



**Australian Government**

**Department of Families, Community Services  
and Indigenous Affairs**

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# **Australian Social Policy 2006**

**Improving the lives of Australians**

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New age pensioners—trends in wealth

Examining potential risk factors, pathways and processes associated with childhood injury in the Longitudinal Study of Australian Children

Men's and women's fertility: differences in achieved fertility, expectations and intentions

Psychosocial factors and intergenerational transmission of welfare dependency: a review of the literature

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# Major articles

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*Australian Social Policy 2006*

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# New age pensioners—trends in wealth<sup>1</sup>

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*Hazel Lim-Applegate, Peter McLean, Phil Lindenmayer and Ben Wallace*

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*Seniors and Means Test Branch*

*Australian Government Department of Families, Community Services and Indigenous Affairs*

## 1. Introduction

Australia, like other Organisation for Economic Cooperation and Development (OECD) countries, is experiencing an ageing of its population, driven by declining fertility and mortality rates. Since the mid-1970s, the total fertility rate of Australian women has been well below that needed for population replacement. Over the same period, life expectancy has increased, partly due to high standards of public health (Australian Government Department of Treasury 2002).

The Australian Government's *Intergenerational Report* (IGR) (Australian Government Department of Treasury 2002) projected that over the next 40 years the proportion of the population aged over 65 years will almost double to around 25 per cent. A recent research report by the Productivity Commission (2005) confirmed this projection. At the same time, growth in the population of the traditional workforce age—15 to 64—is expected to slow to almost zero (Australian Government Department of Treasury 2004, p. 3).

Over time, the ageing of the country's population will result in a greater demand for Age Pensions and health and aged care spending. The IGR projected that, without changes to previous trends, spending by the Australian Government would exceed the amount it raised in taxes by around 5 per cent of Gross Domestic Product (GDP) by 2041–42. To put this into perspective, the 2003–04 budget forecast was for a surplus of \$4.6 billion. A budget deficit of 5 per cent of GDP would mean that for 2003–04 the deficit would be around \$40 billion (Australian Government Department of Treasury 2004, p. 3). The Productivity Commission report (2005) forecasts that by 2044–45, in the absence of policy responses, the aggregate fiscal gap will be around 6.4 per cent of GDP, with an accumulated value over the next 40 years of around \$2,200 billion (in 2002–03 terms).

Between 1980 and 2005, the number of age pensioners increased from 1.3 million to 1.9 million mainly due to growth in the eligible population, partly offset by a decline in the proportion of the eligible age group receiving a pension. Growth in the eligible population and a decline in the coverage rate of Age Pension are expected to continue<sup>2</sup> (Australian Government Department of Treasury 2002). However, the IGR also projects that the proportion of pensioners receiving a maximum Age Pension will decline, while the proportion with a part Age Pension will increase significantly. These projections reflect growing wealth for older Australians of Age Pension age and the impact of a maturing superannuation system.

Since the mid-1980s, the distribution of wealth across the Australian population has shifted markedly towards older Australians (Harding, King & Kelly 2002). The share held by those 65 or over was estimated to have increased from 17 per cent in 1986 to 27 per cent in 1997. For those aged 55 to 64, who are heading towards and on the verge of Age Pension age, the estimated average net wealth per adult by age of family head rose from just under \$150,000 in 1986 to around \$210,000 in 1997 (figures are in 1998 dollars and reflect real increases in wealth) (Harding, King & Kelly 2002, pp. 4–5).

In addition, the effects of Superannuation Guarantee legislation are starting to impact on the wealth of Australians at retirement. Superannuation Guarantee has been in place since 1 July 1992 and requires employers to make superannuation contributions for their employees. For the 2002–03 financial year and beyond, the Superannuation Guarantee requires employers to contribute 9 per cent of each eligible employee's earnings base to a complying superannuation fund or retirement savings account (RSA).

By 2050, with a fully mature Superannuation system, it is expected that no more than 75 per cent of people aged 65 or over will receive Age Pension (or a Service Pension equivalent) (FaCS 2003). It is also expected that around two-thirds of pensioners will receive a reduced pension because their income or assets exceed the free areas, compared with around one-third of all age pensioners in 2002–03 (FaCS 2003). Workers with superannuation are projected to have an average potential spending replacement rate of more than 66 per cent<sup>3</sup>, that is spending power in retirement that is 66 per cent of that before retirement (Australian Government Department of Treasury 2004, p. 11).

Of great interest to policy makers, and to Australians as a whole, is whether the projected trend towards greater self-reliance among age pensioners is becoming evident.

As well as the environmental changes surrounding Australia's retirement incomes system mentioned above, there is an emerging opportunity from the maturing of two key data sources:

- Centrelink SuperSTAR cubes, which provide point-in-time data on income support recipients.
- FaCSIA Administrative Longitudinal Data Set (LDS), which provides longitudinal data on a sample of income support recipients.

This allows a closer look at this question. These data sources contain information drawn from the systems managed by Centrelink that administer the provision of income support to Australians. The LDS now contains confidentialised detailed information about asset holdings for age pensioners from 1999–2000 to the present. These five years of longitudinal data are sufficient to allow some analysis of change over time. This paper uses the LDS 1% sample (covering 1 per cent of the pensioner population).

Of equal interest to the issue of the wealth of Australians reaching Age Pension age is the complementary issues of whether, or how quickly, age pensioners draw on their savings in retirement.

The LDS provides a similar valuable source of information on this issue, allowing analysis of change over time in the asset holdings of age pensioners.

This paper draws on the early stages of research into wealth trends for senior Australians. The broader research plan is outlined under ‘Further Research’ (Section 8).

This paper seeks to answer two main questions:

- ▶ **Are Australians reaching retirement with greater wealth than in the past?**
- ▶ **Are Australians drawing down their wealth in retirement, and (if so) how quickly?**

Both questions are explored in detail using data drawn from the LDS 1% sample and some supporting and contextual information drawn from Centrelink SuperSTAR cubes.

The relevant group for which there is detailed information held in the LDS is senior Australians receiving Age Pension, either maximum rate or part rate. However the LDS more accurately captures changes in the assets of part-rate pensioners than maximum-rate pensioners. Pensioners on the maximum rate are only affected by changes if their income and/or assets increase above the relevant thresholds. As a result, income and assets information for maximum-rate pensioners is rarely updated and therefore not reliable. Part-rate pensioners, however, have their rate affected by income and asset changes, and are required to update their information regularly and have their wealth information verified under Centrelink’s ongoing compliance mechanisms. Part-rate pensioners also have an additional incentive to advise promptly of asset draw down, as it increases their pension rate. As a result, income and asset information for part-rate pensioners is highly reliable and of high quality in the LDS.

With part-rate pensioners expected to make up the majority of the Age Pension population over the next 40 year period<sup>4</sup>, their aggregate behaviour will best indicate the future sustainability prospects of Australia’s income support system.

The Australian Government has a strong need to understand the circumstances of age pensioners over time, as they are the group that calls most heavily on the income support system and, particularly for part-raters, the group where increasing wealth over time would have the greatest potential to reduce demands on public expenditure.

Age pensioners also form a high proportion of senior Australians, with roughly 78 per cent of all Australians of Age Pension age eligible for at least a part-rate pension (or Service Pension equivalent).<sup>5</sup>

There is some information on the LDS, although there is no detail on the types of asset holdings for moderate-wealth, self-funded seniors. These seniors are eligible for the Commonwealth Seniors Health Card (CSHC) and certain other benefits and incentives in recognition of their funding their own retirement. FaCSIA’s Seniors and Means Test Branch has conducted a project examining the characteristics of this group (McAlister, Lindenmayer & McLean 2005).

There is no data on the LDS for high-wealth retirees, as they are not eligible for financial support under Australia’s Age Pension means testing framework (explained in more detail below) and are therefore not included in Centrelink’s data stores. However, these high-wealth, self-funded retirees will only impact on public expenditure if, later in life, through reducing income or assets, they become eligible for the CSHC or income support. At this point, they would be captured by Centrelink’s systems and included in relevant data sets.

Other key data sources, such as the Household Incomes and Labour Dynamics Australia (HILDA) survey wealth module, provide point-in-time data covering the wealth holdings for the whole Australian population, and therefore information on the highest wealth groups. Longitudinal data will become available when the wealth module gets repeated in the HILDA survey (run by the Melbourne Institute of Applied Economic and Social Research and funded by the Australian Government Department of Families, Community Services and Indigenous Affairs [FaCSIA]).

There are significant technical issues related to the methodology for this project which are explained in Appendix A.

## 2. Retirement incomes policy

Australia's retirement income system provides a strong basis to generate sustainable and adequate income for all Australians in retirement. It combines a publicly-funded pension, compulsory superannuation and incentives for people to provide for themselves in retirement.

Australia's system comprises three complementary pillars:

1. The Age Pension—a publicly-funded, means-tested payment providing a modest but adequate income (or income supplement) for people in retirement. The Age Pension is a flat-rate payment, set at least at 25 per cent of Male Total Average Weekly Earnings (MTAWE).<sup>6</sup> Currently almost 78 per cent of people of Age Pension age receive the maximum or a part-rate Age Pension (or Service Pension equivalent).
2. Compulsory superannuation contributions under the Superannuation Guarantee, an earnings-related scheme providing benefits in retirement greater than Age Pension can provide. Superannuation Guarantee savings are supported by taxation concessions.
3. Private savings, including voluntary superannuation supported by taxation concessions, private investments and other savings (including investment in the home).

This paper characterises Australians as passing through three stages relating to retirement income.

1. **The accumulation stage.** During an individual's working life they may contribute to superannuation and accumulate other savings, including, for many, the purchase of a home. This is reinforced by policies aimed at boosting workforce participation, by taxation concessions for superannuation, and by incentives to remain in the workforce after reaching Age Pension age.<sup>7</sup> Throughout this stage an individual is generally self-funded and only calls on government assistance in times of financial stress.
2. **The transition from the accumulation stage to the draw down stage.** This may entail a complete or phased withdrawal from the workforce and the beginning of a reliance on superannuation and other savings. Some people who do not need Age Pension and begin retirement as fully self-funded retirees may qualify for the CSHC, while others may qualify for Age Pension immediately.

3. **An increasing reliance on the Age Pension (for some individuals).** This may entail a progressive transition to higher part-rate or to maximum-rate Age Pension as superannuation and other private savings are drawn down or as other income reduces.<sup>8</sup>

This paper examines the ‘destination’ of age pensioners at the second stage in terms of their level of wealth and provides initial analysis of the third stage.

## 3. Research and analysis in Australia

### Trends in wealth

#### Incomes

Whiteford and Bond (2000) analysed trends in the cash incomes of older people over at least 15 years, using published results from the Australian Bureau of Statistics (ABS) surveys of income distribution. They report that from 1982 to 1997–98 the real average income of older couples in Australia increased by 5.7 per cent, while the real average income of older single Australians increased by 6.7 per cent, compared to a real increase of 4 per cent for the population as a whole. As a result, the average incomes of older Australians increased as a proportion of average incomes of the Australian population as a whole (Whiteford & Bond 2000, p. 23).

Over the same period, there was a significant decline in the proportion of older couples for whom government benefits were the principal source of income and corresponding increase in the role of other private income (for example, property and investments) (Whiteford & Bond 2000, p. 23). For older couples, the proportion for which government benefits were the principal source of income dropped from 74.7 per cent to 65.4 per cent; while for older singles the reduction was from 82.1 per cent to 79.7 per cent (Whiteford & Bond 2000, pp. 26–27).

#### Assets

The pension assets test was introduced in 1985 to better target assistance to those with greater needs and to ensure the effective operation of the income test (Whiteford & Bond 2000, p. 18). The rate of pension is calculated under both income and assets tests, with the test that results in the lower rate being applied. While the majority of pensioners have payments assessed under the income test, the proportion directly assessed under the assets test increased from under 2 per cent in the late 1980s to just over 6 per cent in 1999 (Whiteford & Bond 2000, p. 18).<sup>9</sup> From 1999 to 2002, the proportion of age pensioners assessed under the assets test remained relatively stable. In 2003 it rose to 7.5 per cent, and then to 8.5 per cent in 2005 (sourced from the Centrelink SuperSTAR Pensions Database 1999–2005).

It is important to acknowledge the interaction between social security income and assets tests and fluctuations in the rate of returns on investments may influence the test which is applied to an individual’s pension. However, it is interesting to note that the increased proportion of age pensioners assessed under the assets test, from 1985 to 1999, corresponds with a shift in the distribution of wealth across the Australian population towards older Australians. The share of

wealth held by Australians 65 or over was estimated to have increased from 17 per cent in 1986 to 27 per cent in 1997 (Harding, King & Kelly 2002).<sup>10</sup> Over the same period, the proportion of the Australian population aged 65 or over increased from 10.5 per cent to 12.1 per cent.<sup>11</sup> For Australians heading towards and on the verge of Age Pension age (55 to 64) the estimated average net wealth per adult by age of family head rose from just under \$150,000 in 1986 to around \$210,000 in 1997 (figures are in 1998 dollars and reflect real increases in wealth) (Harding, King & Kelly 2002, pp. 4–5).

### Trends in asset holdings and draw down

Table 1 details the average value of assets held by age pensioners at June 1998 and the proportion of those with assets who owned their own home (Whiteford & Bond 2000). The table shows that the average value of assets held begins to decline around age 70 to 74 and continues to be less for each age category until 85 to 89, where average asset holdings again increase (Whiteford & Bond 2000, p. 19).

**Table 1** Average assets of age pensioners, June 1998

Age	Home owners (%)	Mean assets of those with positive assets (\$)	Mean assets of all pensioners (\$)	Median assets of those with positive assets (\$)
60–64	78	45,300	42,500	31,100
65–69	78	46,100	43,300	32,100
70–74	75	40,300	37,400	24,600
75–79	69	34,200	31,000	17,800
80–84	61	34,000	30,500	15,300
85–89	50	37,600	33,600	15,800
90+	33	44,000	38,700	18,400
Total	67	40,800	37,600	

Note: From Whiteford and Bond 2000.

Source: Research and Analysis Section, Retirement Programs Branch, Department of Family and Community Services 1998.

Understanding trends in this area is important for retirement incomes policy. The wealth module of Wave 2 HILDA survey provides the opportunity to examine more closely the overall financial circumstances, and particularly the asset holdings, of senior Australians.

Table 2 shows the mean values of assets held and household income for senior Australian households in 2002. HILDA survey data shows a similar trend to the Age Pension data in Table 1. The average value of assets held tends to decline around Age Pension age with small but noticeable upturns, in some assets, in later years. The upturn in asset wealth for the older age cohorts shown in Tables 1 and 2 is most likely due to an increased prevalence of single senior Australians, through mortality, and resultant asset transfers.<sup>12</sup>

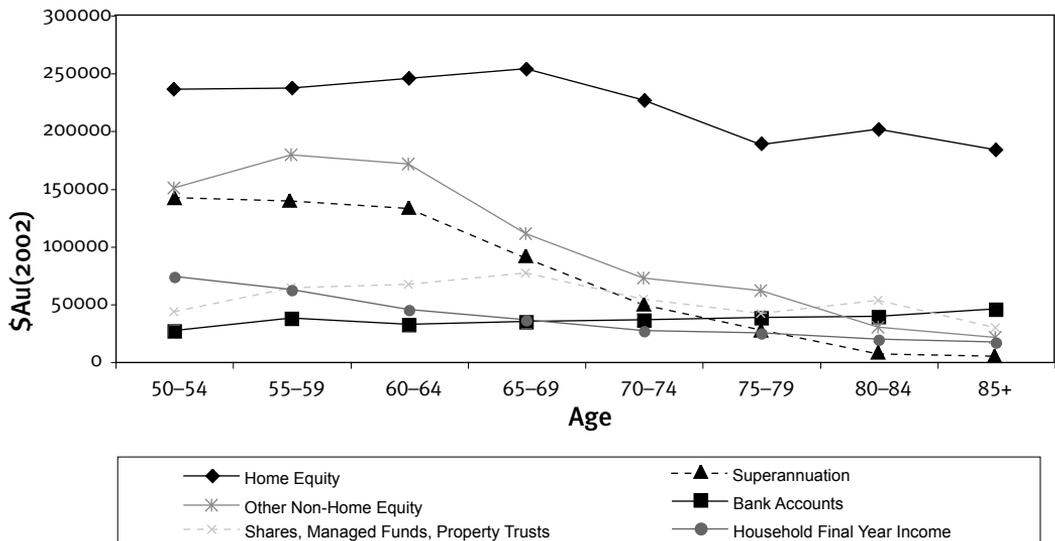
**Table 2 Selected wealth variables for households with at least one member aged 50 or over, 2002**

Age	Home equity	Bank accounts	Superannuation	Shares, managed funds, property trusts	Other non-home equity	Household final year income
50-54	235,916	26,669	141,896	43,161	150,417	73,827
55-59	236,809	37,399	138,829	63,649	178,910	62,376
60-64	245,146	31,918	132,536	66,909	170,928	44,878
65-69	253,346	34,728	89,443	76,589	110,568	35,915
70-74	226,389	35,993	49,015	53,789	72,212	26,447
75-79	187,805	38,212	27,137	41,725	61,228	24,618
80-84	201,159	39,174	6,532	52,945	29,860	19,319
85+	183,505	45,313	4,391	28,986	20,893	16,766
Total	229,837	34,277	96,766	56,383	123,179	45,940

Note: HILDA Wave 2 survey data is based on 2002 values. Increases in property and other portfolio values since that time may impact on these findings.

