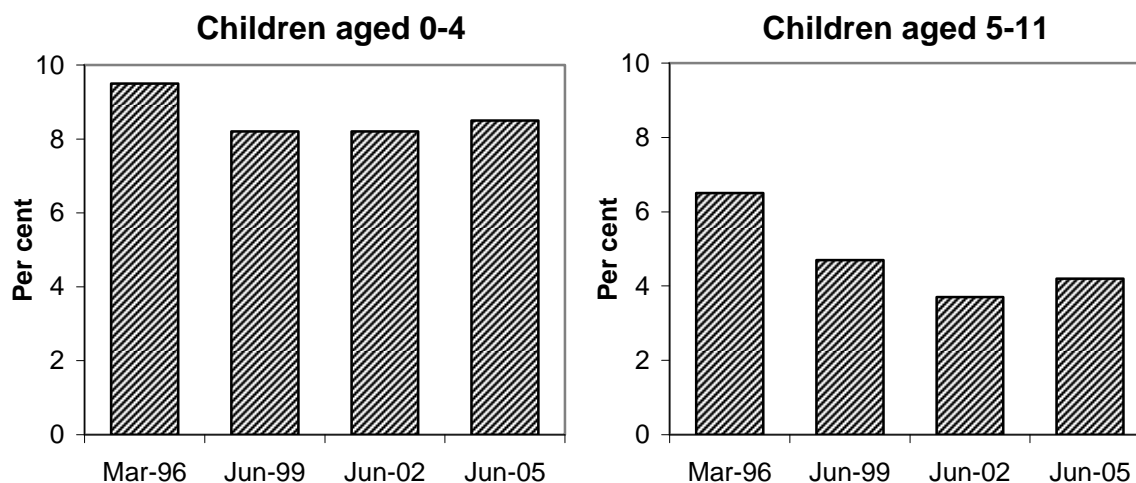
Table 3.1 Utilisation rates of child care facilities

	1999	2002	2004
	%	%	%
Long day care private			
<i>Average utilisation</i>	71	89	85
<i>Per cent with no vacancies</i>	9	28	na
long day care community based			
<i>Average utilisation</i>	75	86	84
<i>Per cent with no vacancies</i>	7	22	na
Family day care			
<i>Average utilisation</i>	70	77	68
<i>Per cent with no vacancies</i>	na	na	na

Source: FACSIA, *Census of Child Care Services*, 1999, 2002, 2004.

The aggregate statistics are likely to conceal some localised shortages of child care, such as in inner urban areas. In addition, the difficulty in securing certain types of child care, such as care for infants, is not well represented. Nevertheless, it does not appear that physical access to child care represents a systemic obstacle to child bearing.

Figure 3.9 **Per cent of children for whom additional formal child care was required but not available^a**



^a This is determined by asking a sample of respondents whether they required more child care than they were able to secure in the past four weeks.

Data source: ABS, *Child Care, Australia, Jun 2005*, Cat. no. 4402.0.

The rising cost of child care

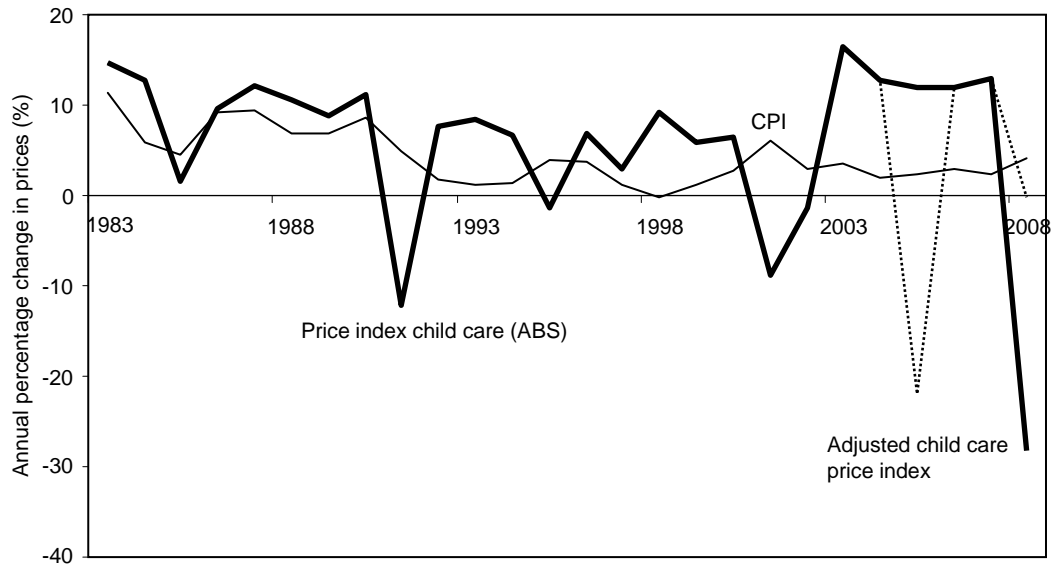
The price of child care has grown by more than prices generally over the last twenty five years (figure 3.10). This implies that for prospective parents with anticipated child care requirements, the cost of having children has generally increased in terms of the consumption they could have enjoyed had they deferred or reduced child bearing.

Policy has been active in trying to reduce the cost to parents of child care. The introduction of the Child Care Benefit (CCB) in 2000, the Child Care Tax Rebate (CCTR) in 2004 and a change in the indexation of the CCB in September 2007 significantly reduced costs below what they would otherwise have been. As described in the note to figure 3.10, there are several complexities in estimating the impacts of these policy changes on net child care costs for families. The adjusted series in figure 3.10 probably best summarises the real outcomes. It shows downward spikes associated with the policy initiatives, surrounded by continued strong price growth.

The scope for the CCB and CCTR to reduce the cost of child care is limited by market feedbacks. As subsidies, they increase the amount of child care people would like to consume which, with only partly responsive supply, introduces a partially offsetting positive price effect. This, combined with other market forces, has generated a growth in child care prices that has exceeded 10 per cent per annum

in four of the years since the introduction of CCB. Consequently, child care costs have risen by around 30 per cent from 2002 to 2008 — appreciably more than the 19 per cent rise in the prices of goods and services generally.

Figure 3.10 Increases in the price of child care and the general price level



^a The data relate to March on March percentage changes. The price index for child care is a net cost measure based on the direct out-of-pocket costs to families. Accordingly, the ABS adjusted the market prices of child care services downwards to reflect the subsidy provided by the Child Care Benefit (CCB). The ABS made no equivalent adjustment to prices after the introduction of the Child Care Tax Rebate (CCTR) in 2004 because of the way in which the government provided the rebate to families, but did so from September 2007 following re-design of the subsidy. This explains the large reduction in prices in the last period in the ABS measure. This complex treatment of various subsidies confuses the picture of costs over time. The adjusted price measure is an experimental estimate of what the price index would have looked like had market prices been adjusted for the CCB in 2000, the CCTR in September 2004 and only for the change in indexation of the CCB in September 2007.

Data source: ABS, *Consumer Price Index, Australia*, Cat. no. 6401.0. and McIntosh (2005).

That said, many households have maintained their ability to pay for child care as wages and female participation have risen alongside costs. Despite the probable variation in individual circumstances, the share of average weekly earnings required to purchase child care has been relatively stable for most family types (Davidoff 2007, AIHW 2006).