Figure 1 expresses the same data graphically and shows the cohort differences clearly.

**Figure 1 Mean values of selected wealth variables for older households by age**



These data provide some insight into the mechanisms that senior Australians choose to hold their wealth and how assets may be drawn down during retirement. Any conclusion or finding of this nature is caveated by the fact that this is point-in-time data and not longitudinal. It is not possible to analyse wealth draw-down dynamics using cross-cohort data at a point-in-time—differences in wealth holdings between younger cohorts and older cohorts may reflect both the draw down of wealth holdings as people age and differences in initial wealth holdings of the cohorts (cohort effect). As an example of the cohort effect, older senior Australians may have had less opportunity or inclination to accumulate wealth and to participate in superannuation schemes. Following only one cohort longitudinally, on the other hand, removes the confounding influence of the cohort effect from the analysis of draw-down dynamics in wealth holdings.

## 4. International experience

Extensive searching revealed little recent international longitudinal research on the wealth of seniors, especially on the relationship between trends in assets holdings and the subsequent draw down in retirement.

Ando, Guiso and Terlizzese (1993) studied asset ‘decumulation’ by the elderly, finding that the decumulation rate was much lower than ‘would be implied by a life-cycle model without uncertainty or bequests’. The life-cycle model implies that the elderly should decumulate assets at a rate sufficient to achieve zero wealth by the time of death (Ando, Guiso & Terlizzese 1993, p.2). In other words, the pace of decumulation is too slow to be accounted for by death uncertainty alone. Ando, Guiso and Terlizzese also cite similar findings reported by Modigliani (1986), Kotlikoff (1988), Brugiavini (1987), and Ando and Kennickell (1987). While these studies varied in the reasons for the observed slowness of decumulation, they indicate that older people decumulate in a rational fashion. However, these studies are more than 10 years old and do not inform current trends.

Haider et al. (2000) also examined trends in ‘dissaving’ (decumulation) in the 1980s and early 1990s by population characteristics—marital status, age, education, health, initial wealth, and others. Changes in wealth were fairly flat in the 1980s. Mean wealth grew by just under 1 per cent a year for the nine years of the sample period, while median wealth declined by about one-quarter of a per cent a year. For a relatively young sample (61 to 69 years) wealth stayed relatively constant. Other data showed dissaving does not begin until after 70, and the age at which dissaving commences appears to have risen over time. The 1990s data showed sample members on average had increases in wealth, possibly due to a dramatic rise in stock prices for the two years of the sample period. Overall there was heterogeneity in dissaving patterns across households. Less well-off households, whether measured by wealth, income, education or health, dissaved more rapidly than better-off households.

Importantly for this paper, there was a substantial shifting of assets by older persons from housing wealth to equities. This finding provides evidence that older investors do not passively spend their wealth but actively manage their portfolios (Haider et al. 2000). The study concluded that many important economic trends affecting the general population over the period had a similar impact on older persons (Haider et al. 2000).

Pedersen (2004), in a study of the interplay between public and private components in the income packages of pensioners in OECD countries, used data from the Luxembourg Income Study (LIS) databank between 1980 and 1995 to examine, as one component of the research, whether it was possible to identify a general trend over time towards an increasing share of private income. Although Pedersen's research concentrated on slightly different aspects of retirement wealth to those appearing in this paper, the findings inform the question on trends towards greater self-reliance in retirement.

While acknowledging that there are significant problems comparing different pension regimes across different countries, Pedersen (2004) showed that from 1980 to 1995 there was a general reduction in the proportion of pensioners' income from public transfers (public pensions), and an increase in the proportion from private income (consisting of capital income, earnings and occupational pensions [superannuation]). As the countries compared have different pension systems (some with and some without means-tested benefits) it is not possible to say categorically that this shows each generation of pensioners is successively wealthier than the last, but it does indicate a general trend towards greater self-reliance. Australia, for reasons explained later in this paper, along with Denmark and Canada, appear to be exceptions to this trend.

Canada experienced a very different development to most other countries over the 15 year period—a consistent decline in the proportion of private income. Pedersen (2004) cites the continued maturation of the second-tier of earnings-related public pensions (The Canada and Quebec Pension Plans) as the probable explanation for this.

For Australia, there does not appear to have been a general trend in either direction. Pedersen (2004) notes that in Australia there is a preference for private sector occupational pensions to be paid as lump sums rather than annuities, and lump sum payments are not recorded in the LIS. Lump sum payments will only indirectly affect the data if the money is invested in financial assets or converted into a private annuity. Therefore, the LIS data tends to strongly underestimate the role played by occupational pensions in the Australian retirement system.

Different findings about the make up of seniors' incomes and the trend towards privatisation were reported in the United States by Hungerford et al. (2002). Despite finding that income from assets was the second most prevalent source of retirement income and made up the second largest share of aggregate income for the elderly, they also found a general upturn in the level of dependence on social security by the elderly between 1990 and 2000.

However, Hungerford et al. (2002) say the elderly's reliance on social security shows that other sources of retirement income have not kept pace with social security benefits. Hungerford et al. (2002) found that the proportion of the elderly receiving asset income increased from 56 per cent to 68 per cent between 1976 and 1984, but fell to 59 per cent in 2000. A similar picture emerged with the make up of aggregate income for the elderly. Asset income grew in importance until 1984—increasing from 18 per cent to 28 per cent of aggregate income—before falling back to 18 per cent by 2000.

Hungerford et al. (2002) cite portfolio experts as saying that, in the United States, older people invest more heavily in safe, interest-bearing assets, such as bonds, than in assets with higher but more variable returns, such as stocks. Accordingly, it appears older people's private savings are sensitive to fluctuations in interest rates. Part of the explanation for patterns in the receipt and

importance of asset income may be fluctuations in nominal bond yields over the period studied. Nominal interest rates and bond yields were high in the early 1980s and relatively low in the 1990s. The yield for 30-year Treasury bonds was about 12 per cent in 1984 and 6 per cent in 1999 and corporate bond yields followed a similar trend (Hungerford et al. 2002). The receipt and importance of asset income to the elderly increased in the early 1980s and declined over the mid-1990s when interest rates were low.

### **Draw down of assets—international concerns**

In New Zealand there is growing concern about how current and future retirees will access their accumulated wealth (St. John 2004). According to St. John, the decumulation or draw-down phase has been relatively ignored in discussions on retirement in New Zealand. St. John says New Zealand has few mechanisms for annuitisation of accumulated capital or for the release of home equity. This is beginning to be addressed but only by the private sector and only in the form of new home equity release products (St. John 2004, p. 3). The primary worry for New Zealanders, according to St. John, is insufficient income and the associated danger of outliving capital.

Mitchell and Piggott (2000) say that, unlike in Australia where pension saving is mandated and pension preservation is pre-eminent, in the United States pensions are optional and employees with a fund are granted substantial access to their assets. This includes the ability to borrow up to one-half of the pension money prior to retirement and the opportunity to cash out a fund if a job terminates. Like Australia, participants have the option to take the accrued fund as a lump sum at retirement, which most appear to do (Mitchell & Piggott 2000, pp. 5–6).

Stock (2004) says that banks in the United States are starting to recognise this and are beginning to develop networks, marketing and products to accommodate retirees' needs for investment of lump sums and income security. In the past, the focus has been on accumulation. But now banks are realising there are two phases of retirement—accumulation and distribution—and are expanding their product offerings to enable bank-based advisors to manage their customers' entire life cycle. Still, according to Stock, the products tend to be more for accumulation and there is still a need for better fixed-return protection and investment products (Stock 2004).

### **Key findings from published research**

Australian and international evidence shows a general trend in the latter part of the 20th century towards seniors having or acquiring greater wealth—in the form of income and income-producing assets—and subsequently, a trend towards greater self-reliance. However, the evidence is not conclusive and does not inform whether the trend has continued into the 21st century.

Australian cohort data (Centrelink SuperSTAR data and HILDA survey data) also shows, as might be expected, that the older cohorts of age pensioners and older Australians in general tend to have lower assets and incomes than younger age pensioners. What this data does not show is the degree to which this is due to differences in asset accumulation prior to retirement or the drawing down of assets in retirement. Recent Australian and international evidence, although abundant on the question of asset accumulation, is scant on the issue of asset decumulation in retirement. This leads to the conclusion that, as in New Zealand and the United States, the relationship between pre-retirement asset accumulation and the decumulation or draw-down phase of retirement has been relatively ignored.

## 5. Analysis of administrative data

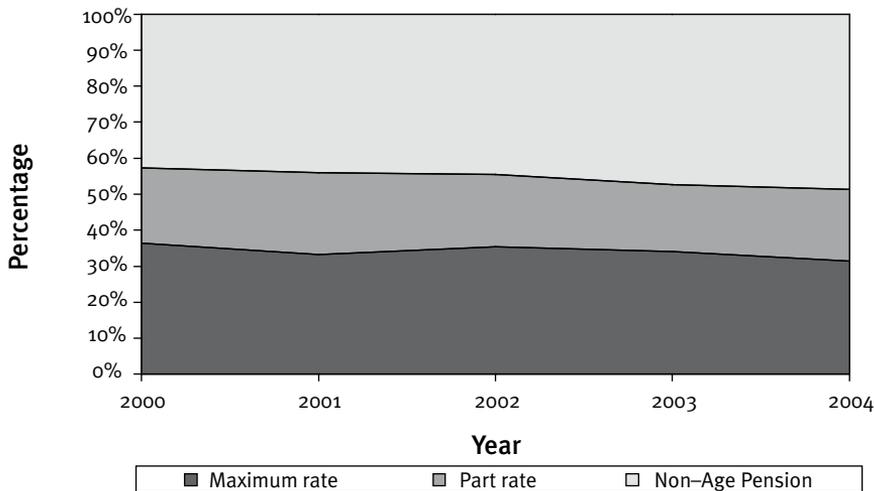
### Wealth changes between cohorts

An applicant's wealth (income and assets) determines Age Pension eligibility and payment rates. Eligibility for, and the rate of, Age Pension can therefore be used as a proxy for wealth.

To study wealth changes between cohorts, data has been drawn from the Centrelink SuperSTAR Pensions database for 1999–2000 to 2003–04 on the number of Australians turning Age Pension age who have been granted Age Pension and whether the grant is at maximum rate or part rate. Figure 3 shows this data as a proportion of all Australians turning Age Pension age during the same period.

As noted in Appendix A, there are significant methodological complications to consider when selecting and comparing cohorts. One complication is that Age Pension age for women progressively increased from 61 in 1999 to 62.5 in 2004.

**Figure 2: New age pensioners<sup>13</sup> of Age Pension age as proportion of estimated population reaching Age Pension age by rate of payment, 1999–2000 to 2003–04**



Source: Centrelink SuperSTAR Pensions database, 2000–2004; ABS 2004c (see Time series spreadsheets, Table 9: Estimated resident population by single year of age, Australia).

Figure 2 indicates that a significantly smaller proportion of the total population turning Age Pension age were granted Age Pension in 2003–04 (51.2 per cent) than in 1999–2000 (57.4 per cent), and that this reduction is evident year on year over this period. The corollary of this is, over the period 1999–2000 to 2003–04, a trend toward greater financial self-reliance among Australians reaching Age Pension age, manifesting as a higher proportion not requiring Age Pension and a smaller proportion receiving the maximum rate.

A number of factors not related to wealth or increased wealth accumulation might have influenced this trend. A discussion on the respective influence of three such factors—namely service pensioners, workforce participation and the indexation of Age Pension—follows.

### **Effects of service pensioners**

In this paper, the effects of new applicants for Service Pensions have been excluded from the analysis, as the qualification rules are substantially different from Age Pension and data access is more complex. Service pensioners have, in effect, been treated as self-funded for the purposes of this analysis.

However, there are comparatively few new grants of Service Pensions in any year, and the numbers of new grants are declining year on year. Therefore, including service pensioners in this analysis is expected to have little effect on the apparent trend to greater financial self-reliance. Indeed, any effect would be to strengthen this trend.

### **Workforce participation**

The trend towards greater self-reliance may have been influenced by increased workforce participation by people over Age Pension age. This is due to an increase in income (rather than assets) for new Age Pension age cohorts. A relatively small proportion of age pensioners are in the workforce, although this has increased slightly in recent years. At June 2004, 6.1 per cent of male age pensioners and 7.4 per cent of female age pensioners who turned Age Pension age during that year were in the workforce. The corresponding proportions for June 2000 were 5.1 per cent for males and 6.2 per cent for females (Centrelink SuperSTAR Pensions Database 1999–2005). Similarly, across the population as a whole, workforce participation for those over Age Pension age has been increasing at a significant rate. In June 2000, around 12.8 per cent of Australians between 65 and 69 were employed. By June 2004, this had increased to around 16.2 per cent<sup>24</sup> (ABS 2005a).

This small but significant increase between cohorts may result in a larger proportion continuing to be self-funded, and a smaller proportion qualifying as maximum-rate age pensioners.

This does not necessarily negate the proposition that the trend to greater financial self-reliance is (also) due to increases in asset holdings for new Age Pension age cohorts. A proportion of this group **could** have sufficient income while working to be self-funded, but hold few assets and therefore rely more on Age Pension when they leave the labour force. It is counter-intuitive, however, to consider this proportion to be large, as people who remain in the workforce longer could be expected to have accumulated greater assets and therefore be, on average, less reliant on the Age Pension.

In fact, as at March 2005, the average assessed assets for people first granted Age Pension more than one year after they reached Age Pension age was 40 per cent greater than the average assessed assets of people first granted at Age Pension age (Centrelink SuperSTAR Pensions Database 1999–2005). These later entrants are correspondingly less reliant on the Age Pension. As would be expected, the increasing workforce engagement of Australians beyond 65 enhances their short-term wealth (income) and contributes to and enhances future gains in accumulated wealth (assets).

## Indexation of Age Pension

Age Pension eligibility and take-up rates are also influenced by the indexation of Age Pension rates and income and asset test thresholds. Indexation applied to the Age Pension rate is linked to the higher of the Consumer Price Index (CPI) and 25 per cent of MTAW. If, as has happened with the growth of the Australian economy over the last five years, MTAW growth exceeds CPI growth, the income and assets test thresholds for Age Pension eligibility will increase in real terms. If later cohorts had exactly the same wealth in real terms as earlier cohorts, they would have greater eligibility for (and take up of) Age Pension. Figure 3 shows that this is not the case.

As a result of this analysis, it can be concluded that the most recent cohorts of Australians are reaching Age Pension age with significantly greater real wealth than earlier cohorts.

## 6. Cohort analysis of new age pensioners

Another indicator of wealth is mean asset holdings. To determine whether Australians are reaching retirement with greater wealth, the mean assessable asset holdings of new entrants to the Age Pension who just turned Age Pension age were analysed by yearly cohorts. Since they are all of the same age cohort, such analysis facilitates grouping people who would have faced similar opportunities and, to some extent, have similar preferences for asset accumulation. Data was drawn from the Centrelink SuperSTAR Pensions databases.

It is important to note that non-assessable assets under the social security asset testing rules are excluded, such as equity in the residential home and assets-test-exempt (ATE) income streams.<sup>15</sup> With the recent increase in real estate prices and incentives in the social security and taxation systems for these income streams, these two asset types have become an important form of asset holdings for retirees.

Table 3 shows that the mean assessable asset holdings generally increased successively with each cohort of new age pensioners.

**Table 3** Mean assessable asset holdings for corresponding cohorts of new age pensioners, 1999–2000 to 2003–04

Cohort	Male (\$)	Female (\$)	Total (\$)
1999–2000	46,200	41,200	44,500
2000–01	51,600	49,400	50,400
2001–02	54,100	51,900	53,300
2002–03	55,300	50,300	52,700
2003–04	58,400	54,600	57,100

Note: Includes both partnered and single new age pensioners.