Nevertheless, the extent to which relative cost of child care have provided a disincentive to childbearing depends on the base and end period:

- Over the long run, child care prices have outpaced consumer prices generally (280 per cent compared with 193 per cent from 1982 to 2008).
- The price rise for child care was nearly double that of consumer prices from 2002 to 2008 (33 per cent compared with 19 per cent for), but was less for the period from 2000 to 2008 (20 per cent compared with 30 per cent).

Although much of the observed increase in the cost of child care stems from market forces that are outside the control of users, part of the observed increase is likely to stem from the choices made by parents and accreditation initiatives. For example, parents may have a preference to spend more on the quality of child care as their income increases. Quality of child care may refer to qualifications of the child care staff, the staff to child ratio, the location of the child care centre or the quality of facilities offered by the centre. Alternately, there may have been a change in parent's preferences such that they desire higher quality child care regardless of their income level. This may occur as the norm for acceptable child care quality changes over time. In both cases, the changes to the cost of child care is an effect of parent's behaviour, rather than a cause. These changes would not precipitate changes in fertility behaviour.

Overall, the extent to which developments in the market for child care have exerted an influence on the fertility rate depends on the exact period chosen, reflecting the substantial volatility introduced by family policy and the responses of a (highly regulated) industry to changes in demand. In this context, it is not obvious that the relatively smooth increase in fertility in recent years can be traced to developments in child care provision and pricing.

3.4 The effect of the policy environment on fertility

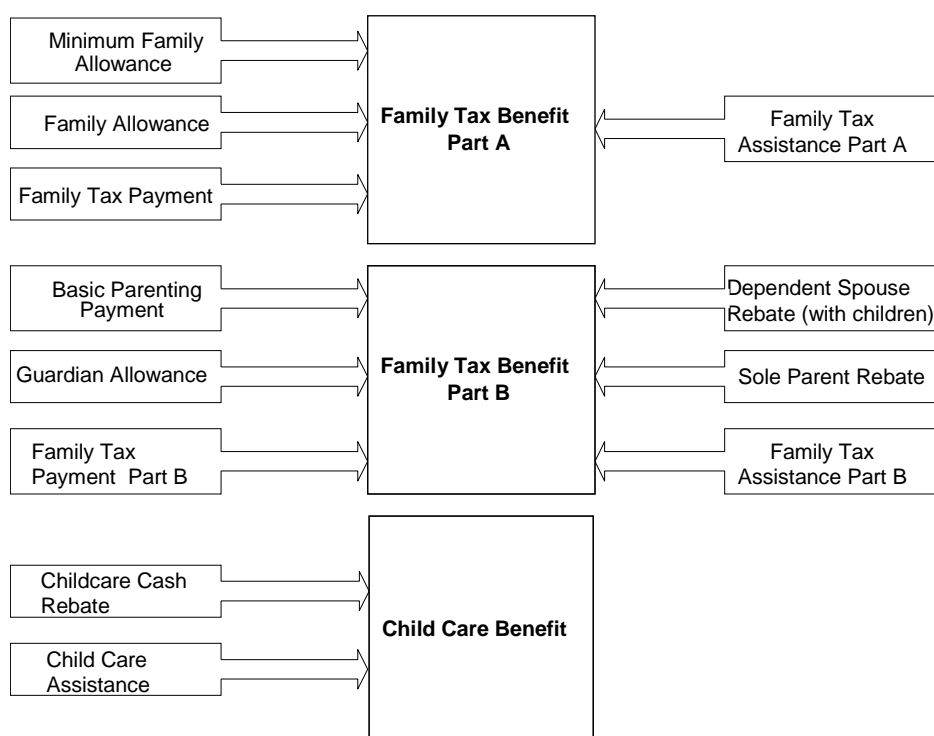
The policy environment shapes fertility choices. A wide variety of federal and state government measures are relevant to child bearing decisions — including the provision of public schools, health care and workplace legislation. While the policies relating to these areas are important, the impact is likely to be diverse, long-term and difficult to attribute. As such, this section considers a narrower suite of policies that provide direct and widespread transfers to mothers and families. Increasing fertility is not the stated objective of these policies, although it is often claimed to be a beneficial side effect.

The policies

Family Tax Benefit A and B

The Family Tax Benefit A and B were introduced on July 1st 2000 in an attempt to simplify the numerous parenting payments that existed at that time (figure 3.11).