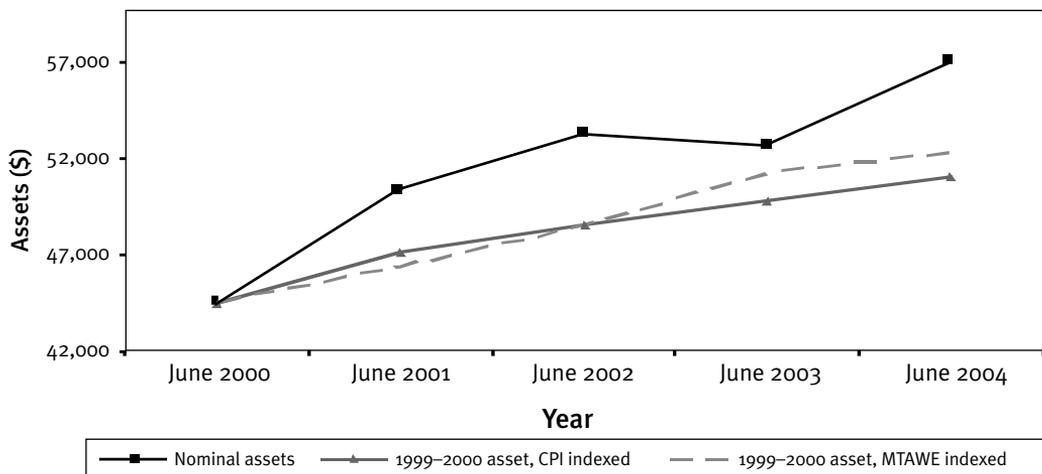
Source: Centrelink SuperSTAR Pension database 2000–2004.

Attention should be focused on relativities of wealth than on actual wealth values. The actual reported values of asset holdings are somewhat artificial as the cohorts excluded people not granted Age Pension in the year they turn Age Pension age. These ‘later entrants’ might be expected to be significantly wealthier than those who apply for the Age Pension as soon as they reach Age Pension age, as they would have been in the workforce longer and therefore accumulated greater wealth, and/or are only applying for the Age Pension later in life once they have drawn down some of their accumulated assets. They could therefore be expected to hold in excess of the maximum assets to qualify for a part-rate Age Pension.

To examine change in real terms, the mean asset holdings for the cohorts were analysed further to see how the apparent increase in assets compared to price and wage increases over the same period. The assets of each cohort were plotted against the mean assets of the 1999–2000 cohort indexed for each year to CPI and MTAW.

Figure 3 indicates that the trend towards seniors having or acquiring greater wealth and therefore having greater self-reliance in the latter part of the 20th century has continued into the earlier part of the 21st century. Subsequent waves of new age pensioners arrived at Age Pension age with greater wealth, especially in their level of accumulated assets.

**Figure 3 Mean assessable asset holdings for new age pensioners plotted against CPI and MTAW, 1999–2000 to 2003–04**



Source: Centrelink SuperSTAR Pension database 2000–04; ABS 2004a (see Time series spreadsheet, Table 3: Average weekly earnings, Australia (dollars) –original; ABS 2004b (see Time series spreadsheet, Tables 1 and 2: CPI: All groups, index numbers and percentage changes).

This data complements the trend exhibited in Figure 3 and provides considerable evidence to support the proposition that the trend towards greater self-reliance, at least over the 2000–2004 period, is understated because the data excludes new age pensioners coming onto Age Pension above Age Pension age and the other factors considered above (that is, the effects of service pensioners and the indexation of Age Pension).

While based on a relatively short time frame, these findings appear to be in line with the IGR projections that over the next 40 years the proportion of senior Australians receiving a maximum Age Pension will decline and the proportion with a part Age Pension will increase significantly. These projections reflect a continued growth in wealth for older Australians of Age Pension age, the impact of the maturing Superannuation Guarantee and other features of the superannuation system that aim to encourage voluntary superannuation contributions.<sup>16</sup>

## 7. Longitudinal analysis of asset changes for 1999–2000 new age pensioners

To examine the rate of asset draw down, asset holdings were examined from the 517 records in the LDS 1% sample for people first granted a part-rate Age Pension in 1999–2000 (refer to Appendix A). Members of this cohort would have been of workforce age (at least 15) during the post-war boom period (1950s) and hence would have had the opportunity to accumulate wealth. Part-rate pensioners, due to their relatively greater assets than maximum-rate pensioners<sup>17</sup>, would represent those who had greater inclination or better opportunity during this boom period to accumulate wealth.

These individuals were tracked over the following four years<sup>18</sup> and their asset holdings and circumstances compared (in real terms) to the assets they held when first granted Age Pension (1999–2000), as shown in Table 4. The study sample comprised new Age Pension customers who stayed in the Age Pension system or exited it through death, becoming self-funded (that is, qualifying for the CSHC) or being suspended from receiving pension or benefits.<sup>19</sup>

It is important to note that these asset totals do not include equity in the pensioner's own home. The full value of a pensioner's home is exempt from pension means testing and therefore is not captured in Centrelink's systems.

**Table 4** Asset level changes for 1999–2000 new part-rate age pensioners, 2000–01 to 2003–04 (real terms)

Percentage of 1999–2000 cohort who have:	2000–01	2001–02	2002–03	2003–04
Greater assets	20.0	21.2	22.1	26.0
90–100% of assets	56.4	40.1	8.7	5.8
80–90% of assets	13.4	15.3	33.3	25.6
70–80% of assets	2.0	7.6	13.4	14.6
60–70% of assets	1.4	2.4	4.8	7.0
50–60% of assets	2.2	3.1	3.7	5.3
40–50% of assets	0.8	2.0	2.4	1.9
30–40% of assets	0.8	1.0	1.7	1.7
20–30% of assets	0.3	0.7	1.4	1.4
10–20% of assets	0.5	1.0	1.5	1.9
<10% of assets	0.0	0.0	0.5	0.7
Deceased	0.7	2.4	3.7	5.4
Exited (self-funded) <sup>(a)</sup>	0.8	2.4	2.7	2.9
Other (suspended)	0.3	0.8	0.2	0.0
Total (%)	100.0	100.0	100.0	100.0

(a) Those who qualified for the Commonwealth Seniors Health Care Card.

Source: FaCSIA Administrative Longitudinal Data Set.

A significant proportion of part-rate age pensioners accumulated additional real wealth over the period examined. In the 4.5 years from being granted Age Pension in 1999–2000 to June 2004, 30 per cent of part-rate age pensioners increased their total assets in real terms, on average, including close to 3 per cent who had accumulated sufficient wealth to no longer be eligible for Age Pension.

In addition, more than 30 per cent of age pensioners had, over the period, retained 80 to 100 per cent of their assets in real terms. Most of these had not drawn down any of their nominal asset holdings—inflation over the period had reduced their real asset holdings. Over this 4.5 year period, the annual reduction in real asset holdings due to inflation was 3.3 per cent. The majority of pensioners retaining the same nominal wealth led to the same median rate of annual real draw down (3.3 per cent). This median rate of draw down is the same between subgroups of these pensioners: partnered and single; home owners and non-home owners; and the wealthiest, middle and least wealthy groups.

Less than one in 13 of surviving pensioners had, over the 4.5 years, drawn down more than half their assets.

## Market effects

It is plausible that patterns of wealth draw down may have been influenced by unusual market effects during the period examined.

Real estate values in many Australian centres experienced significant growth, in real terms, between 1999 and 2004. However, since a pensioner's own home is excluded from this analysis, only pensioners with other real estate, such as an investment property or a holiday home would show an increase in wealth through higher real estate values.

Of the subgroup of the 1999–2000 cohort that increased their real assets between 1999–2000 and June 2004, 20.9 per cent owned real estate assets apart from their home. Around 14.5 per cent of the group that became less wealthy over the period owned real estate assets apart from their home.

Noting that 79 per cent of the group that became wealthier did so without owning real estate apart from their home, it is likely that the impact on asset wealth of owning real estate assets is significant, but not large. Pensioners who held property indirectly, such as through property trusts and real estate components of managed investments, may have benefited from increasing real estate values. However, the available data on indirect investments is not disaggregated sufficiently to allow this to be investigated.

A significant proportion of pensioners have equities among their assets—in many cases indirectly through superannuation, managed funds and similar investment vehicles. This indirect investment makes the proportion of pensioners with wealth in equities difficult to quantify.

However, the All Ordinaries Index at June 2004 was no higher in real terms than in June 2000. The index, in real and nominal terms, was also significantly lower in June 2000 than in June 2002 and June 2003 respectively (Standard & Poors 2005). Overseas equity markets showed similar patterns.

Even with the drop (on average) in equity values to June 2003, there was a large group, more than 22 per cent of the entire cohort that accumulated additional wealth between 1999–2000 and 2003.

Changes in equity markets are therefore unlikely to have contributed significantly to increases in wealth.

## Circumstance effects

Wealth patterns may also have been influenced by factors other than age pensioners continuing to save money from regular income.

Some pensioners may have sold their home and converted assets to a form that is means tested. This was tracked by examining the proportion of the 1999–2000 cohort of new part-rate age pensioners that changed from 'homeowner' to 'non-homeowner' in the LDS by June 2004. This effect may be slightly understated, as it does not capture people who 'downsized' by selling one home and purchasing another of lower value.

Focusing on the 1999–2000 cohort subgroup that increased their real assets between 1999–2000 and June 2004, it was found that 7 per cent changed from home owner to non-home owner. Only 2 per cent of the group that became less wealthy over the period changed from home owner to non-home owner.

Noting that 93 per cent of the group that became wealthier did so without changing home ownership status, it is likely that the impact of pensioners selling their home on asset wealth is marginal.

Some may have been widowed and inherited assets from their late spouse. Using a similar methodology to examine home ownership, this effect was tracked by investigating the proportion of the 1999–2000 new part-rate cohort that changed from married to single status in the LDS by June 2004. This may slightly overstate the inheritance effect since some couples may have separated, for reasons other than widowhood, resulting in a division of assets.

Focusing on the 1999–2000 cohort subgroup that increased their real assets between 1999–2000 and June 2004, it was found that 12 per cent changed from married to single. Only 3 per cent of the group that became less wealthy over the period changed from married to single.

Noting that 88 per cent of the group that became wealthier did so without changing from married to single status, and therefore potentially inheriting assets, it is likely that the impact of spouse inheritances on wealth increases is significant, but not large.

A small number of pensioners may also have inherited assets from others such as parents or siblings, but this impact is likely to be minimal.

It can be concluded that the only factors likely to have contributed to the increase in wealth of a significant proportion of part-rate age pensioners are an appreciation of real estate assets and/or savings from regular income.

When these factors are taken into account it still seems the 1999–2000 cohort of part-rate age pensioners are managing their finances well and maintaining their wealth so it is sustainable against the prospect of a long life in retirement.

### **Movement from part-rate to other circumstances**

The same individuals tracked by the LDS in terms of asset draw down were also tracked in terms of movement to other categories of pension receipt. These are summarised in Table 5.

**Table 5 Pension receipt for 1999–2000 new part-rate age pensioners, 2000–01 to 2003–04**

<b>Percentage of 1999–2000 cohort who are:</b>	<b>June 2000</b>	<b>June 2001</b>	<b>June 2002</b>	<b>June 2003</b>	<b>June 2004</b>
Exited (self-funded)	0.2	0.8	2.4	2.7	2.9
Part-rate age pensioners	70.6	61.1	49.6	47.9	48.2
Maximum-rate age pensioners	28.5	37.0	44.8	45.5	43.5
Deceased	0.7	0.7	2.4	3.7	5.4
Other (suspended)	0.0	0.3	0.8	0.2	0.0
Total	100.0	100.0	100.0	100.0	100.0

Source: FaCSIA Administrative Longitudinal Data Set.

At first, this seems to contradict the finding that pensioners can maintain a good part of their real wealth beyond Age Pension age.

However, there are two factors likely to have influenced this. First, high proportions (around two-thirds) of part-rate age pensioners are on a part-rate payment through income testing rather than asset testing. If these part-raters withdraw from the paid workforce after being granted the pension, their income drops and they often move from part rate to maximum rate. Anecdotally, it is common for working pensioners to reduce or discontinue paid work soon after they first move onto Age Pension.

Second, it is understood that many part-rate age pensioners are first granted pension close to the maximum rate and are in a position to adjust their financial arrangements to obtain the maximum rate quickly and with little disruption.

## 8. Further research

The results presented in this paper shed light on areas that can be further examined to better understand senior Australians' wealth accumulation and draw down behaviour.

Possible future research is listed below.

- A cohort analysis of new grants of pension payments, including those receiving Service Pension and those greater than Age Pension age.
- An analysis of asset draw down for part-rate age pensioners to determine the rate of graduation from part-rate to maximum-rate payment or other circumstances and other factors influencing the graduation.
- An extension of the longitudinal time frame to the extent permitted by available data (for example, including one more year of longitudinal data) or maintaining the same time frame for a later cohort of new part-rate age pensioners (2000–01 cohort).
- A composition analysis of pensioners' assets as they enter the income support system.

## 9. Conclusions

The paper sought to answer two questions:

- **Are Australians reaching retirement with greater wealth than in the past?**
- **Are Australians drawing down their wealth in retirement, and (if so) how quickly?**

On the first question, it is clear that the June 2004 cohort of Australians turning Age Pension age were, on average, significantly wealthier in real terms than earlier corresponding cohorts. As people become more aware of the projected changes in the social and economic environment

over the next 40 years and adjust their working, expenditure and saving patterns, and with the maturation of the Superannuation Guarantee over the same period, this trend might be expected to continue.

On the second question, it is evident that the 1999–2000 cohort of new part-rate age pensioners are, on average, drawing down their wealth in retirement. However, this draw down is occurring at a fairly slow pace. If the patterns shown persist, this would allow these pensioners to maintain significant assets through many years of retirement.

This may indicate that part-rate age pensioners manage their money effectively and draw on their assets in a way that has regard to their expectations of a long life. This is in line with international findings reported in the concluding decades of the 20th century.

In addition to the findings on the rate of draw down, there is also a substantial proportion of this group who over the period examined have actually increased their real wealth. While a variety of factors may have influenced this, it appears most likely to have been driven by pensioners continuing to manage their money carefully into retirement.

These findings also address the question around the relationship between pre-retirement wealth accumulation and post-retirement wealth draw down. Point-in-time age cohort data shows that the value of assets held by senior Australians tends to decline after Age Pension age, except for money held in bank accounts. This suggests that retirees draw down their assets to fund their retirement at a significant rate. The LDS suggests this is not the case.

What the LDS indicates is that Australia's retirement income system provides a strong basis to allow senior Australians to accumulate wealth leading up to retirement and to continue to generate sustainable and adequate income throughout retirement. Intuitively, the conclusion from the LDS findings is that the point-in-time age cohort data indicates that older cohorts of senior Australians have lower levels of wealth, either in the form of income or assets, because during their working lives they had less opportunity or were less inclined to accumulate wealth and/or less opportunity to participate in superannuation schemes.

# Appendix A

## Methodology notes

### Cohort analysis

#### *New age pensioners and the Age Pension age population*

As shown at Figure 2, there is change from year to year in the respective proportions of Australians who reach Age Pension age and are either:

- granted a maximum-rate Age Pension
- granted a part-rate Age Pension
- not granted an Age Pension (either self-funded or granted a Service Pension).

Not all new recipients of Age Pension apply as soon as they reach Age Pension age. Some continue to work beyond this age and only become eligible when they withdraw from the paid workforce. Others have sufficient assets to fully fund their retirement but qualify for some pension later as they draw down their assets.

As a result, it would be inaccurate for this paper to use the total number of new age pensioners (those granted Age Pension in a given year) to represent people first coming onto Age Pension. Instead, this paper only uses new age pensioners who have just turned Age Pension age (those who have not come onto Age Pension more than one year after they were eligible).

Similar to the Age Pension age population, this paper uses only those who have just reached Age Pension age in any particular year.

A complicating factor surrounds the number of new age pensioner females who have just turned Age Pension age. The female eligibility age for Age Pension is being progressively increased to bring it into line with the male eligibility age. By 2014, this will be complete with eligibility age set at 65 for males and females.

The female eligibility age for Age Pension increases by six months every two years. In the years to June 2000, 2002 and 2004 only half the annual cohort of females turned Age Pension age (61.5, 62 and 62.5 respectively). For 2000 and 2004 this presented no further complication, as it was clear from the administrative data how many females were granted Age Pension in the year they turned Age Pension age. However, for 2002, the number of females aged 62 who were first granted Age Pension would have included a number who had turned Age Pension age (then 61.5) in 2001, but who delayed their application for Age Pension until 2002 because they were working or too wealthy to be eligible. A correction factor, based on the proportion of females who delayed their application for Age Pension by one year in previous years, was applied to the numbers of females counted as turning Age Pension age and being first granted Age Pension in 2002. Similarly in 2001, some 62 year-old females counted as new age pensioners were eligible the previous year. The same correction factor has been applied.

## **Selection of cohort for comparison**

### *New age pensioners*

It is important to note that there is a ‘dampening’ effect on changes in wealth between cohorts from the nature of the interaction between population wealth and the means test thresholds for Age Pension.

If a cohort of Australians in one year is wealthier in real terms than a previous year, the ‘sample’ (that is those whose wealth is low enough to qualify for at least part-rate Age Pension) would exclude some who corresponded to the wealthiest in an earlier cohort.

As an example, assume that in a given year a population with 3 per cent of people turning Age Pension age had wealth of 95 per cent to 100 per cent of the maximum wealth that allowed them a part-rate Age Pension. We might assume that this 3 per cent group is, for example, the 50th to the 53rd percentile of total wealth in the Australian population turning Age Pension age. This 3 per cent of people would, if they applied for the Age Pension they would be eligible for, be captured in the Centrelink systems and used for the cohort comparison. Simplistically, the averages would use the least wealthy 53 per cent of the total Australian population.

If, in a subsequent year, everyone in the population was 5 per cent wealthier in real terms, the 50th to 53rd percentiles of total wealth would then have wealth of 100 per cent to 105 per cent of the wealth for a part-rate pension. They would no longer be eligible for any pension and would drop out of the cohort being compared. The averages would then be based on only the least wealthy 50 per cent of the population and therefore show a lower average value than if 53 per cent of the population (as in the prior year) was used. Thus, increases in wealth year-to-year are dampened to some extent.

This would also apply in reverse, effectively dampening the effect of later cohorts being less wealthy than earlier ones by allowing more of the later and poorer cohorts’ eligibility for pension. It should be noted that this dampening does not apply in reverse in any of the years investigated in this paper: every year showed an increase in wealth over the previous year.

It is therefore believed that the increase in real wealth between cohorts turning Age Pension age, although still quite significant, may be slightly understated.

## **Impact of people choosing not to apply**

It is also likely that some seniors Australians, who are eligible for at least some Age Pension, decided not to apply. It is assumed that this effect is minor and constant over the years. Since it is the relativities between years (as distinct from total values) being analysed, this effect would not distort the findings.

## **Selection of new entrants from the FaCSIA LDS 1% sample**

Data for the LDS 1% sample is extracted as fortnightly snapshots from Centrelink’s administrative databases—a rich collection of raw data on customer characteristics and benefit details. FaCSIA engaged the ABS to develop a method to derive a 1 per cent sample from the administrative databases. The records in the LDS 1% sample go back to January 1995.

For this study, records were taken for entrants to the Age Pension system between 1999–2000 and 2003–04. It should be noted that records on asset holdings were not available before June 1999. Entrants to the Age Pension were those who, for a particular year, had only been on Age Pension payment for a fortnight or less. The term ‘entry’ denotes the first time a person came onto the Age Pension system. Hence those who came back to the system following a break, for example, failing to qualify the means test for a period, were not counted again as entrants.

The Age Pension entitlements of these entrants were used to group them into recipients of part-rate pension or maximum-rate pension. To distinguish between members of illness-separated couples who were on an unpartnered rate of pension (hence their pension could exceed the maximum rate for partnered pensioners) from other members of a couple, the amount of Pharmaceutical Allowance received was used. In cases where entrants were entitled to backdated payments, sometimes resulting in entitlements greater than the maximum rate, or where their claims had not been processed resulting in Age Pension entitlements equal to zero, further data processing was used. Following entry, the rate to which their subsequent entitlements stabilised was used to group them into either part-rate or maximum-rate pensioners.

### The 1999–2000 sample for the longitudinal analysis

From 1996–97 to 2003–04, there were 9,619 observations of new entrants extracted from the LDS 1% sample, resulting in an average of 1,200 observations per year. There were 5,505 observations for 1999–2000 to 2003–04. There were 955 observations for the year 1999–2000 of which 589 were on part rate of payment. This became the final sample used in the longitudinal analysis.

The time-invariant characteristics of the 1999–2000 cohort were obtained (for example, date of birth, sex, country of birth, and the partner’s country of birth) and their changing circumstances tracked for financial assets, marital status and home ownership. To capture these changes, key dates were flagged: dates of entry; exit from the Age Pension system, not necessarily from the entire social security benefit system; death; and when they received their last payments for each financial year over the period, **last benefit date**.

These dates were used to distinguish between actual exits, suspended payments and tracking down changes in marital status, asset levels and payment rates in between **last benefit dates**. Changes in payment rates and marital status were captured to appropriately reclassify them as being on part rate or maximum rate, at the key dates. The stable rate of payment was obtained for those who were paid in arrears.

## Endnotes

- 1 The results of this research were presented at the Australian Social Policy Conference, 20–22 July 2005, Sydney.  
The authors would like to acknowledge the assistance of the FaCSIA Library Research Team and thank them for their considerable contribution to this paper.
- 2 The number of Service Pension and War Widows Pensioners has been stable at around 300,000 for some time and is expected to decline with the ageing of veterans from the Second World War (Australian Government Department of Treasury 2002).

- 3 This includes retirement income from the Age Pension, compulsory superannuation and additional voluntary savings (Australian Government Department of Treasury 2004, p. 11).
- 4 Consistent with the projected increase in the proportion of part-rate pensioners over the next 40 years, the proportion of Age Pension recipients on a part rate of payment has been increasing in recent years. The proportion of all age pensioners on a part rate increased from 32.5 per cent in June 2002 to 37.5 per cent in March 2006.
- 5 Sourced from the Centrelink SuperSTAR Pensions database, June 2004; Australian Government Department of Veterans' Affairs 2004; ABS 2005b (see Time series spreadsheets, Table Bg: Population projections, by age and sex, Australia – Series B).
- 6 The Australian Government guarantees that the maximum single rate of base pension is at least 25 per cent of Male Total Average Weekly Earnings (MTAWE). Whenever pensions are adjusted for increases in the Consumer Price Index (CPI), and the new pension rate falls short of 25 per cent of MTAWE, then the Government tops up the pension so it is equivalent to 25 per cent of MTAWE. The pension rate is never reduced as a result of indexation. If the single pension rate increases, the partnered pension rate also increases.
- 7 As at June 2004, some 9 per cent of people over Age Pension age (about 246,000) were engaged in paid employment. Of these, about 32 per cent (about 78,000) received a pension and about 17 per cent (about 41,000) deferred claiming a pension and had registered under the Pension Bonus Scheme.
- 8 Pension data showed that as at June 2004, there were proportionately more age pensioners aged well above the Age Pension qualification age than those aged closer to the qualification age; these older seniors also tended to qualify for the maximum rate of pension (as opposed to a part-rate pension).
- 9 Whiteford and Bond (2000) obtained their data from former Department of Social Security publications: annual reports, *Ten Year Statistical Summary* and *DSS Customers: a Statistical Overview* (various years).
- 10 Harding, King and Kelly (2002) used ABS data from the 1986 Income Distribution Survey and 1997–98 Survey of Income and Housing to impute wealth holdings for each of the families, because these surveys only provide details of the home asset and income from other wealth sources.
- 11 Source: ABS 2004c (see Time series spreadsheets, Table 9: Estimated resident population by single year of age, Australia).
- 12 Centrelink SuperSTAR Pensions database (March 2005) shows that the ratio of age pensioners with partners to age pensioners without partners at age 65 is two-to-one, dropping to one-to-one at around age 78, and to about one-in-six by age 90.
- 13 New age pensioners are defined as those who have been in receipt of Age Pension for less than one year.
- 14 Analysis of this data shows extreme monthly volatility which probably reflects the survey size. Despite this volatility, there is a general trend towards higher workforce participation rates for senior Australians.
- 15 The assets-test exemption of certain 'non-commutable' income streams purchased on or after 20 September 2004 was changed from 100 per cent to 50 per cent. Since the sample only includes entrants to the Age Pension system from 1999–2000 to 2003–04, none of their holdings of such income streams would have been affected by this change. As a result, all holdings of such income streams would not have been captured.
- 16 Examples are the government co-contribution and spouse contributions tax offset schemes.

- 17 In March 2006, part-rate age pensioners had, on average, 3.3 times the asset holdings of maximum-rate age pensioners. For new entrants to the Age Pension system, part-raters had 3.7 times the asset holdings of maximum-raters, on average.
- 18 In the LDS 1%, there is no problem tracking people as they move between regions within a state or move interstate.
- 19 It is unlikely that age pensioners transfer to other payments. Among age pensioners in June 2004, 95.1 per cent remained in the system with the rest becoming self-funded (CSHC holders) or non-clients of FaCSIA or dying. Given the study sample, transfers to other payments were not captured.

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# Examining potential risk factors, pathways and processes associated with childhood injury in the Longitudinal Study of Australian Children<sup>1</sup>

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## 1. Introduction

In Australia and in most industrial countries the world over, injury, including poisoning, is the most common cause of child death (Al-Yaman, Bryant & Sargeant 2002; AIHW 2005; Rodriguez 1990; Morrongiello et al. 2004). Among the world's 26 richest nations, injury accounts for 40 per cent of child deaths for children aged between 1–14 years (UNICEF 2000). In 2002, injuries accounted for the deaths of 229 Australian children aged between 1–14 years, 'representing 37 per cent of all deaths for this age group' (ABS 2004, p. 6). Apart from its potentially fatal consequences, childhood injury can also result in significant illness and impairment, with 65,651 children hospitalised for injury in Australia in 2002–03 (AIHW 2005; Hango & Houseknecht 2005).

Given the incidence of childhood injury and its potentially harmful consequences, the task of identifying risk factors for injury is an important prerequisite to forming effective preventative policy and practice parameters. Evidence from existing studies indicates that three domains of experience and characteristics are key influences upon childhood injury (Soubhi, Raina & Kohen 2001). These domains include factors specific to the child, their family, and their broader contextual environment. Because children's lives are shaped by their family environment, which in turn is influenced by the broader contextual environment, it is reasonable to assume that characteristics of each domain are intertwined, influencing injury to varying degrees (Ramsay et al. 2003). Information about the relationships between risk factors and the direct and indirect pathways through which risk is transmitted is, however, limited.

Acknowledging the role of chance in the occurrence of childhood injury, this paper aims to address this gap in the literature by considering the potential of a wide range of child, family and contextual characteristics to act as risk factors for injuries sustained by children in the 'child' cohort of 'Growing up in Australia', the Longitudinal Study of Australian Children (LSAC). Further, the paper aims to explore the interrelationships that may exist between significant risk factors and to examine the possible pathways and processes through which injury risk may occur.

The multifactorial, integrated working model of child injury proposed by Peterson and Brown (1994) is used to guide the investigations conducted. The following sections will review fundamental issues of injury definition and conceptualisation as well as evidence that links characteristics and experiences of children, their family and the broader contextual environment to childhood injury.

## 2. Defining childhood injury

By definition, childhood injuries result in physical harm or damage to the child's body (KIDSAFE 2004). The harm caused by injury may be minor or may result in significant illness, disability or even death. The cause of childhood injuries may be intentional or unintentional. Clearly, important differences exist between the risk factors and pathways implicated in the occurrence of some forms of intentional and unintentional injuries, child sexual abuse related injuries being a particular case in point. However, whether the distinction between the two types of injury is necessary, useful or practical in both research and prevention contexts relating to physical injuries to young children are debatable (Peterson & Brown 1994). In practice, differentiating some forms of unintentional injury from intentional injury may be very difficult. Injuries not inflicted upon the child may occur as the result of neglect and may therefore not be purely unintentional. Perhaps as a result, the risk factors identified for intentional and unintentional physical injuries to children are numerous, wide-ranging and often remarkably similar (Peterson & Brown 1994). Given these similarities, it may be better to conceptualise injury of either kind as a single entity, indicated by multiple risk factors and potentially reduced by broad-based prevention efforts (Peterson & Brown 1994; Wilson et al. 1991).

## 3. Conceptualising child injury causation

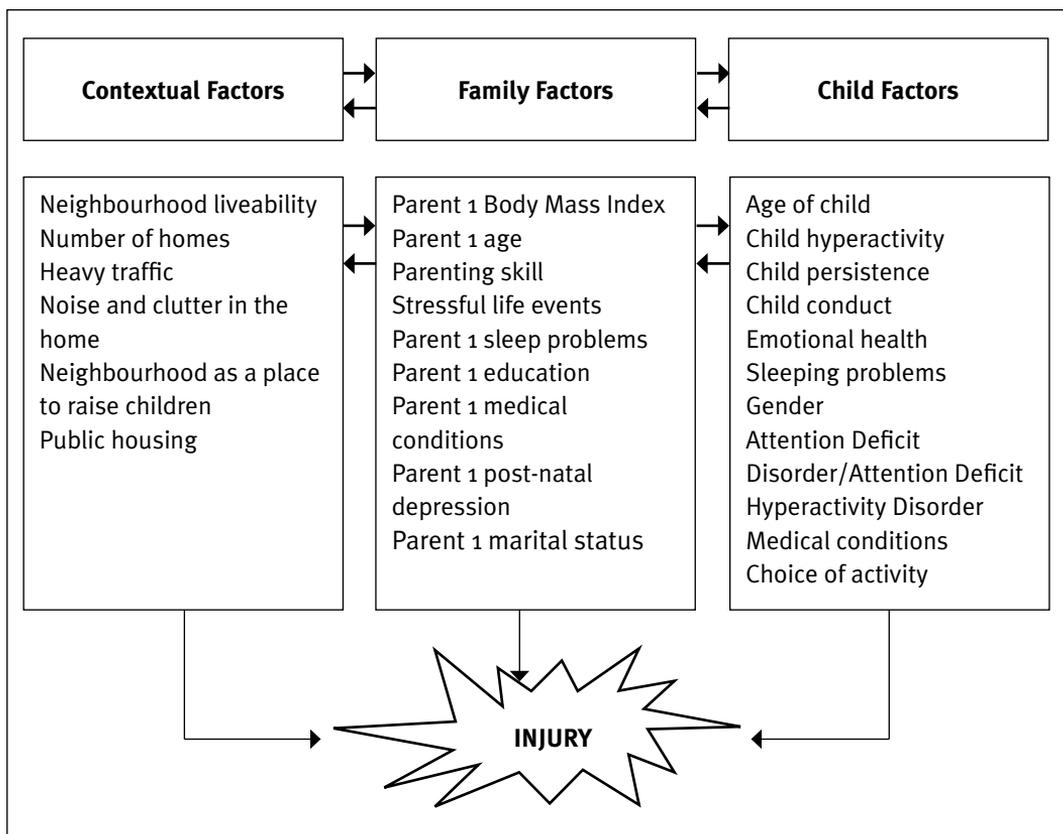
Historically, within the unintentional injury field, efforts to understand why childhood injuries occur initially concentrated on identifying aspects of the environment that posed a risk for child injury. The resulting environmental risk factor model of child injury has been highly effective in informing the development and adoption of safety standards to separate children from injury hazards. Subsequent work mirrored the direction of research in the child abuse and neglect field and concentrated upon the role human factors play in the occurrence of child injury. However, whereas child abuse and neglect models of injury causation focused on identifying, in particular, parent or family risk factors, models developed within the unintentional injury field concentrated on child-specific risk factors for injury. Identified child-specific risk factors have been conceptualised within a model of 'accident proneness'. This model has met with considerable criticism. Opponents argue that implying that an intrinsic trait is responsible for injury occurrence is not constructive to the injury prevention effort, as it diverts attention away from modifiable aspects of the environment (Klein 1980; Matheny 1987).

The capacity of environmental, parent and family or child-specific risk factor models to explain the occurrence of injury is limited because, on their own, each model relies heavily upon the isolation of single-issue causes. These models fail to take into account the reality of human experience

where, rather than occurring in a vacuum, childhood injuries occur in the context of exchanges and interactions between the child and their environment. The integrated working model of child injury proposed by Peterson and Brown (1994) attends to this reality, and is adopted to guide the research conducted for this paper. Informed by ecological theory (Bronfenbrenner 1979) and focused on physical injury, this model argues that most childhood injuries (intentional and unintentional) occur due to the influence of multiple risk factors across domains of experience. Within the model, risk factors that affect global, ongoing and pervasive influences upon the child's life are classed as background contributors to child injury, whereas factors that act as specific triggers for child injury are termed immediate contributors (Peterson & Brown 1994).

Figure 1 below illustrates the conceptual framework developed for this paper. The figure combines background and immediate contributors to injury occurrence and provides details of the variables chosen to represent contextual, family and child factors. The arrows depicted in the figure identify that while contextual factors may influence family and child factors, to some extent this path of influence may be bi-directional, with aspects of the child influencing the family, or the family influencing the environment. This highlights the nested relationship between child, family and contextual factors and their potential influence upon injury occurrence.

**Figure 1 Conceptual framework**



As observed by Peterson and Brown (1994), the factors chosen to represent each domain, and the designation of factors as background versus immediate influences, will vary as a function of the study emphasis and the adopted theoretical base. The flexible quality of the model also inherently mirrors the real-world experiences of children and families. Because of the interrelationships between children's lives, their family environment and the broader contextual environment in which they exist, it is reasonable to assume that characteristics of each will be intertwined, influencing injury to varying degrees (Ramsay et al. 2003). The following sections will briefly review evidence that links contextual, family and child factors to childhood injury.