Figure 3.11 Twelve Family Payments simplified to three on July 1st 2000

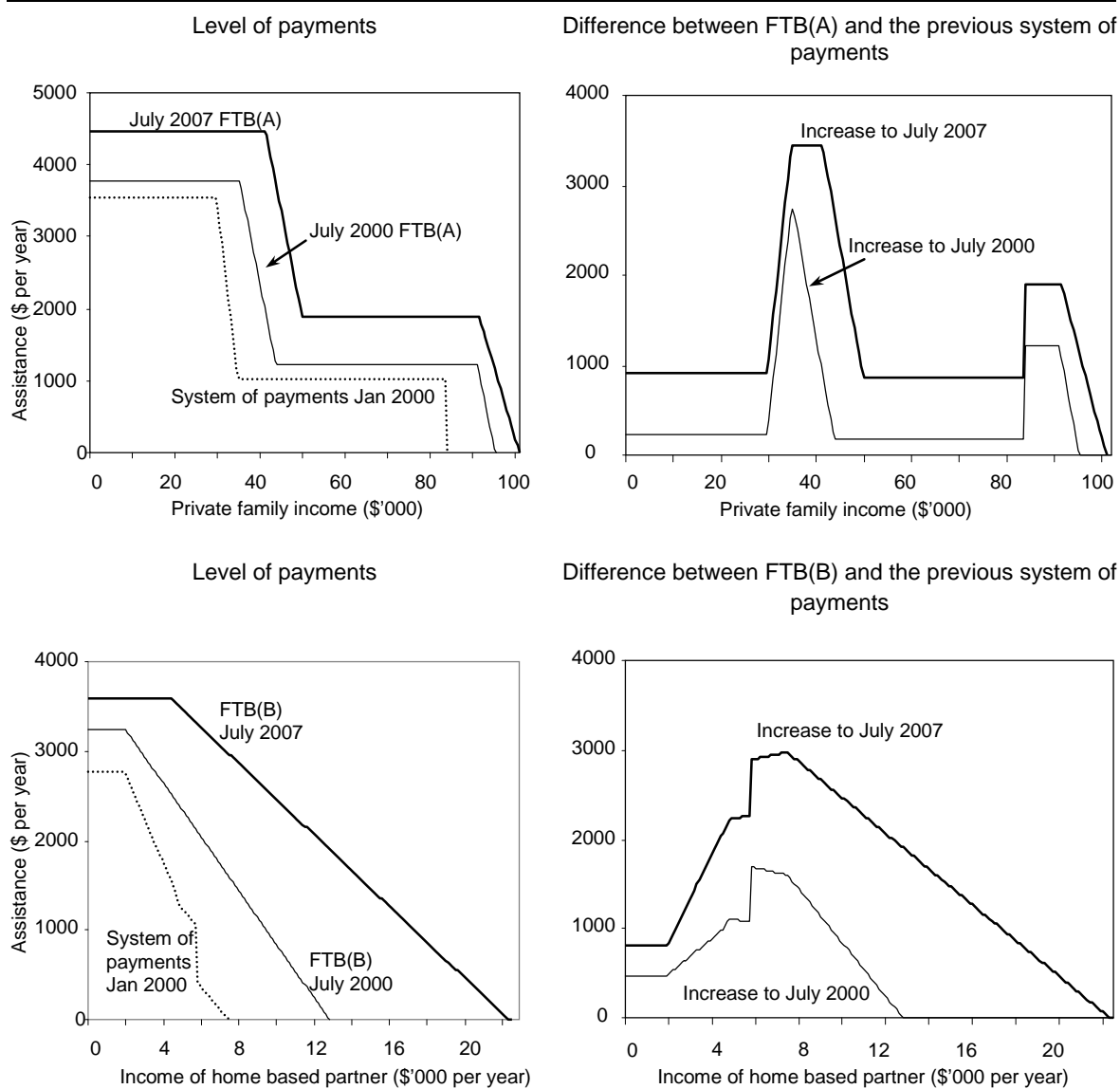


Data source: Whiteford 2000.

The stated objective of the Family Tax Benefit A (FTB(A)) is to ‘assist families with the cost of raising children’ (FACSI 2007a). Families with children are entitled to a payment per child (delivered either fortnightly or as a lump sum at the end of the financial year). The maximum payment for a family with one child less than 13 years of age is currently \$4460 per year and the average payment for all recipients was \$5090 in 2005-2006 (FACSI 2006b). FTB(A) has a conventionally redistributive design with an income test that progressively reduces the entitlement as family income increases. While still re-distributive, changes in the FTB(A) have particularly favoured families earning between \$30 000 to \$45 000 (in today’s terms) (figure 3.12). These families benefited from a higher cut-out rate of the maximum payment.

Figure 3.12 Family Tax Benefits and the preceding system of payments

Real 2007 dollars for families with one child under 13



Data source: Assistance levels and taper rates are taken from Whiteford 2000 and Centrelink website.

The stated objective of Family Tax Benefit B (FTB(B)) is to ‘provide additional assistance to families with one main earner’ (FACSIA 2007a). The current maximum amount is \$3584 for families where the youngest child is under five years of age. FTB(B) is subject to an income test on the secondary earner only¹⁰ – sole parents or primary earners are not subject to an income test. The introduction of FTB(B) in July 2000 corresponded with a moderate increase over the existing system of payments, with the greatest beneficiaries being families where the

¹⁰ Information is correct at time of writing, however FTB(B) will be subject to a means test on family income from July 1st 2008 onwards.

secondary earner earned between \$6000 and \$10 000 (figure 3.12). The generosity of FTB(B) was then substantially increased, so that in mid 2007 secondary earners could have an income of up to \$22 000 and still receive some payment. Again families where the secondary earner made between \$6000 and \$10 000 have benefited the most, receiving up to \$3000 dollars more than they would have under the old system of payments. The additional entitlement directed towards two person, two income families reinforces the simultaneous increase in family income thresholds applying to FTB(A).

The Baby Bonus (formerly known as the Maternity Payment)

Although the Baby Bonus¹¹ is the most widely publicised transfer to families, it is not new in concept or design. In fact, the Maternity Allowance, introduced in 1912 by the Fisher government, is essentially identical in nature (if not generosity) to the modern day Baby Bonus. The original Maternity Allowance of five pounds was the equivalent of over two weeks wages for an unskilled worker and like the modern day Baby Bonus, was not means-tested (Daniels 2006). The Maternity Allowance existed in various forms until its repeal in 1978. The government reinstated it as a means and asset tested payment of \$840 in 1996, which remained until its ultimate cessation in 2004.

The then Australian Government introduced the Baby Bonus under its original name of the Maternity Payment in July 2004. It took the form of a one off \$3000 payment following the birth or adoption of a baby. The payment was increased to \$4000 in 2006 and is scheduled for a further increase to \$5000 in July 2008. The Baby Bonus differs from Family Tax A and B and the Child Care Benefit in that its objective is to ‘recognise’¹² the cost of having a baby rather than assist those with actual financial need. This was most evident in the absence of any means test for the Baby Bonus until the introduction of a relatively high family income threshold in the 2008 Budget. The broader objective of the Baby Bonus means that the overall cost of this policy is greater than would be strictly required to assist the needy (although some of this loss will be recouped through the relative administrative ease of the non-means tested system). The universality and generosity of the Baby Bonus have made it a prominent feature of the fertility and population aging discourse.

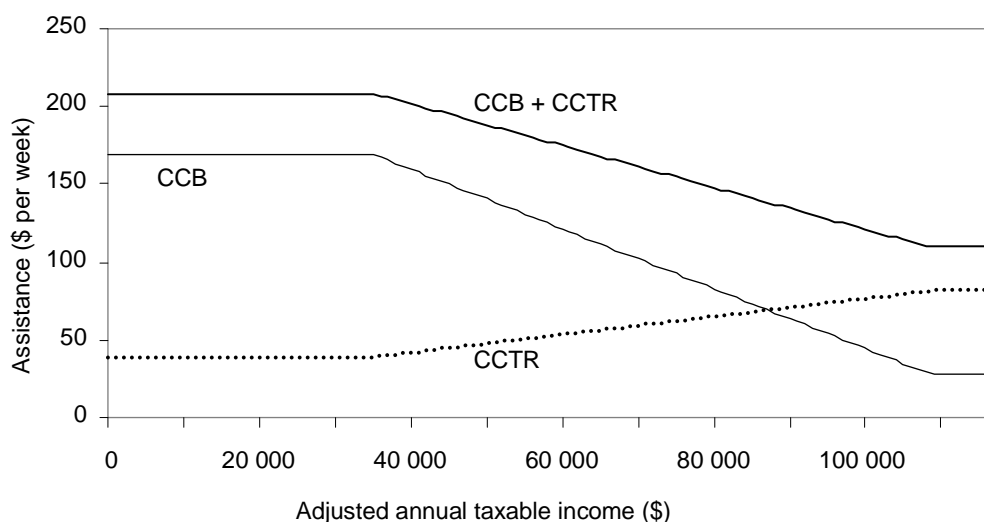
¹¹ Not to be confused with the original baby bonus that operated as a tax rebate from 2002 to 2005.

¹² The Family Assistance Office (2007) stated that the objective of the Baby Bonus was to ‘recognise the legal relationship between mother and child, the role of the mother in the birth of the child and the extra costs associated with the birth or adoption of the child.’

Child Care Benefit

The Australian Government introduced the Child Care Benefit (CCB) on July 1st 2000 as part of the general consolidation of family payments that occurred at that time. The CCB can be delivered as a child care fee reduction at the time of payment or as a lump sum at the end of the financial year. The current maximum payment for one non-school child in approved care is \$3.37 per hour for a maximum of 50 hours week (\$168.50 per week) and the payment is income tested (figure 3.13). This payment is supplemented by the Child Care Tax Rebate (CCTR), which was introduced in 2005 (McIntosh 2006). The CCTR covers 30 per cent of out-of-pocket child care expenses for children in approved child care to a maximum of \$4096 for expenses incurred in 2005-2006 (ATO 2007).