## 4. Contextual factors

Contextual factors describe the context within and through which childhood injury occurs. These factors are specific to the child's immediate home environment and their broader community and society. While physical hazards in the child's environment constituted the initial focus of injury prevention research, much less attention has been given to investigating the influence of the broader contextual domain upon injury occurrence (Reading et al. 1999).

Studies that have assessed the relative influence of contextual factors upon childhood injuries have mainly done so in the context of epidemiological investigations based on area-level data (for example, Alwash & McCarthy 1988a; Alwash & McCarthy 1988b; Dougherty, Pless & Wilkins 1990; Towner & Towner 2001). The most consistent finding reported by these studies is that variations in the incidence of childhood injury across areas are due to the differential experience of economic hardship and disadvantage (Jolly, Moller & Volkmer 1993; Nersesian et al. 1985; Reading et al. 1999). Children who live in low-income neighbourhoods are reported to be between two and three times more likely than children in higher-income neighbourhoods to be injured (Durkin et al. 1994; Jolly, Moller & Volkmer 1993; Nersesian et al. 1985).

Children from families experiencing economic hardship may be at an increased risk of injury because they have greater exposure to physical hazards in the home and neighbourhood (Klein 1980). In this way, characteristics of home, neighbourhood and community that are associated with, or are the result of, economic hardship may act as immediate contributors or triggers for many childhood injuries. Child pedestrian injuries for instance, are linked to living in poorer neighbourhoods, high-density housing, streets with heavy traffic flow and limited access to safe playgrounds, all characteristics of public housing estates (Burgess 1995; Rivara & Barber 1985; Roberts et al. 1994). Similarly, child burns and scalds are linked to factors associated with economic hardship, including the use of old or faulty electrical equipment, lack of smoke detectors and electrical faults indicative of poor-quality housing (Burgess 1995). Injury prevention, such as the recall of faulty products or the introduction of safety standards, may be ineffective if the experience of economic hardship means that families need to use old or second-hand products (Burgess 1995).

Social aspects of a child's broader contextual domain may also affect injury risk. Living in a noisy home characterised by a sense of disorganisation, chaos and confusion has been cited as a marker for high risk for injury to young children (Matheny 1987). Economic hardship may underscore the social climate of the home. Economic hardship may also be related to frequent shifts in residence,

a further risk factor for child injury. Transience in living arrangements has been found to be related to social isolation and a lack of social support, both of which are noted to exert a significant influence on child injury (Bronfenbrenner 1979; Hecht & Hansen 2001; Peterson & Stern 1997; Wazana et al. 1997). While social isolation is likely to be associated with unsettled living conditions and economic hardship, a complex interaction may also exist between these factors and a number of parent or family factors, including age, marital status, education and parental mental health and wellbeing.

## 5. Family factors

The high incidence of childhood injuries within the home when children are in the care of their family signifies the importance of understanding the potential influence family factors may have upon child injury (Matheny 1988). The theoretical associations between broad contextual factors and parental or family factors are marked, and may provide some clue as to the pathways through which risk for child injury is transmitted.

Mothers of injured children are on average, observed to be younger, less educated and more likely to be single when compared with mothers of non-injured children (Beautrais, Fergusson & Shannon 1982; McCormick, Shapiro & Starfield 1981; Nersesian et al. 1985; Parker et al. 1991). These demographic characteristics may influence child injury occurrence through their association with social isolation. Young and/or single parents may be isolated from other mothers and a limited education may preclude them from knowing what poses a risk to their child's safety or what is required to prevent injury (Ramsay et al. 2003). Parents with limited education may also not know how to seek out alternative networks for support and information. Social isolation is also found to be significantly associated with other adverse outcomes for parents and families, including health and wellbeing, emotional coping and mental illness, all noted risk factors for child injury (Matheny 1987; Weissman et al. 1986).

Children of mothers who are less active and less emotionally stable have been reported to be at high risk for injury (Matheny 1987), as have children of depressed mothers. Children of depressed mothers are reported to suffer up to four times the number of injuries experienced by children of non-depressed mothers (Brown & Davidson 1978). Where one or both parents have been treated for depression, children have been found to suffer more head injuries and other health complications than children who had parents who did not suffer from depression (Weissman et al. 1986). These results may be indicative of the stress experienced by families where a parent is unwell. Several studies have also noted that stress in the family increases risk for child injury (Beautrais, Fergusson & Shannon 1982). Not only have injured children been observed to come from families characterised by numerous stressful life experiences (Horowitz et al. 1988), but also times of great stress within the family have been identified as key points at which injuries are most likely to occur (Pearn & Nixon 1977).

Increased rates of childhood injury in families characterised by ill health may also reflect the influence such stressors have upon parenting capacity and particularly the ability to accurately assess risk and provide adequate supervision. Research findings indicate that parents are not always accurate in their assessment of their child's abilities and understanding of safety issues

(Klein 1980). The extent to which parents overestimate their child's competency and awareness of risk varies as a function of parenting self-efficacy, with poorer parenting self-efficacy being associated with higher occurrence of child injury (Glik, Kronenfeld & Jackson 1993). Radke-Yarrow et al. (1985), suggest that depression in particular may influence a parent's ability to moderate their child's behaviour, which may have serious consequences for the provision of parental supervision. Adequate supervision enables the parent to intervene between the child and the physical environment to prevent exposure to hazards and to ensure safety behaviours are learned (Peterson & Stern 1997). Interactions between parents and children may operate in a two-way fashion; however, and as such, parenting behaviours may also be influenced by factors specific to the child (Fox, Kimmerly & Schaffer 1991).

## 6. Child factors

One of the most common findings in the injury literature is that boys experience more frequent and more severe injuries than girls (Morrongiello et al. 2004). This systematic variation in the injury population first emerges around 2 years of age and persists across the life-course (Baker, O'Neill, Ginsberg & Li 1992; Rivara et al. 1982). Gender differences in injury occurrence are most commonly explained by differences between boys and girls' behavioural patterns and perception of risk. Both parental reports and experimental studies observe that boys are more disruptive and engage in more active behaviours when compared to girls (Bijur, Stewart-Brown & Butler 1986; Morrongiello, Ondejko & Littlejohn 2004).

Boys also exhibit more aggressive and hyperactive behaviour than girls (Bijur, Stewart-Brown & Butler 1986). While the relative influence of aggressive versus hyperactive behaviour upon injury occurrence is debated (Davidson 1987), there is general agreement that these two behavioural traits increase the risk of injury due to their association with increased risk-taking behaviour and impulsiveness (Bijur, Stewart-Brown & Butler 1986). When children develop behavioural patterns such as these they tend to respond to stimuli in their environment in a highly energetic and rapid fashion, often without stopping to think before they act (Rothbart, Ahadi & Hershey 1994). These children may be at a greater risk of injury because the speed at which they act limits their capacity to anticipate future adverse consequences or perceive immediate danger. Boys may also incur more injuries than girls, because as well as being more likely to engage in active, impulsive and risk-taking behaviour, they also tend to underestimate injury-related risks and are more likely to attribute injuries to bad luck rather than to their own actions (Alexander et al. 1995; Morrongiello 1997).

Children's behavioural traits, while varying as a function of gender and developmental stage, are also highly correlated with family and contextual factors that are independently associated with injury, including maternal health and wellbeing, family experience of economic hardship and dysfunction, and confusion and chaos in the home (Bijur, Stewart-Brown & Butler 1986; Campbell et al. 1991). Results from a birth cohort study of around 10,000 children indicate that children from low-income families who lived in crowded or poor-quality housing, who moved frequently and whose mothers were distressed and unhappy were more likely to be hyperactive and aggressive and were also injured at a greater rate (Bijur, Stewart-Brown & Butler 1986). Further evidence of the influence of environmental factors is provided by findings that show that confusion and noise in the

home and the absence of regular sleeping and eating patterns and routines are associated with an increased injury risk for young boys (Campbell et al. 1991). Review of the empirical and theoretical origins of the child injury field reveals numerous correlates of injury across multiple domains of experience. To begin to unravel the complex relationships among and between these variables, this paper examines the injury experiences of children in the 4 year-old cohort of LSAC.

## 7. Method

LSAC is a national prospective longitudinal survey designed to measure child wellbeing, health and development. The Australian Institute of Family Studies (AIFS), on behalf of the Australian Government Department of Families, Community Services and Indigenous Affairs (FaCSIA), conducted the first wave of the study in 2004. LSAC is a random probability sample of Australian residential households with children born within two specified periods, forming an infant cohort (children aged 3 months to 1 year 7 months) and a child cohort (children aged 4 years 3 months to 5 years 7 months). Information was obtained from the person most knowledgeable about the child. This informant (Parent 1) provided basic demographic information about all household members, demographic and socioeconomic information about her/himself and her/his spouse, and extensive information about the selected child. Data were collected using a variety of measures, including face-to-face interview, self-complete questionnaire, direct assessment, and observational measures. At data release 1.1 for Wave 1, data for 4,976 children and for 5,104 infants were available for analysis.

### **Variables and measures**

Variables were selected for use in this paper on the basis of their relevance to the study of child injury as identified in the preceding literature review. Due consideration was given to the psychometric properties of scale scores and new variables were created where necessary. The majority of variables selected for use in this paper were drawn from primary caregiver report measures as these represented the most complete data.

### **Outcome variable**

Child injury was assessed by Parent 1's answer to the question: 'During the last 12 months how many times was child hurt, injured, or had an accident and needed medical attention from a doctor or hospital?' From these data two variables were derived, one identifying injured versus non-injured children and the second identifying number of times injured. Information on the types of injuries sustained and whether the child required hospitalisation as a result of their injury was also collected.

### **Context variables**

A total of 20 background and immediate variables were examined to characterise the broader contextual domains of injured and non-injured children. These variables included indicators specific to the home environment, housing tenure and security, social interaction and engagement, and economic hardship. Variables specific to the home environment included state and regional location, noise, clutter and traffic around the home, the number of people in the home and

its general condition as well as the condition of nearby buildings. Characteristics of the home environment, such as noise, clutter and the exterior condition of the dwelling, were assessed by interviewer observation, whereas the child's parent reported on other indicators specific to the home environment. Housing tenure and stability were assessed through home ownership data, details of most recent move and number of homes the child has lived in since birth. A further variable was derived indicating whether the child or their family lived in public housing. Variables measuring neighbourhood characteristics and engagement included parental perception of the neighbourhood as a place to raise children, report of neighbourhood facilities, liveability and belonging. Mean scale scores were used for measures of neighbourhood liveability, belonging and facilities to compensate for missing data. The experience of economic hardship was measured by the total number of items parents endorsed on the economic hardship scale used within the questionnaire. Further variable specification information may be obtained from the online LSAC data dictionary at <http://www.aifs.gov.au/growingup/home.html>.

### **Family variables**

A large number of theoretically relevant variables were selected to characterise children's family domains. Variables selected constituted both background and immediate family influences upon injury occurrence. Variables included: socio-demographic indicators of the family, such as parental age, education and marital status; behavioural indicators, such as report of parenting beliefs, behaviours, skills and difficulties; and indicators of parental health and wellbeing, such as Body Mass Index (BMI), report of depressive symptoms (and post-natal depression), relationship quality, stressful life events, social support, medical conditions, sleep problems and alcohol use. The BMI score reported by parents was included as both a marker of parental wellbeing and also in light of evidence that children whose parents are less active are more likely to be injured (Matheny 1987). Higher BMI scores may also be indicative of general risk in the parent and family environment. The number of stressful life events parents had experienced in the past 12 months was measured using an adaptation of established life events scales. Details of this measure are outlined on the online LSAC data dictionary.<sup>2</sup> The number of psychological and psychosocial symptoms parents experienced was assessed using the K6 psychometric measure (Kessler et al. 2003). Only cases with complete data for each depressive scale item were used in analysis.

### **Child variables**

Child-specific variables were selected to characterise the sample of injured and non-injured children, including gender and age, as well as indicators of children's health and behaviour and their social and emotional wellbeing. Indicators of children's health included the presence of sleep problems, medical conditions, experience of Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD), premature birth and parental report of child's general health. Behavioural patterns were assessed using scores from the prosociality, hyperactivity, persistence, peer approval, conduct and reactivity scales of the 'Strengths and Difficulties Questionnaire' (SDQ) (Goodman 1999). Higher mean scores on the measure of prosocial behaviour indicate positive adjustment, whereas higher scores on the hyperactivity, persistence, peer approval, conduct and reactivity scales give a measure of risk for emotional and behavioural problems. Assessment of parental report of concern over their child's emotional health and/or behavioural wellbeing was also included to characterise children in the sample.

## Data analysis procedures

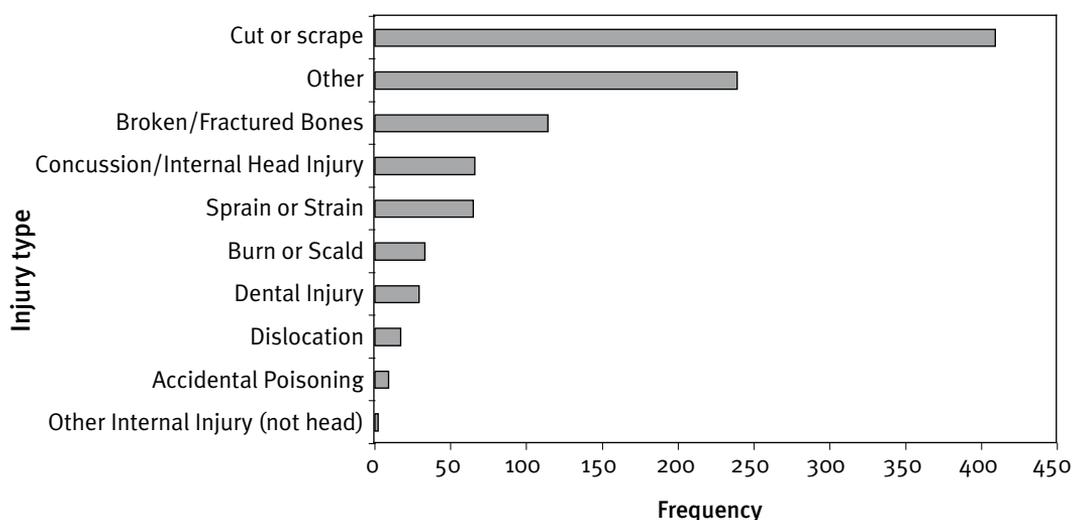
Two main phases of data analysis were conducted: identification of significant risk factors for child injury and examination of the relationships between and among significant risk factors and child injury. The first objective of the analyses was to identify significant risk factors for child injury. This phase of the analyses included comparisons of contextual, family and child factors for injured and non-injured children, using Pearson Chi-Square analyses for binary and ordinal factors, and analysis of variance (ANOVA) procedures for continuous factors. Logistic regression analyses were then used to further assess the significant and net effects of considerably different variables on child injury. The dependent variable for these analyses was the binary form of the injury variable expressed as 'not injured' versus 'injured'. Separate regression models were fitted for contextual, family and child factors, where all variables were entered simultaneously, and models were compared against a constant-only model.

The second objective of the analysis was to examine relationships among and between significant risk factors and child injury. This phase of the analysis included testing two potential models of relationships between risk factors and child injury; the interaction effect model and the third variable effect model. The interaction effects model assessed the potential for significant risk factors to modify the relationship between other potential risk factors and child injury (Baron & Kenny 1986). Logistic regression was used throughout the analyses with childhood injury as the dependent variable. Again the binary form of the injury variable was used. Once the main effects of selected variables were examined, two-way interaction terms between the most significant factors and other terms in the model were entered into the model and tested. Separate regression models were initially examined for each domain. After the three domains of factors were examined, those variables within each domain that made a significant contribution (main effects and interaction terms) to the dependent variable—child injury—were entered into a summary, integrated, regression model.

Third variable analyses were used to examine the direct and indirect effects of significant risk factors (Baron & Kenny 1986). To establish an indirect effect, the independent variable must be significantly related to the dependent variable, the independent variable must be significantly related to the third variable of interest and the third variable must be significantly related to the dependent variable. A series of three logistic regression analyses is performed for each investigation. Providing the conditions of third variable analysis are met, the magnitude and direction of the relationship between the independent variable and the dependent variable are inspected to assess the nature of third variable effect.

## 8. Results

In total, 883 children, representing almost 18 per cent (17.7 per cent) of the sample of 4 year olds, were reported by Parent 1 as having sustained a physical injury requiring medical attention in the year prior to interview. Children who were injured sustained between one and eight injuries, with the majority (75 per cent) reported as having been injured only once in the past year. The number of children hospitalised for at least one night as a result of their injuries totalled 77, representing almost 9 per cent (8.7 per cent) of all those injured. The frequency with which each recorded physical injury type was reported is displayed in Figure 2.