Figure 3.13 **Child care benefits^a**



^a The figure shows the Child Care Benefit and Child Care Tax Rebate for a family with one child in the maximum 50 hours of care per week.

Data source: Assistance levels and taper rates are taken from Centrelink and Australian Tax office website.

How does family policy affect fertility decisions?

In many cases, such family policies provide financial assistance without stimulating fertility. However, they will affect the fertility behaviour of people whose financial circumstances just prevent them from having a child — ‘marginal’ parents.

- For some of these parents the effect is only temporary — so that they bring forward births they were going to have later in life (a tempo effect). This tempo effect may be particularly important if parents are concerned that a generous policy measure may only be in place temporarily.

-
- For others, the effect of policy is an increase in the completed fertility rate (a quantum effect).

Both responses will show up in contemporary fertility measures, and, to the extent that timing effects are large and sustained, both can have protracted, though not necessarily large, demographic impacts. (The dual long-run importance of tempo and quantum effects was apparent in the baby boom years — appendix H.)

Family policy provides incentives for childbearing by lowering the lifetime costs of raising children. The degree to which family policies provide a subsidy for childbearing is tempered by the fact that the recipients usually also bear some of the tax burdens that fund these measures. Low-income families are more likely to be net recipients of Australia's system of taxes and transfers, and thus receive a greater subsidy. As taxable income increases, the greater taxation burden offsets a greater proportion of the subsidy. Given people generally receive family payments over a short period, but fund the existence of such policies over their entire working lives, many families would be financially better off in the absence of even universal payments, such as the Baby Bonus.

By implication, family policies also penalise childlessness. While the net transfer is often smaller than the actual payments, the childbearing subsidy offered by existing family policies operates concurrently with a penalty for childlessness. As taxpayers must fund family policies, regardless of whether they intend to have children or not, there is a transfer from the childless to those with children. (With universal policies such as the Baby Bonus, this transfer can operate regressively — from poorer childless taxpayers — to richer families.)

Fertility policy may also have indirect effects by reinforcing social norms concerning childbearing. For example, if family policy is accompanied by an explicit and repeated message from both government and the media that emphasises the importance of having children, this may foster a more favourable community attitude to family formation. The causality is also likely to run in the opposite direction as governments design policies that respond to emerging community attitudes.

The extent to which the family policy regime affects fertility depends upon:

- the responsiveness of fertility to changes in family policy
- the changing generosity of policies.

How responsive is fertility to family policy?

Since family policies lower the costs of having children, they *must* have some impact on fertility. A vast empirical literature has attempted to establish by how much, without much consensus. This reflects the studies' variable quality, differences in methods, definitions, data sources and data period considered (appendix E). Studies differ with:

- the level of aggregation — from micro-level data, to single country macro-level data to cross-national data
- the econometric technique employed
- the characterisation of fertility
- the types of policies considered and the way policy is measured
- the influence of unobservable factors such as culture and social institutions
- whether the studies are cross-sectional, time series or panel.

Despite these difficulties, meta-surveys by Sleenbos (2003) and Gauthier (2007) tentatively suggest a weak positive relationship between family policy and the total fertility rate. Both authors qualify this assessment of the evidence, citing the wide range of estimated magnitudes, as well as the many studies with insignificant, inconclusive or contradictory results. On top of these difficulties, family policies are most likely to have a bigger impact on the timing of children than their ultimate number. For instance, Ermisch (1988) and Barnby and Cigno (1990) confirm that policies encourage people to bring forward childbearing. But most studies do not address this issue because they are unable to measure the impact on completed fertility rates.

The varied and problematic nature of the empirical literature prevents ready generalisation of a 'typical' magnitude. For example, d'Addio and d'Ecole (2005) find that a 25 per cent increase in the effective child subsidy rate¹³ generates an increase of 0.05 births per women (pp. 65). Blanchet and Ekert-Jaffe (1994), on the other hand, construct an index of family policy that captures both its generosity and its pronatalism. In the stated example a 140 per cent increase in the index increases the TFR by 0.17 babies per women (pp. 99). Laroque and Salanie (2004) estimate that a 50 per cent increase in total family payments, costing about 0.4 per cent of GDP, would increase the TFR by about nine per cent (p. 27). Ermisch simulates that

¹³ The subsidy rate is measured as the difference between the effective tax rates of people without and with children. For a childless family, the effective tax rate is $(T-v)/Y$ where T are taxes paid, v are the average non-family-related transfers and tax offsets, and Y is taxable income. For a family, the effective tax rate is $(T-v-B)/Y$ where B is the family benefit transfer. So the subsidy rate is B/Y .

doubling the real value of child benefits generates a 0.17 per cent increase in average family size (pp. 57 table 4).

Overall, Sleebos (2003 p. 48) concludes that:

The last general point is that policy-makers should probably not expect too much from pronatalist policies. ... knowledge about the effects of policies is still too limited to guide the design of cost-effective interventions.

Fertility in Australia may be even less responsive to family policy than many of the countries studied in the international literature. This is partly because Australia's family policies do not explicitly aim to increase the fertility rate, as in some countries. Gauthier and Hatzius (1997) go further to suggest that, like other Anglo-Saxon countries, Australia's adherence to a 'private responsibility' model of public support (more inclined to target those in need), reduces the link between family policy measures and fertility. They find a large effect for Scandinavian countries, but no statistically significant effect for Anglo-Saxon countries (including Australia).

The changing generosity of family policy and its impact

The Australian family policy regime comprises many different policies with different target groups and eligibility conditions. Accordingly, it is not straightforward to calculate the changing generosity of this regime over time, and the associated possible impact on fertility.

The Baby Bonus

The generosity of an individual, one off, universal payment such as the Baby Bonus is easiest to appraise. Even taking into account the salience of a lump sum payment that immediately follows the birth of a child, the commitment and lifetime costs involved in the decision to have children suggest a minor role for this type of policy.

The direct lifetime costs to parents of raising a child alone have been estimated at around \$240 000 for a single child in a middle-income family (Percival et al. 2007),¹⁴ while the indirect costs associated with forgone earnings amount to around \$310 000 for a single child (Breusch and Gray 2004).¹⁵ However, these cost

¹⁴Based on the estimated average cost of raising one child over the first twenty four years shown in table 2.

¹⁵ The original foregone earnings estimate from Breusch and Gray (2004) related to 2001 data from HILDA. The figures have been multiplied by wage price inflation from the relevant period

estimates have the same synthetic nature as the total fertility rate. They are the lifetime costs of raising children, if for every future year, families with children experienced the *currently prevailing* age-specific costs of raising children (including forgone earnings). For the purpose of comparisons with an upfront benefit, such as the baby bonus, such a measure of costs has several deficiencies. First, it does not discount future values to the present, which, all things being equal, overstates the real costs.¹⁶ Secondly, the real costs of raising children can be expected to rise roughly in proportion to future growth in real wages. Ignoring this, understates the real costs. A back-of-the-envelope calculation suggests that the appropriate measure of the total lifetime costs of one child (until age 21 years) against which to appraise the relative generosity of the baby bonus is around \$385 000 (not the \$555 000 implied by adding the more simple measures above).¹⁷

On this basis, the Baby Bonus represents around a one per cent reduction in lifetime costs for a first child for a typical family. Furthermore, as noted above, the Baby Bonus is actually a more generous version of a pre-existing policy, the Maternity Allowance, which the Australian Government introduced almost one hundred years ago.¹⁸ In that case, the *incremental* reduction in costs arising from the new allowance is even less than one percentage point.