**Figure 2 Frequency of physical injuries experienced**


Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

### Differences between injured and non-injured children

The results of comparative analyses characterise injured children as potentially experiencing disadvantage and vulnerability across multiple aspects of their life. Comparisons of continuous and categorical contextual variables identify significant differences between the contextual domains inhabited by injured and non-injured children. As shown in Table 1, injured children and their families moved home more often than non-injured children, experienced greater economic hardship and lived in neighbourhoods that were reported as being less 'liveable' than those lived in by non-injured children.<sup>3</sup> No significant differences were found, however, between the two groups in relation to neighbourhood belonging, facilities or crowding in the home.

**Table 1 Comparative analysis: contextual environments of injured and non-injured children (continuous variables)**

Continuous contextual variables	Injured children		Non-injured children	
	Mean (Standard deviation)		Mean (Standard deviation)	
Number of homes lived in since birth	2.01	(0.86)*	1.93	(0.84)*
Number of people in the home	4.49	(1.26)	4.47	(1.19)
Neighbourhood facilities	2.00	(0.68)	1.98	(0.68)
Neighbourhood liveability	2.03	(0.49)*	1.98	(0.48)*
Neighbourhood belonging	2.36	(0.65)	2.35	(0.63)
Number of economic hardship items endorsed	1.13	(1.48)*	0.86	(1.25)*

Note: \* Denotes significance at the  $p < 0.05$  level.

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

As displayed in Table 2, children whose homes were observed to be in poor condition were found to be at 40 per cent greater risk for injury than children living in homes that were in fair or well-kept condition. Injured children's homes were more likely than those of non-injured children to be cluttered. Primary caregivers of injured children were also more likely to live in public housing.

**Table 2 Comparative analysis: risk of injury experienced by injured children attributable to aspects of their contextual environment (categorical variables)**

Categorical contextual variables	Contextual indicator	Odds ratio	95% confidence interval
Housing quality	Home badly deteriorated or in poor condition	1.40	1.12, 1.75
Heavy traffic	Parent 1 agrees or strongly agrees there is heavy traffic around the home	1.22	1.08, 1.38
Household noise	Moderate or loud noise in the home	1.15	1.01, 1.31
Feelings about neighbourhood	Parent 1 rates neighbourhood as a fair, poor or very poor place to raise children	1.21	1.02, 1.43
Clutter in home	Home is cluttered	1.34	1.11, 1.61
Public housing	Child lives in public housing	1.28	1.01, 1.62

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

As displayed in Table 3, the family environments of injured children were distinguished from those of non-injured children by higher parental BMI scores and greater experience of stressful life events. Parents of injured children were younger than parents of non-injured children and reported less confidence in their parenting role. No significant differences were found between parent's report of depressive symptoms as measured by the K6 depression scale and no differences were found in parental display of warmth or hostility towards their child.

**Table 3 Comparative analysis: parent/family characteristics of injured and non-injured children (continuous variables)**

Variable	Injured children		Non-injured children	
	Mean (Standard deviation)		Mean (Standard deviation)	
Parent 1 Body Mass Index measure	2.74	(1.15)*	2.58	(1.09)*
Parent 1 age in years	34.12	(5.44)*	34.89	(5.48)*
Parent 1 self report of parenting self-efficacy	3.88	(0.90)*	3.94	(0.89)*
Parent 1 stressful life events in the past year	1.86	(2.04)*	1.57	(1.71)*
Parent 1 warmth towards the child	4.46	(0.46)	4.44	(0.45)
Parent 1 hostility towards the child	2.20	(0.61)	2.17	(0.59)
Parent 1 K6 depression inventory score	9.74	(3.03)	9.55	(2.82)

Note: \* Denotes significance at the  $p < 0.05$  level.

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

Parents of injured children were also distinguished from those non-injured by their greater experience of medical conditions, including post-natal depression after the birth of the study child. Primary caregivers of injured children also reported experiencing poorer quality sleep than parents of non-injured children. No significant differences were found between alcohol use reported by the caregivers of injured and non-injured children. Consistent with findings regarding Parent 1 age and economic hardship the primary caregivers of injured children had lower education levels and were less likely to report being married.

**Table 4 Comparative analysis: risk of injury experienced by injured children attributable to parent/family characteristics (categorical variables)**

Variable	Parent/ family indicator	Odds ratio	95% confidence interval
Parent 1 sleep quality	Fairly or very bad sleep quality	1.20	1.06, 1.36
Parent 1 education	Below year 12 education	1.26	1.12, 1.43
Parent 1 medical conditions	Parent 1 suffers a medical condition	1.15	1.01, 1.32
Parent 1 post-natal depression	Parent 1 suffered post-natal depression after birth of the study child	1.24	1.04, 1.49
Parent 1 alcohol use	Parent 1 alcohol use is problematic	1.04	0.85, 1.28
Parent 1 marital status	Parent not married	1.26	1.11, 1.44

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

Injured children were slightly younger than non-injured children, displayed more hyperactive behaviour and evidenced poorer adjustment across measures of persistence, conduct and prosocial behaviour. Associated with increased rates of hyperactivity is the finding that injured children were more likely to choose active rather than inactive pastimes. No differences were found between the two groups' scores on measures of peer approval or reactivity (see Table 5).

**Table 5 Comparative analysis: child-specific characteristics of injured and non-injured children (continuous variables)**

Variable	Injured children	Non-injured children
	Mean (Standard deviation)	Mean (Standard deviation)
Age of child in months	46.75 (2.51) *	56.94 (2.67) *
Child hyperactivity (SDQ scale score)	3.86 (2.34) *	3.43 (2.27) *
Child persistence (SDQ scale score)	3.84 (0.97) *	3.94 (0.95) *
Child prosociality (SDQ scale score)	7.62 (1.82) *	7.76 (1.78) *
Child reactivity (SDQ scale score)	1.73 (1.66)	1.69 (1.67)
Child peer approval (SDQ scale score)	8.26 (1.54)	8.35 (1.56)
Child conduct (SDQ scale score)	7.21 (2.13) *	7.57 (1.98) *

Note: SDQ refers to Strengths and Difficulties Questionnaire.

\* Denotes significance at the  $p < 0.05$  level.

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

As displayed in Table 6, boys were around 30 per cent more likely to be injured than girls and injured children were more likely than non-injured children to have ongoing medical conditions and sleep problems. Children reported as suffering from ADD or ADHD were almost twice as likely as children without diagnosed problems to be injured. Primary caregivers of injured children reported expending greater worry and concern over their child's emotional wellbeing, happiness and/or behaviour than caregivers of non-injured children.

**Table 6 Comparative analysis: risk of injury experienced by injured children attributable to child-specific characteristics**

Variable	Child-specific indicator	Odds ratio	95% confidence interval
Child's emotional health	Parent 1 has concerns about child's emotional health and wellbeing	1.17	1.03, 1.32
Child's sleep quality	Parent 1 reports child has some sleep problems	1.16	1.03, 1.31
Child gender	Child is male	1.29	1.14, 1.45
Child medical conditions	Child suffers from a medical condition	1.26	1.10, 1.44
Child Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder	Child suffers from Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder	1.90	1.29, 2.78
Child's choice to spend free time	Child chooses active pursuits over inactive pursuits in their free time	1.28	1.08, 1.51

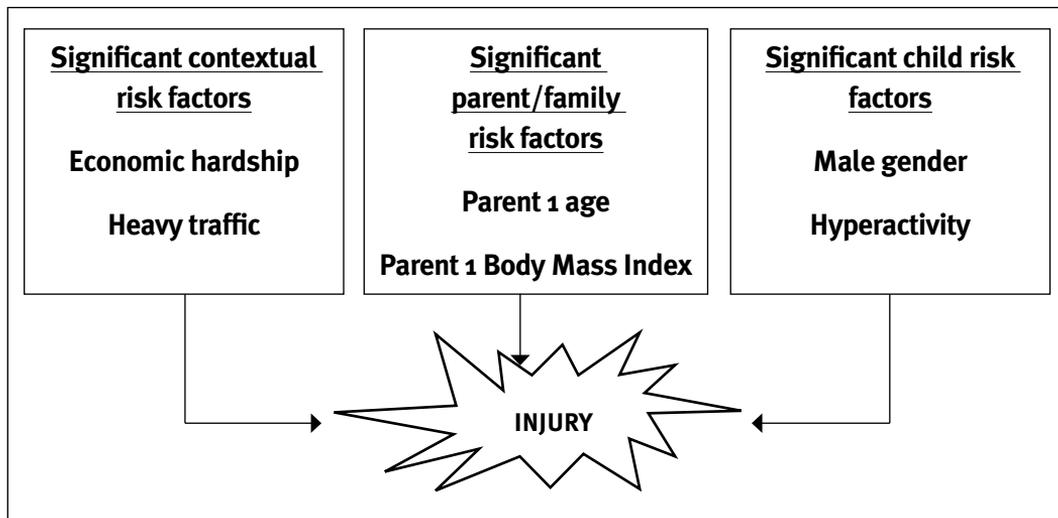
Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

### Risk factors for child injury

Factors identified as differing significantly between injured and non-injured children were analysed using logistic regression to assess further their significant and net effects on childhood injury. Separate logistic regression models were formed to assess which factors from each domain were important in understanding the occurrence of the dependent variable 'child injury'.

Complete data available for analysis differed between models. Data for 1,036 children were available for analysis of contextual factors, 2,509 for analysis of family factors and 2,208 for analysis of child factors. The number of cases with complete data for contextual factors was diminished by the inclusion of the 'public housing' variable. Testing revealed, however, that omission of this factor from the model significantly reduced the model's effectiveness in explaining child injury. Regression models from each domain were found to be statistically significant, indicating that contextual, family and child-specific risk factors, as a set, had some impact on the dependent variable (child injury). The proportion of the variance accounted for by risk factors from each domain was limited, with adjusted estimates ranging from around 2 to 5 per cent. Figure 3 identifies variables within each domain identified as significant risk factors for child injury.

**Figure 3 Significant risk factors for child injury**



Controlling for the effect of all other contextual domain variables, the factors ‘economic hardship’ and ‘heavy traffic’ were statistically significant risk factors for child injury. As a significant background contributor, the experience of economic hardship may have global, pervasive, and ongoing effects upon the child’s home and family environment, whereas heavy traffic, as an immediate risk factor, may act to trigger injury events. The factors ‘Parent 1 age’ and ‘Parent 1 BMI’ were found to be significantly associated with child injury when the effect of all other family factors was controlled for. The direction of these associations differed, however. The factor ‘Parent 1 age’ was negatively associated with child injury, with higher parental age decreasing the odds of child injury. The factor ‘Parent 1 BMI’ was positively associated with child injury, with higher BMI scores associated with greater injury risk. The factor ‘number of stressful life events’ neared but did not reach statistical significance.

Controlling for the effect of all other child-specific variables the factors ‘male gender’ and ‘hyperactivity’ were both found to be significant risk factors for child injury. The association between child injury and a number of other child-specific factors, including ‘child sleep problems’, ‘child prosociality’, ‘child conduct’ and ‘child’s choice of activity’, neared but did not reach statistical significance. Across the individual domain specific regression models, the factor most strongly associated with child injury was ‘heavy traffic’, with living in a street with heavy traffic increasing the odds for child injury by 50 per cent. However, when the significant variables from each domain were entered simultaneously into an integrated summary regression model, the variables ‘heavy traffic’ and ‘economic hardship’ failed to reach significance. All other significant risk factors retained their association with child injury.

## 9. Investigating relationships between risk factors

### Interaction effects

Evidence from the child injury literature suggests that the effect of some variables indicated as risk factors for child injury are likely to interact with the effect of others. The hypothesis examined in testing interaction models is that the effect of some risk factors may be more strongly related to injury for some people or in some circumstances than for others. The model-building strategy suggested by Hosmer and Lemeshow (1989) guided the selection of covariates for the interaction models formed for each domain. Variables were included based upon their theoretical importance and their demonstrated statistical significance ( $p < 0.05$ , 95 per cent confidence intervals). Changes to the scale of some variables were done whenever necessary after verification of the assumption of linearity in the logit (Hosmer & Lemeshow 1989). Two-way interaction terms between the most significant factors and all other variables for that domain were entered into the model and tested.

Significant interaction terms from the contextual domain, when added to the regression model, did not make a significant contribution to the dependent variable: child injury. Interaction terms from the parent/family domain, however, did reliably contribute to the model; in particular the analysis revealed a significant interaction between the variables 'Parent 1 BMI' and 'Parent 1 self report of parenting self-efficacy'. The effect of 'Parent 1 BMI' upon child injury was greater when parents reported less confidence in their parenting self-efficacy. The interaction between number of stressful life events and parenting self-efficacy neared but did not reach significance. Inclusion of the interaction terms in the model meant that the variable 'number of stressful life events' reached statistical significance, but that 'Parent 1 BMI' was no longer significantly associated with the dependent variable. The variable 'Parent 1 age' maintained its significant negative association with child injury when interaction terms were included in the model.

Analysis also revealed a significant interaction between the child domain variables 'hyperactivity' and 'child sleep problems' and also 'emotional health a worry' and 'male gender'. The effect of the variable 'hyperactivity' upon child injury was greater for children whose sleep problems were reported to be problematic rather than non-problematic. The combined effect of 'emotional health a worry' and 'male gender' decreased the odds of child injury. Inclusion of these significant interaction terms meant that the variable 'child's choice of activity' reached statistical significance. The variables 'male gender' and 'hyperactivity' retained their significant effect upon child injury when the effect of all other child factors and significant interaction terms were controlled for. Variables significantly associated within child injury were then assessed for their potential to interact with factors from other domains. Interaction terms were added to a logistic regression model containing their component terms. All variables (main effects and interaction terms) found to make a significant contribution to the dependent variable (child injury) were simultaneously entered into a summary logistic regression model. As a whole the factors in this final summary model were significant predictors of child injury, accounting collectively for around 7 per cent of the variance in the dependent variable. Table 7 displays factors and interaction terms in the final summary model.

**Table 7 Integrated summary regression model, including interaction terms**

Variables entered	Odds ratio	95% confidence interval
Economic hardship	0.971	0.853, 1.106
Heavy traffic in the street	0.572	0.316, 1.037
Parent 1 age	0.966	0.940, 0.993
Parent 1 Body Mass Index	0.769	0.552, 1.070
Number of stressful life events in past year (parent)	1.174	0.990, 1.394
Parent report of parenting self-efficacy	0.676	0.445, 1.029
Child's mean hyperactivity score	1.063	0.996, 1.135
Male gender (child)	1.174	0.878, 1.570
Child chooses active ways to spend free time	1.290	0.969, 1.719
Child's emotional health a worry to Parent 1	0.941	0.695, 1.374
Child's sleep patterns problematic	1.520	1.047, 2.207
Parent 1 Body Mass Index * self report of parenting self-efficacy	1.208	1.051, 1.389
Number of life events * parenting self-efficacy	0.948	0.879, 1.023
Child's emotional health a worry * heavy traffic	0.509	0.281, 0.920
Economic hardship * child sleep problems	0.742	0.587, 0.938
Child's mean hyperactivity score * heavy traffic	1.206	1.064, 1.366
Child chooses active pastime * male gender	1.679	0.947, 2.977

Note: Model significance (Wald  $\chi^2 = 63.072$ , df (17), N (1443),  $p < 0.001$ ), Nagelkerke R Square = 0.070.

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

As previously found, the variable ‘Parent 1 age’ was negatively associated with child injury, with older parent age associated with a decreased risk of child injury. The variable ‘child sleep problems’ was positively associated with child injury, with children reported as having problematic sleep being at greater risk for injury than those with non-problematic sleep patterns. The direct association between injury and several other variables, including ‘heavy traffic’, ‘number of stressful life events’, ‘hyperactivity’, ‘child’s choice of activity’ and ‘self report of parenting self-efficacy’, neared but did not reach statistical significance. The interactive effects of the variables ‘child’s emotional health a worry’ and ‘heavy traffic’ and the variables ‘economic hardship’ and ‘child sleep problems’ both reduced the odds of child injury, whereas the interactive effects of the variables ‘Parent 1 BMI’ and ‘self report of parenting self-efficacy’ and ‘hyperactivity’ and ‘heavy traffic’ both acted to increase the odds of child injury.

### Third variable effects

Third variable analyses were used to examine the potential of significant risk factors influencing injury occurrence through indirect or ‘third variable’ effects. These effects can be thought of as influencing outcomes through different pathways, including mediation pathways, confounding pathways and pathways of suppression. Mediation pathways, by definition, imply that the independent variable causes the third variable (the mediator), which, in turn, causes the

dependent variable (MacKinnon, Krull & Lockwood 2000). By contrast confounding pathways suggest that the third variable (the confounder) explains the relationship between the independent and dependent variable, but a causal relationship is not necessarily implied (MacKinnon, Krull & Lockwood 2000). Where addition of the third variable results in an increased relation between the independent variable and the dependent variable, pathways may involve suppression effects. For the purpose of these analyses, necessary continuous variables were reduced to a binary form with 0 indicating below mean scores and 1 indicating above mean scores. The significance of third variable effects were assessed using Sobel's test method (Sobel 1986).