The incentive effects of the bonus are greater for second and subsequent children since the marginal costs fall with additional children. The incentive effects are also greater in those families where there are no forgone wages from having children, for instance, because the prime carer does not want to, or cannot get, work. Nevertheless, the implied subsidy rates are still small. (The question of how sub-groups may respond to the Baby Bonus and other family policies is discussed later.)

in 2001 to December 2007 to put it on the same basis as the NATSEM estimates (so \$247 000 x 1.26).

¹⁶ One way of looking at this is to note that the present bank balance needed to meet future costs of x dollars spread over the next two decades is much less than x because of compound interest on the initial balance.

¹⁷ The calculations take account of the age-profile of costs and of forgone wages in Percival et al. (2007) and Breusch and Gray (2004), and use a 5 discount rate and a 1.75 per cent long-run growth rate in real wages (in line with the productivity rate assumptions in the long-run models used by the PC and Treasury — such as the two Intergenerational Reports).

¹⁸ The TFR continued to fall for twenty years following the introduction of the original Maternity Allowance.

Consequently, any significant fertility effect from the Bonus would suggest the presence of short-sightedness by parents about the lifetime costs of raising children or a large price elasticity of ‘demand’ for children.

- Were the former true, it might explain a bigger-than-expected effect from one-off cash payments. But it would also undermine the appropriateness of the policy in the first place since it would precipitate high *unanticipated* future costs for those people responsive to the measure.
- Were the latter true, it would imply that a minor but permanent shock to any child-related costs (for example, a small increase in child care costs) whose present value was equal to the Baby Bonus would also have substantial fertility impacts. It would also imply high responsiveness to family policies in the empirical literature. Neither is evident.

Ongoing payments — Family Tax Benefits

The significance of changes to ongoing, means-tested, payments in recent years is more difficult to assess, as these payments vary:

- between individuals at a given point in time according to their income level
- with the age of children, and at older ages, with their work and dependency status
- non-linearly with the number of children
- through time as family income changes.

This precludes a categorical assessment of the magnitude of the changes to these policies. However, a case study reveals the potential magnitude of some of the policy changes. Back-of-the-envelope calculations for Family Tax Benefit A (the major ongoing payments) suggest that, for a family with one child, the present value of ongoing entitlements amounted to around 3.5 per cent of the total lifetime costs of raising a child in 2000 (appendix D).¹⁹ By 2007, they were 8 per cent — or an increase in the generosity of the payment of 4.5 percentage points.

Considering how the family tax benefits has altered people’s effective tax rates provides an alternative way of looking at the relative generosity of such payments over time, while highlighting some of the complexities of interpreting the effects of changes in policy. Many families have not been eligible for family benefits at any point since its introduction — for example, a family with one young child in which the main breadwinner earns around average weekly earnings, and with a partner

¹⁹ This is based on estimates of the wages forgone (from Breusch and Gray for a middle-income family) and children’s direct costs from Natsem. Data were re-based to take account of inflation and wages growth between the relevant years.

earning half this amount (C1, W50% in figure 3.14). In contrast, low-income families have experienced substantial reductions in effective tax rates from 2000 to 2007 compared with childless families with the same family income (C2, W33% in figure 3.14). Yet some higher income families have faced bigger reductions in their effective tax rates than some lower income families — reflecting the extension of payments to higher income families over time. This shows up as ‘waves’ in figure 3.14.

The implication of these variations is that there is no single way of characterising the evolving generosity of Australia’s most important family payments. This is problematic for empirical analysis, which usually attempts to relate the total fertility rate to a single measure of transfers to a representative family. For example, a commonly cited OECD study of the determinants of fertility uses the average margin between the effective tax rate of a married couple with two children aged six and four years and that of a single person (d’Addio and d’Ercole 2005).²⁰

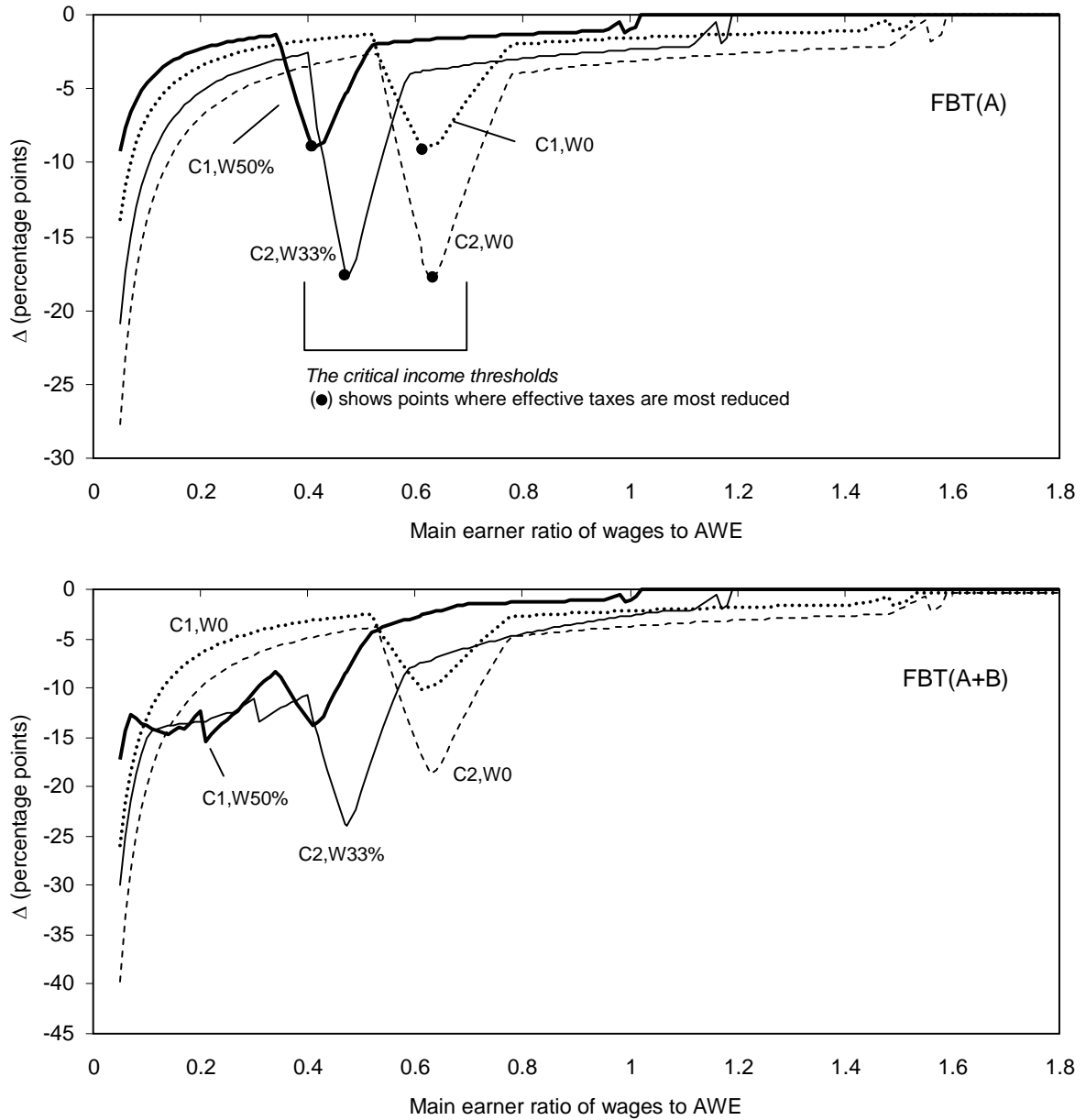
Nevertheless, given that changes in FTB(A) in the past eight years involves much greater lifetime payments to families than the baby bonus, it might be assumed to have a bigger impact on fertility. However, this assumption may not be warranted. There are several reasons to expect that the above description of the increase in payments overstates the actual increase and misrepresents how people value a future entitlement. This is because:

- For many families, household wages and hours of work tends to rise as their children age. As a result, many would receive lower family tax benefits in later years. This reduces the impact of a change in the generosity of the FTB on the lifetime costs of raising children for these families.
- Prior to the birth of a child, it is questionable how well prospective parents understand complex pre-existing FTB(A&B) entitlements, let alone the significance of any change in that entitlement.
- Future streams of family payments are not certain but often change over time. Families could be expected to rationally discount future entitlements by a greater amount to reflect this uncertainty. The fact that initial designs of the FTB resulted in significant overpayments as families’ income circumstances changed over the course of just a single year is symptomatic of the problems families face in forecasting their future eligibility. (This annual problem was resolved by holding back a proportion of the payment until family income was finalised at the end of the financial year.)

²⁰ The measure is based on a couple where one spouse earns 100 per cent of the average production worker. It is unclear whether the parameter estimates from D’Addio and d’Ercole (2005) apply to Australia or whether the measure of policy generosity is valid in an Australian context. Were they to be, then it would imply that changes in FTB(A) would ultimately increase Australia’s TFR by around 0.05 babies per woman.

Figure 3.14 The changing generosity of family policy depends on family type and income

Changes in relative tax rates, couple family, FTB(A) and combined FTB(A&B), 2000 to 2007



a Effective tax rates facing otherwise identical families with and without children (and with different levels of wages relative to average weekly earnings) were calculated for the FTB(A) and FTB(A&B) in July 2007 and its equivalent in January 2000. Effective tax rates (T) were calculated as $100 \cdot (1 - NY/GY)$ where GY is gross family income and NY is net family income, including receipt of any family benefits and payment of taxes. The term $D = \{T_{WC}(2007) - T_{NC}(2007)\} - \{T_{WC}(2000) - T_{NC}(2000)\}$ indicates the change in the relative treatment of families with children (WC) and those without (NC). The family types are (C1,W0) — a one child family with zero wages for the second partner; (C2,W0) — a two child family with zero wages for the second partner; (C2,W33%) — a two child family with the second partner earning 33 per cent of the main earner's wage; and (C1,W50%) — a one child family with the second partner earning 50 per cent of the main earner's wage

Data source: Calculations based on tax rates and family benefit schedules for January 2000 and July 2007.

Aggregate measures of generosity and their impacts

It would be desirable to repeat the calculations of the kind above for all other relevant family policies (such as various child care subsidies and other transfers) and then to pool these into a single representation of Australia's family benefits system. However, the data and conceptual complexities compound because each payment has its own specific eligibility criteria that depend on the family type and characteristics. Given these complexities, a more rough-and-ready aggregate measure of the changing importance of family policy across all payments and all families may still provide a useful indicator, while being easier to estimate.

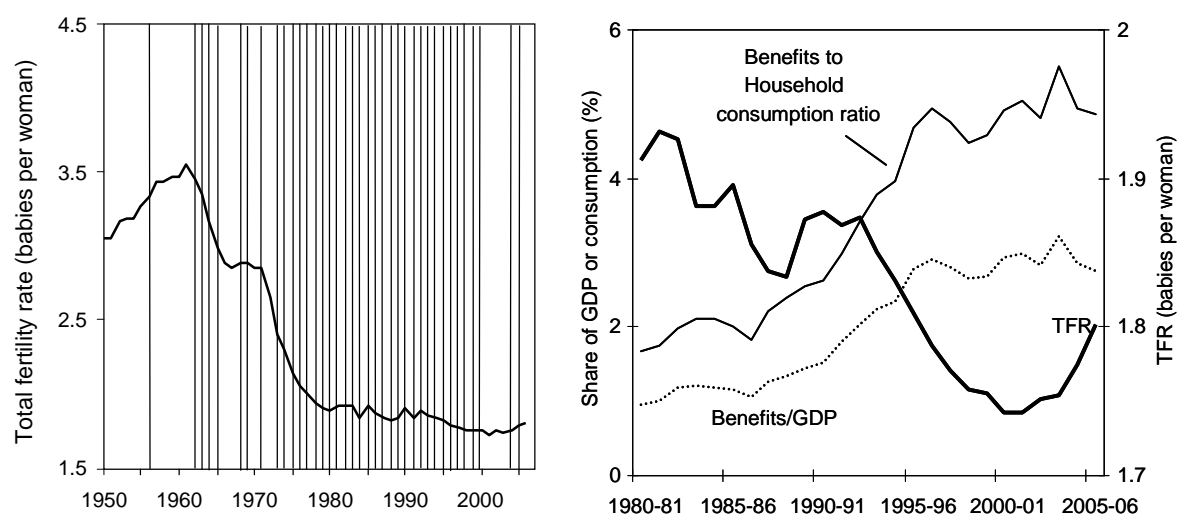
It is important to use measures of the generosity of aggregate family payments that have sensible long-run properties. Just to maintain a given incentive effect on fertility rates, the level of family payments would have to keep pace with the costs of raising children. These costs can be expected to rise over time, reflecting changing expectations about the appropriate living standards of children, the greater cost of services and the higher foregone wages of carers. In that case, family payments could only have an effect on fertility rates if their generosity was to exceed the growth in the costs of raising children. Accordingly, there can be no sensible long-run positive link between the *level* of payments and the fertility rate. Dividing government family transfers by total child costs, GDP or household consumption alleviates this problem.

The ratios of government family spending to GDP and to household consumption are easy to calculate and are likely to be reasonably correlated with total child costs. Using either metric, the recent increases in family policy spending are relatively small (figure 3.15). Family payments increased from:

- 2.65 per cent of GDP in 1998-99 to 2.75 per cent in 2005-06 — a change of 0.1 percentage points
- 4.48 per cent of household consumption in 1998-99 to 4.86 per cent in 2005-06 — a change of about 0.4 percentage points.

This indicates the correspondence of recent increases in family payments with growth in the economy.

Figure 3.15 The unresponsiveness of TFR to family policy ^a



^a Details of policies up to the year 2000 are from the Social Market Economy Institute of Australia (2005), with subsequent developments based on annual reports by FaCS. There is a break in the series in 1998-99. The expenditure ratios from that date are derived from AIHW data, while previous ratios are drawn from the OECD Social Expenditure database. The differences between the series are small.