### **Significant third variable effects**

Analyses revealed that two background risk factors, 'economic hardship' and 'stressful life events', were involved in third variable or indirect pathways to injury. However, of these two factors the contextual variable 'economic hardship' was indicated in more pathways, with greater strength and reliability than was 'stressful life events' and is discussed in the following section.

### **Third variable effects involving 'economic hardship'**

Including economic hardship as a third variable in the regression model significantly reduced the magnitude of the relation between child injury and a number of factors, suggesting economic hardship may influence child injury through mediation or confounding pathways (see Table 8).

**Table 8 Third variable regression models**

<b>Economic hardship confounds the relationship between parent 1 education and child injury</b>		
<b>Testing Step 1</b>	Odds ratio	95% confidence interval
Outcome: Injury status (non-injured versus injured)		
Predictor: Education	1.33	1.15, 1.54
<b>Testing Step 2</b>		
Third variable: Economic hardship		
Predictor: Education	2.04	1.82, 2.29
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Economic hardship	1.26	1.09, 1.47
Predictor: Education	1.28	1.11, 1.49
<i>Sobel's test of significance: 3.01, p=0.003</i>		
<b>Economic hardship confounds the relationship between parenting self-efficacy and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Parenting self-efficacy	1.09	1.01, 1.18
<b>Testing Step 2</b>		
Third variable: Economic hardship		
Predictor: Parenting self-efficacy	1.16	1.09, 1.24
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Economic hardship	1.30	1.13, 1.51
Predictor: Parenting self-efficacy	1.10	1.01, 1.17
<i>Sobel's test of significance: 2.82, p=0.004</i>		
<b>Economic hardship suppresses the relationship between child sleep problems and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Child sleep problems	1.20	1.04, 1.40
<b>Testing Step 2</b>		
Third variable: Economic hardship		
Predictor: Child sleep problems	1.37	1.22, 1.55
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Economic hardship	1.30	1.13, 1.51
Predictor: Child sleep problems	1.18	1.01, 1.37
<i>Sobel's test of significance: 2.94, p=0.003</i>		
<b>Economic hardship suppresses the relationship between child sleep problems and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Child sleep problems	1.20	1.04, 1.40
<b>Testing Step 2</b>		
Third variable: Economic hardship		
Predictor: Child sleep problems	1.37	1.22, 1.55
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Economic hardship	1.30	1.13, 1.51
Predictor: Child sleep problems	1.18	1.01, 1.37
<i>Sobel's test of significance: 2.94, p=0.003</i>		

Source: Analysis of 2005 LSAC Wave 1 dataset, Release 1.1.

From Table 8, an example of a mediating pathway may be where low levels of education lead to economic hardship, which in turn is associated with injury. The magnitude of the relationship between education and child injury is reduced because economic hardship explains part or all of the relationship between education and injury.

Further, economic hardship may confound the relationship between parenting self-efficacy and child injury in the following way: parents experiencing greater economic hardship may express less confidence in their parenting self-efficacy than parents who were under less economic strain, and children from families experiencing economic hardship may also be more likely to be injured. Parenting self-efficacy and child injury are thus related through a common confounder, economic hardship. Parenting self-efficacy does not cause economic hardship, which then causes injury, but the relationship between parenting self-efficacy and child injury is reduced in magnitude because the distortion due to economic hardship is removed.

Including economic hardship in the regression model also significantly increases the magnitude of the relationship between 'child sleep problems' and child injury, suggesting that apart from being involved in confounding and mediation effects, economic hardship may also operate as suppressor variable. The increase in the magnitude of the relationship between child sleep problems and child injury may be because economic hardship explains the variability in sleep problems, or that sleep problems are more common among children from families experiencing economic hardship.

Economic hardship also significantly influences child injury through indirect effects where 'Parent 1 BMI', 'neighbourhood liveability', 'heavy traffic in the street' and 'housing quality' are entered as third variables (see Table 9). In these instances the relationship between economic hardship and child injury is explained by the causal relationship between economic hardship and factors such as housing quality.

**Table 9 Third variable regression models (continued)**

<b>Parent 1 Body Mass Index mediates the relationship between economic hardship and child injury</b>		
<b>Testing Step 1</b>	Odds ratio	95% confidence interval
Outcome: Injury status (non-injured versus injured)		
Predictor: Economic hardship	1.32	1.14, 1.53
<b>Testing Step 2</b>		
Third variable: Parent 1 Body Mass Index		
Predictor: Economic hardship	1.47	1.26, 1.71
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Parent 1 Body Mass Index	1.29	1.06, 1.57
Predictor: Economic hardship	1.22	1.06, 1.49
<i>Sobel's test of significance: 2.28, p=0.020</i>		
<b>Neighbourhood liveability mediates the relationship between economic hardship and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Economic hardship	1.32	1.14, 1.53
<b>Testing Step 2</b>		
Third variable: Neighbourhood liveability		
Predictor: Economic hardship	1.82	1.62, 2.05
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Neighbourhood liveability	1.17	1.01, 1.37
Predictor: Economic hardship	1.29	1.11, 1.50
<i>Sobel's test of significance: -2.54, p=0.001</i>		
<b>Housing quality mediates the relationship between economic hardship and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Economic hardship	1.32	1.14, 1.53
<b>Testing Step 2</b>		
Third variable: Housing quality		
Predictor: Economic hardship	2.76	2.12, 3.60
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Housing quality	1.41	1.05, 1.90
Predictor: Economic hardship	1.28	1.11, 1.50
<i>Sobel's test of significance: 2.18, p=0.020</i>		
<b>Heavy traffic in the street mediates the relationship between economic hardship and child injury</b>		
<b>Testing Step 1</b>		
Outcome: Injury status (non-injured versus injured)		
Predictor: Economic hardship	1.32	1.14, 1.53
<b>Testing Step 2</b>		
Third variable: Traffic		
Predictor: Economic hardship	1.44	1.28, 1.63
<b>Testing Step 3</b>		
Outcome: Injury status (non-injured versus injured)		
Third variable: Traffic	1.25	1.08, 1.46
Predictor: Economic hardship	1.29	1.12, 1.50
<i>Sobel's test of significance: 2.97, p=0.003</i>		

## 10. Discussion

Recognition of the prevalence and potentially fatal consequences of childhood injury have driven researchers, practitioners and policy makers alike to search for those factors associated with increased risk for child injury. While evidence suggests that factors specific to the child, their family and their broader contextual environment are key influences upon childhood injury, few studies have assessed the relationships between risk factors and the direct and indirect pathways through which risk is transmitted.

Using data from the 4 year-old cohort of LSAC, this paper presents an empirical application of Peterson and Brown's (1994) integrated working model of child injury. It considered the potential of a wide range of child, family and contextual characteristics to act as risk factors for child injury and for interrelationships between significant risk factors to provide some insight into the pathways and processes through which injury occurs.

Results of analyses conducted indicate that apart from their injury experience, injured children significantly differed from non-injured children across contextual, family and child-specific factors. These differences collectively characterise injured children in the study sample as potentially experiencing disadvantage and vulnerability in many aspects of their life. Injured children's homes were more likely than those of non-injured children to be cluttered, noisy and close to heavy traffic. The primary caregivers of injured children reported greater economic hardship than those of non-injured children and also described their neighbourhoods as less liveable and less desirable as a place to bring up children. Children living in homes that were in poor condition were 40 per cent greater risk for injury compared to children living in homes in better condition. Children living in public housing were 28 per cent more likely to be injured than children living in other rental accommodation. The primary caregivers of injured children were slightly younger and less educated than those of non-injured children. They were also generally less healthy than caregivers of non-injured children, being more likely to have ongoing medical conditions, poorer sleep quality, and higher BMI scores. When compared to their non-injured counterparts, injured children were more likely to choose active pastimes and display more hyperactive behaviour. Injured children were also less healthy than non-injured children, having more ongoing medical conditions and more problematic sleep patterns. Boys were at 29 per cent greater risk of injury than girls and children with ADD or ADHD were almost twice as likely as those without attention problems to be injured.

Further examination identified that within each domain of life experience, statistically significant background and immediate risk factors for childhood injury exist. These findings provide support to the Peterson and Brown (1994) integrated working model of child injury and indicate that rather than caused by any one single factor, child injury is potentially associated with multiple risk factors across contextual, family and child-specific domains. Significant contextual risk factors identified for childhood injury included 'heavy traffic' and 'economic hardship', and significant family risk factors included 'Parent 1 age' and 'Parent 1 BMI'. Significant child risk factors for injury were 'male gender' and 'hyperactivity'.

Given the nested nature of child, family and contextual domain factors, and the fact that childhood injuries invariably occur within and through the context of multiple risk factors, the manner

in which risk factors influence injury may not be direct or linear. The proportion of variance accounted for by the multivariate models is noted to be small. This is likely to be because injury occurs within the context of multiple exchanges between the child and their environment and that the contribution these exchanges make to injury experience is unlikely to be easily captured. Supporting this, assessment of the relationships among and between significant risk factors and child injury reveals that both interaction and third variable models are likely pathways or processes through which injury risks are transmitted. The role of chance must also be acknowledged as exerting a significant and large influence upon injury occurrence.

Significant interaction models identified that the effect of some risk factors was more strongly related to injury for some people or in some circumstances than for others. For example, the effect of 'Parent 1 BMI' upon injury was greater when less confidence was reported in the parenting role and 'hyperactivity' posed a greater risk for child injury when the child lived in a street with heavy traffic. Interactive effects also reduced the likelihood of injury. When the effects of worrisome emotional health and heavy traffic were combined a decreased risk of child injury was observed. Similar results were found when the effects of problematic sleep and economic hardship were combined. This is likely to be due to the fact that when combined, the individual effects of these risk factors cancel each other out.

Third variable analyses revealed that the risk factors 'economic hardship' and 'stressful life events' were implicated in numerous third variable or indirect pathways to child injury. These factors influenced the occurrence of child injury through their interrelationships with other significant risk factors. Importantly, economic hardship may have had an indirect influence upon child injury because of its relationship with a number of other significant risk factors across domains of experience and characteristics. This finding is consistent with other studies that suggest economic disadvantage has moderate to strong influence upon the injuries experienced by Australian children (Jolly, Moller & Volkmer 1993) and that economic disadvantage may influence the occurrence of child injury through a combination of mechanisms and processes (Jencks & Mayer 1990; Platt & Pharaoh 1996).

The findings presented in this paper support the general conclusion that childhood injury is likely to be influenced by multiple risk factors, and that these risk factors are likely to influence the occurrence of injury through interactive and indirect pathways. These findings should, however, be considered in light of limitations related to measurement and methodology. Firstly, while it is commonly used in the injury literature, caregiver report of child injury requiring medical attention may be subject to recall bias (Morrongiello 1997; Schwebel et al. 2004). The measure may also be biased by the effect of factors such as geographical location, access to services, caregiver health and wellbeing and caregiver knowledge of injury care. Secondly, the outcome measure used was limited to the occurrence of any injury in the 12 months prior to the survey. Future research could refine the analyses conducted to take into account the types of injuries involved, as some risk indicators may be related to injuries in general, but not to specific types of injuries (Wazana et al. 1997). Finally, the research conducted did not consider the potential for factors related to Parent 2 to influence injury. It may be that Parent 2 characteristics and experiences also affect injury through both direct and indirect pathways and processes.

## 11. Conclusion

The findings presented in this paper support the conceptualisation of childhood injury as the result of exchanges and interactions between the child and their family and their broader contextual environment. These findings may also warrant examination of the most effective mix of programs and interventions to prevent childhood injury. An important implication of the findings presented may be that aspects of the broader contextual environment should not be considered in isolation from family and child factors. Because interrelationships across domains may explain the pathways through which injury occurs, preventative strategies that focus on risk factors from any one domain without paying attention to related risk factors from other domains may be limited in their capacity to reduce injury incidence.

## Endnotes

- 1 This paper builds upon preliminary work completed by the author using and presented at the Australian Institute of Family Studies (AIFS) conference in February 2005. The paper was presented at the Social Policy Research Centre conference in July 2005 and an electronic copy of the paper was posted on the website thereafter. A subset of the paper was also presented at the Australian Research Alliance for Children and Youth (ARACY) conference in August 2005. The author is grateful for the assistance and feedback provided in preparation of this paper by Helen Moyle, Justine Gibbings and Emily Bell, Research Projects Section, Australian Government Department of Families, Community Services and Indigenous Affairs.
- 2 Details can be found at the AIFS LSAC homepage: <<http://www.aifs.gov.au/growingup/home.html>>
- 3 Higher scores on the neighbourhood liveability index represent a less liveable neighbourhood.

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# Men's and women's fertility: differences in achieved fertility, expectations and intentions

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## 1. Introduction

As Australia has experienced sustained fertility decline over the last four decades, there has been public concern and debate about the implications of falling fertility and what to do to stabilise or reverse the trend (Tefaghiorghis 2004). However, recent experience has shown that fertility has stabilised or even shown an upturn since 2001. The total fertility rate rose from 1.73 children per woman in 2001 to 1.81 children per woman in 2005.

The issues of fertility, family support, and balancing family and work responsibilities are important, as demonstrated by the 2004–05 and 2005–06 Australian Government Budgets. These budgets increased assistance to families with dependent children. Increases in Family Tax Benefits helped families with the costs of raising children and balancing work, family and child-rearing responsibilities. Other measures included the introduction of a universal Maternity Payment, extending eligibility to the Large Family Supplement for families with three children, and increased child care provisions.

This exploratory study contributes to the fertility debate by examining the congruence between members of a couple in future fertility desires, expectations and intentions (number of children intended). The focus is on couples because fertility decisions and births usually occur within couple relationships and for couples to make the conscious decision to have a child requires that both husbands and wives agree. The motivation for studying whether or not couples' fertility desires, expectations and intentions agree is that the more congruent they are, the easier it will be for couples to realise them. Incongruence may make it difficult for couples to achieve desired, expected and intended fertility in their current relationship (Miller 1995, p. 532).

A US panel data study by Thomson (1997, pp. 348–49) found that when couples disagree about wanting a child, each partner's intentions were shifted towards not having a child. Thomson (1997, pp. 349–51) also found that husbands' views on fertility desires and intentions have approximately equal influence as that of wives' views on couples' births.

Interest in fertility preferences or prediction of fertility is based on the assumption that such preferences or intentions are related to fertility behaviour (van de Kaa 2001, pp. 316–21;

Miller 1995; Thomson 1997). Fields (1999, p. 790) states that, according to previous research, individual fertility intentions are significant predictors of future fertility behaviour but that ‘what is not clear is whether fertility intentions add to what is known from other established predictor variables or whether intentions simply mediate their effects’. To answer the question Fields (1999, pp. 794–99) applied a multivariate analysis technique (pooled logistic regression) to panel data and found that the likelihood of a birth is always substantially greater for those who intend to have a birth; that fertility intentions have important and significant effects net of other factors; and that ‘for married persons, fertility intentions and their certainty predict fertility behaviour better than all other variables in the model combined’. Fields (1999, p. 799) observed that ‘the results show that fertility is purposive behaviour that is based on intentions, integrated into the life course, and modified when unexpected developments occur’.

**However**, there are limitations in using data on fertility desires, expectations and intentions. This is because fertility desires, expectations and intentions **are not good predictors** of future fertility behaviour. A literature review (Tesfaghiorghis 2005) found that:

- one should be ‘wary about attitudinal questions’ (McDonald 2001)
- young women in Australia and most western countries may have high expectations about the number of children they will ultimately have but their expectations and intentions may fall short of realised fertility over time as their expectations are tempered by experience (for example, divorce, health problems, unemployment and lifestyle changes) and institutional constraints (McDonald 1998, 2001; van de Kaa 2001, pp. 316–21).

The gap between expectations and ultimate fertility is also due to biological constraints—that is, age-related inability to have children sets in as the timing of childbirth is increasingly delayed. Despite these shortcomings, it is useful to analyse men’s and women’s fertility desires, expectations and intentions to understand what future fertility behaviour would be if men and women are able to achieve them. This is important given the concern about Australia’s falling fertility.

This comparative study of partners’ future fertility desires, expectations and intentions is based on primary analysis of the Household, Income and Labour Dynamics in Australia (HILDA) survey Waves 1–2 datasets. HILDA is the first major Australian Survey to ask the views of men and women on their desires, expectations and intentions to have children and on the number of children ever born. The HILDA survey collected the following relevant information for the study<sup>2</sup>:

- Would you like to have a child of your own/more children in the future?
- And how likely are you to have a child/more children in the future?
- How many more children do you intend to have?
- In which year do you intend to have (a/your next) child? (Wave 2 only)

The author’s previous research on women’s fertility examined the associations between education, work and fertility, and trends in completed cohort fertility using HILDA survey data (Tesfaghiorghis 2004, 2005). This paper complements the previous research by examining congruence or lack of congruence in partners’ future fertility desires, expectations and intentions to obtain an understanding of future fertility behaviour.