Data source: Social Market Economy Institute of Australia (2005), ABS (2006), OECD Social Expenditure Database.

Though difficult to estimate, conceptually, the best measure of generosity is the ratio of government family benefits to the full private lifetime costs of raising children. This can be used to identify the extent to which family benefits reduce the lifetime ‘price’ of children (appendix D), and therefore the possible magnitude of additional ‘demand’ (fertility).²¹ Back-of-the-envelope calculations suggest that the Australian Government increased its contribution to the lifetime costs of raising children from 21.5 per cent in 1998-99 to 23.8 per cent in 2005-06. This implies a reduction in the average lifetime costs of around 3 per cent.

When family allowances alone are considered (FTB(A), FTB(B) and the Baby Bonus), the increasing generosity of payments decreased average lifetime costs by around 3.6 per cent over the slightly longer period from 1998-99 to 2006-07 (appendix D). Were Australian fertility to have the same sensitivity to family allowances as OECD countries as a whole, then this implies that changes in allowances over this period increased the total fertility rate by about 3.7 per cent. This equates to a budget cost of about \$300 000 per additional baby (appendix D). Were fertility to have a lower sensitivity to benefits, as suggested by the nature of

²¹ In contrast, other than over short periods, the *level* of government payments provides little guidance about the incentive effects of family policy. This is because the incentive effects would actually decline unless the level of payments actually kept up with costs. So growth, per se, in payments does not indicate whether policy is acting to further decrease the ‘price’ of children.

Australian family policy (see above), the cost per additional baby could be significantly higher.

Moreover, casual assessment suggests no obvious positive link between the myriad of family policy changes that have occurred over the past 30 years and changes in Australian fertility behaviour (figure 3.15). From 1986 to 1996, the generosity of family policy grew by much more than in contemporary times, but the fertility rate still declined significantly over that period. Econometric analysis over the period from 1980 to 2007 of the links between the total fertility rates (in levels, logs, differences) and various measures of family policy found negative, not positive, relationships, even after controlling for several other influences.²² Of course, the true underlying relationship between fertility and family policy must be positive. The results suggest, however, that this positive impact is sufficiently small that it is hard to discern among the many other factors impinging on fertility.

The recent experiences of other Anglo-Saxon countries are also revealing. There appears to be no obvious relationship between their family policy spending to GDP and their fertility experiences. The common ingredient of their experiences has been the coincidence of rising fertility levels and a period of economic prosperity.

The fertility behaviour of different socio-economic groups also suggests relatively modest effects of family policy in Australia. The various family benefits introduced since 2000 have tended to favour lower income families, as is apparent from the payment schedules in figures 3.12 to 3.14. This is further reinforced by the fact that the private costs of raising children in families with younger or low-skill females tend to be lower since their forgone earnings are also lower. This means higher effective subsidy rates for such families. Yet, in recent times, the fertility rates of people with higher socio-economic status appear to have grown more rapidly than others:

- ABS regional analysis — while only partial evidence on this score — shows greater rises in rich areas than poor ones (as discussed later in this chapter).
- The Australian Capital Territory, which has a significant over-representation of better off families, has shown a large percentage increase in its fertility rate since 2001.

²² Such as unemployment rates, inflation rates, housing affordability, relative female to male wages and a time trend to capture slow moving social phenomena, such as changes to attitudes to women working. No acceptable model was found using this time series approach, with all showing signs of misspecification. That does not rule out the possibility that a more sophisticated approach might yield different answers. Possible extensions could involve the use of stochastic trends, additional relevant variables (for example, divorce rates), and techniques, such as instrumental variables, that deal with the potential endogeneity of family policy.

This suggests that factors other than the income effects of family policy have prompted their behaviour.²³ Nevertheless, the changing generosity of family benefits in Australia has probably contributed modestly to the recent rise in aggregate fertility — albeit at a high cost.

Have sub-groups been affected?

As noted above, some family policies provide greater financial incentives for childbearing for younger, poorer and disadvantaged parents. If such groups are less likely to foresee the full long-run costs of raising children, they will be even more responsive to any upfront financial incentives. Affecting such sub-groups is unlikely to make much difference to aggregate Australian fertility, but it does raise several policy tradeoffs:

- While the absolute value of earnings forgone is less among lower educated women, the costs of raising children represent a bigger proportional reduction in their lifetime income than more educated women. For example, Breusch and Gray (2004) found that a university-educated woman with two children forgoes around 40 per cent of her lifetime earnings (compared with childlessness), while a woman with incomplete high school education forgoes around 60 per cent of her lifetime earnings.
- The incidence of low birth weights (a major indicator of subsequent problems) is greater among young mothers and even greater among disadvantaged mothers.
- Early children have a greater impact on lifetime earnings than later children and can displace education and training, potentially locking in disadvantage.

Various commentators have pointed to perverse incentives arising from the Baby Bonus, because its large upfront, lump-sum nature has greater potential to affect the behaviour of the disadvantaged than others. While anecdotal, the concern is that liquidity-constrained mothers were using the bonus for non-child-related expenditures and in some cases, getting pregnant in anticipation of a future lump sum payout. For example, it was claimed that some Indigenous people in the Katherine region of the Northern Territory had used the bonus to finance substance abuse, rather than child-related expenses, and that the bonus would

²³ Tempo effects may, in part, explain this pattern. The past deferral of children is more likely to have affected educated, higher socio-economic groups of women who wish to progress their careers before partnering and childbearing. Consequently, recuperation will affect higher socio-economic areas by more. But the evidence on age-specific fertility rates shows that fertility rates among younger women have also started to rise significantly in recent years in places like the ACT. So neither family policy nor recuperation provides a full explanation for the pattern observed for different socio-economic groups.

(problematically) stimulate pregnancies.²⁴ Skelton (2008) reported intimidation by partners of Indigenous women to obtain the bonus. The Northern Territory Chief Minister has also expressed concern about the social impacts of the bonus in some communities,²⁵ as have some MPs in other States.²⁶

A social worker made the following observation:

... as a long standing worker in child protection, I am also concerned about the social costs. Not many people have more babies because of the Bonus, except those who are least able to parent. The Bonus actually is a real incentive for dysfunctional families to produce more babies and so to increase the proportion of disadvantaged babies being born. \$4000 is a lot of money for people living on Social Security or a 16 year old. I cannot tell you how many of my child protection clients talk of having another baby to get what seems to them to be a fortune. We are also aware of many cases where unscrupulous 'partners' leave as soon as the money comes through and they purloin it.²⁷

Unfortunately, the data to test the strength of these incentive effects are not available. However, some indicators suggest that the effects on teenage pregnancies have probably not been large across Australia, with the possible exception of the Northern Territory:

- The rate of teenage pregnancy in Australia, already low when compared with other English speaking countries such as the US, UK or New Zealand, has been declining since the 1970s and has (generally) continued to fall since the introduction of the current family policy regime.
- Similarly, there is little evidence that lower income groups have been more responsive to family policy than the general population. The Socio-Economic Indexes for Areas (SEIFA) estimates the level of advantage experienced by a geographical area according to the proportion of inhabitants on low or high incomes, in low or high skilled occupations and so on. These data show that the biggest increase in fertility rates occurred for older mothers in the most advantaged areas (ABS 2007c and figure 3.16).²⁸ That said, the data show that,

²⁴ Comments ascribed to Michael Berto, chairman of ATSIC's Garruk-Jarru Council in the Katherine region of the Northern Territory (AAP June 2005).

²⁵ ABC News 2004, 'Fears baby bonus being used to buy alcohol', 27 June.

²⁶ For example, Barry Haase in Kalgoorlie (Schubert, M. 2006, 'Increase scrutiny to stop baby bonus abuse: MP', *The Age*, October 18) and Far north Queensland MP, Jason O'Brien (ABC website, 2008, 'Baby bonus causing Indigenous population explosion: MP', 10 January).

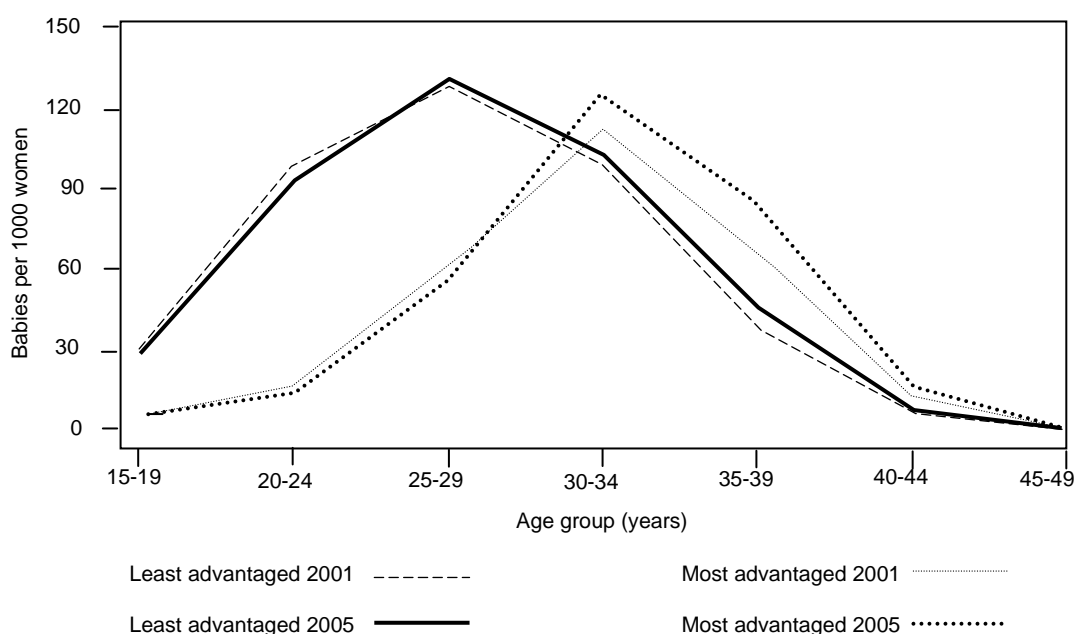
²⁷ Comment made by participant, 14 March 2008 in Core Economics, commentary on economics, strategy and more, at <http://economics.com.au>.

²⁸ As noted in figure 3.11, this evidence is not decisive because migration between areas or other confounding factors may distort the picture. Moreover, it does not control for other factors that

between 2001 and 2005, the fertility rates rose (slightly) among young mothers in the most disadvantaged areas, while over the same period they fell for young mothers in the most advantaged areas.

- A statistical measure based on age-specific fertility data also shows no evidence of a distinctive surge in teenage births relative to other age groups (appendix F) for all jurisdictions, bar the Northern Territory. While this approach has the advantage that it controls (partly) for any general factors that act to depress or increase births across mothers generally, its statistical power is probably low.

Figure 3.16 Fertility has risen most in socially advantaged areas



^a It is important to note that these data do not provide the average fertility rates for rich and poor families, but averages for *geographic areas* that are in the highest and lowest quintiles of income. This could confound the true extent of fertility change by degree of socio-economic disadvantage (through the so-called ecological fallacy). As a hypothetical illustration, it could be that people with parental intentions move out of poorer areas to wealthier areas to gain access to greater security and better educational facilities, while those without parenting intentions stay. This could depress the subsequent fertility rate of the poorer area, even if the poor themselves have more children, while it would raise the fertility of the richer areas.

Data source: ABS, *Australian Social Trends*, 2007, Cat. no. 4102.0.

However, by its nature, finding effects on narrow sub-groups is hard without detailed unit record data. The anecdotal material alone suggests that this form of family payment has probably created adverse outcomes for some people. (Reflecting concerns of this nature, in 2007, the Australian Government re-designed the Baby Bonus to provide payments in instalments for women aged less than 18

have been changing between 2001 and 2005 and that may have affected poorer and richer people differently (for example, the design of welfare schemes).

years. This has been extended to all recipients following the 2008 Australian Government Budget.)

The Baby Bonus also appears to have had unanticipated effects on the timing decisions of women whose birth was to occur immediately before its introduction on July 1st 2004. As giving birth before this date meant foregoing the entire payment, women who could reschedule to a later time had a strong incentive to do so. Gans and Leigh (2006 and 2007) estimates that over 1000 births were postponed in order to qualify for the Baby Bonus and around 300 of these were postponed for more than 2 weeks.

This is likely to have placed some temporary strains on hospital resources, but beyond that, it is uncertain whether this has had adverse effects on the wellbeing of the babies concerned. Parents typically place great weight on the welfare of their children and there is medical supervision of birth timing. Nevertheless, some doctors have raised concerns about the risks of delayed childbirth (Price 2006a Price 2006b, ABC 2006). In addition, as Gans and Leigh observe, Apgar scores (a simple diagnostic tool for initial baby health) are lower for babies born late or overweight and low scores have been shown to be associated with higher health risks later in life. However, no assessment by physicians or medical researchers has been made of the health effects associated with delayed childbearing due to the baby bonus.

3.5 Summary of the likely causes of the upturn in fertility

The upturn in fertility observed in Australia has occurred in the presence of several factors that are likely to have exerted a negative influence, such as the rising cost of housing. Furthermore, the economic and social incentives that precipitated the movement by women out of the household and into higher education and the workforce have not been diluted. The forces underlying the upturn in fertility have been sufficiently strong to counteract these influences.

While much of the change may reflect a purely temporal effect (the recuperation of fertility for older women discussed in chapter 2), the stability and overall performance of the Australian economy over the last fifteen years is likely to have provided an environment conducive to such recuperation, as well as a likely quantum effect. In particular, consistently low unemployment rates, more flexible labour markets, low output volatility and strong labour demand promote family formation by reducing the financial risks associated with childbearing and reducing the cost related to exiting and re-entering the workforce. The only recent precedent

for the strength and duration of the economic expansion currently occurring in Australia is the post-war boom years in the 1950s and 1960s. The very different social institutions of that time allowed for a much greater impact on fertility than is currently being observed today.

There is also some support for a positive link between family policy and fertility in the international literature, and it is likely to have played a partial, though not decisive, role in the recent increase of Australian fertility rates. In saying this, however, it is important to emphasise that such family policies are not designed explicitly to stimulate fertility and aim to promote other social and economic goals. Given this, identifying only an incidental, supportive effect is neither surprising nor problematic.