## Purpose

The purposes of this paper are listed below.

- ▶ Undertake a comparative fertility study of men's and women's achieved fertility, and their fertility desires, expectations and intentions.
- ▶ Undertake fertility modelling to look at the various scenarios of completed fertility rate for men and women with incomplete fertility.
- ▶ For men and women who said that they intended to have children (or more children), examine when they intended to have a child or the next child.

There is limited Australian research on men's fertility intentions and decisions let alone couples. Most of the available research relates only to women (McDonald 2000; Weston et al. 2004). The Australian Institute of Family Studies (AIFS) in partnership with the Office for Women in the Australian Government Department of Families, Community Services and Indigenous Affairs, conducted for the first time a comprehensive survey on factors influencing fertility decisions of men and women to fill an existing gap in knowledge (Weston et al. 2004). The AIFS Fertility Decision Making Project collected information from 3,200 men and women aged 20–39 years, through telephone interviews, on their fertility aspirations and expectations about having children, perceived reasons for a mismatch between ideal and expected number of children and issues influencing fertility decisions. It also collected information from 313 of the respondents' partners, through self-completed questionnaires. The Fertility Decision Making Project asked respondents about their own and their partners' aspirations and expectations about having children and also collected this information directly from the small number of partners. Limited quantitative analysis was carried out on the information obtained from the small number of partners (Weston et al. 2004, pp. 116–18). This did not provide a sufficiently large representative sample of couples, however, to enable the researchers to compare fertility desires and expectations of each partner in a couple.

What is the contribution of this study compared to that Fertility Decision Making Project? This study will not cover fertility decision making of either individuals or members of a couple, as the HILDA survey does not ask about fertility decisions. HILDA, however, does allow a comparison of fertility desires, expectations and intentions of each partner in a couple, since this information was collected in face-to-face interviews from adults aged 18–55 years in all waves of the survey. Because of the data collection method and a larger sample size, the HILDA findings could be expected to be more reliable than those from the AIFS survey.

## 2. Achieved fertility of women and their partners

The number of children a couple, or each member of a couple, already has affects each partner's fertility desires, expectations and intentions. A man or woman who already has two children, for instance, is likely to have different fertility desires, expectations and intentions from those with one or no children. In addition, the sex of existing children affects progression to higher parities, as the

sex of existing children of young Australian women affects their progression to the third birth (Gray & Evans 2005, pp. 514–16).

In order to put partners' fertility preferences in context, an analysis of each partner's achieved fertility, measured by the number of children ever born to each partner, was undertaken. Though information on fertility preferences was collected for respondents aged 18–55 years, the analysis in this and subsequent sections is limited to women aged 18–44 years and their partners. As most women aged 45–55 years have generally completed their fertility, it is less useful to analyse the fertility desires and expectations of these women and their partners.

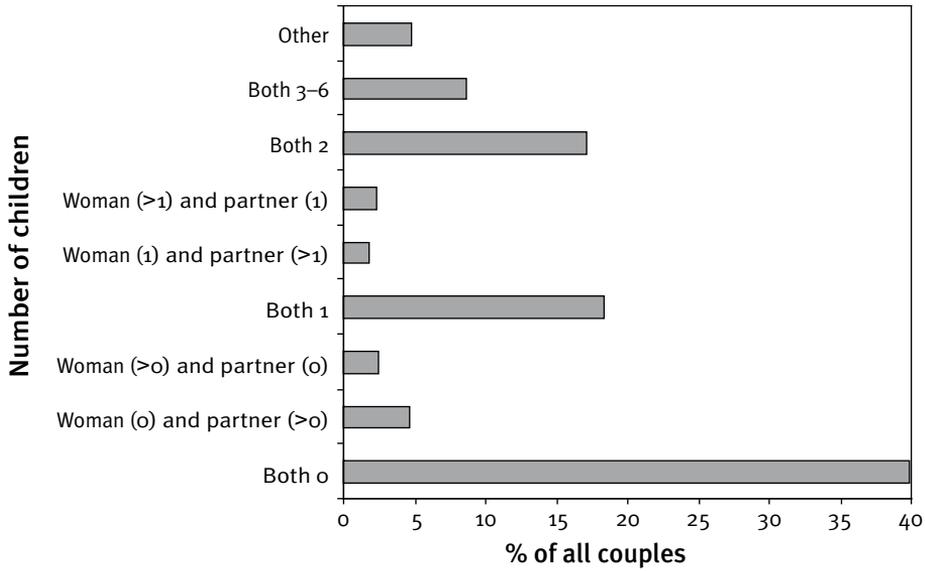
For the purpose of this analysis a sample of 2,436 (2,313,900 weighted population) currently partnered women aged 18–44 years from the 2001 HILDA survey were matched to their current spouses or partners. Those in de facto relationships constituted 23.1 per cent of all couples where women were aged 18–44 years.<sup>3</sup> Though the majority of partners in relationships were legally married, the terms 'women' and 'partners' are used throughout this paper instead of 'wives' and 'husbands'.

Women were younger than their partners, a mean age of 33.8 years versus 36.7 years for partners. Those in de facto relationships were younger than those who were legally married. The mean age of women in de facto relationships was 29.3 years versus 35.2 years for married women. The figures for de facto partners were 32.1 and 38.1 years respectively. The proportion of couples in de facto relationships was 33.6 per cent for women aged 18–34 years and their partners and 12.1 per cent for those aged 35–44 years and their partners.

The majority of members of couples had the same number of children<sup>4</sup> (57.5 per cent) or did not have any children (23.2 per cent). However, 19.3 per cent of women aged 18–44 years and their partners had different numbers of children. These figures were 16 per cent for women aged 18–34 years and their partners and 23 per cent for women aged 35–44 years and their partners. The proportion of couples with different numbers of children was higher in de facto couples than for those legally married. It was also higher for older couples than for younger couples. With respect to those legally married, 13.3 per cent of women aged 18–34 years and their partners and 17.0 per cent of women aged 35–44 years and their partners had different numbers of children (15.4 per cent overall). The corresponding figures for the de facto couples were 21.3 and 64.6 per cent respectively (32.5 per cent overall).

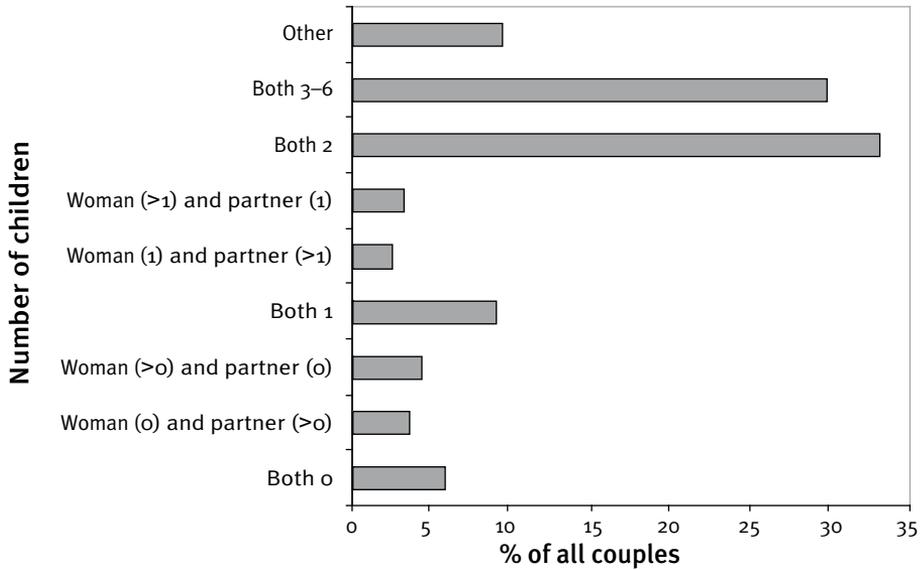
Figures 1 and 2 summarise the distribution of couples according to the number of children each member of a couple had for women aged 18–34 years and their partners and for those aged 35–44 years and their partners.<sup>5</sup> A relatively large proportion of women aged 18–34 years and their partners had no children (40 per cent) with a lower proportion having one child (18.4 per cent) or two children or more (25.8 per cent). By contrast, the majority of couples where the woman was aged 35–44 years had two or more children (62.4 per cent) with only 6 per cent of couples having no children. There were only small proportions of couples where one partner had no children and the other had children (7.1 per cent for couples where the woman was aged 18–34 years and 7.8 per cent for couples where the woman was aged 35–44 years) or one partner had one child and the other had two or more children (4.1 per cent for women aged 18–34 years and their partners and 5.7 per cent for women aged 35–44 years and their partners).

**Figure 1** Number of children that each member of a couple had, women aged 18–34 years and their partners



Source: 2001 HILDA survey.

**Figure 2** Number of children that each member of a couple had, women aged 35–44 years and their partners



Source: 2001 HILDA survey.

### 3. Desire to have children

HILDA enables an examination of the congruence of partners' desires to have a child or to have more children than they have already. Respondents were asked the question 'would you like to have a child of your own/more children in the future?' They were asked to pick a number ranging from 0, 'definitely would not like to have', to 10, 'definitely like'. The following categories were used to summarise the results: 0 'definitely would not like'; 1–3 'weak desire'; 4–5 'some desire'; 6–7 'moderate desire'; 8–9 'strong desire'; and 10 'would definitely like'.

When looking at the total population of women aged 18–44 years, 48.2 per cent said that they definitely would not like to have a child or another child in the future (last column of the first row in Table 1), 7.3 per cent had a weak desire for a child or another child in the future (scores 1–3), 6.4 per cent had some desire for a child or another child in the future (scores 4–5), 5.8 per cent had a moderate desire (scores 6–7), 8.2 per cent had a strong desire for a child or another child in the future (scores 8–9) and 24.0 per cent said that they definitely would like to have a child or another child (score 10). When looking at the fertility desires of the total population of partners, these were very similar to those of the total population of women (see the bottom row and right-hand column in Table 1).

When looking at matched couples, 62.4 per cent of couples (see the diagonal) were in agreement on 'would you like to have (more) children'. Both men's and women's scores were clustered at each end of the spectrum, though heavily skewed to the 'do not want (more) children'. That is, the majority of couples with congruent fertility desires were quite definite about whether or not they wanted a child or another child.

**Table 1** Distribution of women aged 18–44 years and their partners (%) according to 'would you like to have (more) children' scores

Women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
0	<b>39.8</b>	3.6	1.8	1.3	0.8	0.9	48.2
1–3	2.7	<b>1.8</b>	1.4	0.6	0.5	0.3	7.3
4–5	1.1	1.1	<b>1.6</b>	1.0	0.6	1.0	6.4
6–7	1.0	0.6	0.7	<b>1.4</b>	0.9	1.2	5.8
8–9	0.6	0.6	0.8	1.3	<b>2.7</b>	2.2	8.2
10	1.1	0.5	1.4	1.7	4.2	<b>15.1</b>	24.0
<b>% of partners</b>	46.4	8.3	7.7	7.3	9.6	20.7	100.0

Note: This table is based on population-weighted analysis.

Rows and column totals are rounded and may not add to total figures.

Cell percentages are calculated by total weighted population and add up to 100 per cent.

The actual number of responding couples was 2,180 and missing cases were 225.

Source: 2001 HILDA survey.

It is evident from Table 1, however, that a relatively large proportion of couples had incongruent fertility desires (37.6 per cent in the off-diagonals). There were small proportions of couples

where women who definitely did not want to have a child or another child, or had weak desires (scores 0–3,) had partners who wanted children (score 6–10) — 4.4 per cent. The reverse was also true: there were small proportions of couples where women wanted to have children (scores 6–10), but their partners did not want to have a child or another child (scores 0–3) — 4.4 per cent. It is worth investigating in future research if this is a signal of relationship problems — or may become a source of relationship problems in the future.

Agreement is measured by an index called Kappa. It equals 0.0 when women's and partners' agreement equals that expected by chance, and 1.0 when there is perfect agreement. The Kappa value will be higher the stronger the agreement in a given pair of marginal distributions. Although Kappa is used to measure agreement, models are useful for a more detailed investigation of the structure of agreement and disagreement (Agresti 1990, pp. 365–67). This analysis uses weighted Kappa since scores are ordinal, rather than nominal. The weighted Kappa value between women and partners' agreement on the desire to have children is 0.677. This difference indicates that the observed agreement between women and their partners over that which can be expected by chance (that is, if ratings are statistically independent) is about 67.7 per cent. The groupings used in the analysis affect the index to a small extent, as without the grouping weighted Kappa equals 68.3 per cent.

**Table 2** Women's and partners' agreement on the desire to have children

Statistic	Value	Asymptotic Standard Error	95% confidence limits	
Weighted Kappa	0.6771	0.0004	0.6764	0.6778

It is worth noting that for women aged 18–34 years and their partners without children, the desire to have children is almost universal. Only a small proportion of couples agreed on definitely not wanting to have a child or another child — 2.3 per cent (see Appendix Table A1). By contrast 22.9 per cent of women aged 35–44 years and their partners definitely did not want to have a child or another child.

The majority of those who definitely wanted a child or another child (score 10) had no children (55.9 per cent) or only one child (29.3 per cent). By contrast, the majority of women and their partners who definitely did not want to have a child or another child in the future already had two or more children. For example, of all women aged 18–44 years in the 2001 HILDA survey (table not provided) who definitely did not want to have a child or another child (score 0), only 7.0 per cent had no children, 9.7 per cent had one child, whereas 83.3 per cent had two or more children (42.1 per cent had two and 41.2 per cent had three or more). This is consistent with AIFS research, which found that two-child families were the ideal family size among men and women followed by three children, although the proportion of men and women indicating these 'popular' ideal family sizes declined somewhat with age (Weston et al. 2004, pp. 48–9).

The relationship observed between women's fertility desires and the number of children ever born holds also for partners. For both women and partners the relationship between fertility desires and number of children born is negative, as measured by Pearson correlation of –0.50. It is worth noting that the desire to have children according to number of children ever born and age group (see Appendix Table A1 and A2) is only strong for women aged 18–34 years and their partners who had no children or only one child.

The mean score results in Table 3 show that the aggregate differences between women and their partners were small, although partners tended to have less desire to have children than women, except for partners of women aged 35–44 years with one or more children. Young couples in de facto relationships without a child had less desire to have children than their married counterparts (table not shown), possibly because their relationships were of shorter duration and/or less stable and they were not yet focused on family formation.

**Table 3** ‘Would you like to have a child or another child in the future?’: mean scores of women aged 18–44 years and partners by age group and number of children born by couple

Age group of women (years)	Number of children born by couple	Mean scores	
		Women	Partners
18–34	No children	8.14	8.05
	One child	7.68	7.41
	Two or more children	2.85	2.73
	Different numbers of children	5.81	5.55
	Mean	6.18	6.03
35–44	No children	4.34	4.08
	One child	3.09	3.28
	Two or more children	0.94	1.07
	Different numbers of children	2.58	2.58
	Mean	1.54	1.64

Note: This table is based on population-weighted analysis.

Source: 2001 HILDA survey.

## 4. Expectations of having children

Respondents aged 18–55 years were asked a follow-up question: ‘and how likely are you to have a child/more children in the future?’ The responses ranged between 0 ‘definitely not likely’, to 10 ‘definitely likely’. HILDA survey designers considered respondents with scores of 6 and above as likely to have children in the future. It is, however, possible that respondents with scores of 5 or less could be likely to have children in the future. An Australian survey (Weston et al. 2004) has found that respondents stated that certain preconditions have to be met before they decide to have children. These are ‘being in a secure, stable and adequate relationship with a partner and having a secure, stable and adequate income stream’.

The salient feature of Table 4 is that 72 per cent of all couples were in agreement on the ‘how likely are you to have (more) children in the future’ scale. There are more couples in agreement about the likelihood (weighted Kappa of 0.807, table not shown) than about the desire to have a child or another child (weighted Kappa of 0.677), suggesting that some deliberate compromising is going on between members of a couple. Like the reported fertility desires, both men’s and women’s scores on the likelihood of having children were clustered at each end of the spectrum.

One-third of all women aged 18–44 years and of all partners said they were likely to have a child or another child (scores 6 and above) in the future (see the bottom row and right-hand column of Table 4). When looking at matched couples, the proportion where both women and their partners agreed that they were definitely not likely to have a child or another child was 45.8 per cent. By contrast, the proportion where both women and partners agreed that they were definitely likely to have a child or another child was 14.4 per cent.

As with the desire to have children, there was some mismatch between members of a couple in the perceived likelihood of having a child or another child (Table 4). A small proportion of women who said they were likely to have children (scores 6–10) had partners who said that they were not likely to have children (scores of 5 and below), 3.6 per cent. Similarly, a small proportion of partners who said that they were likely to have children were partners to women who said that they were not likely to have children, 4.0 per cent.

**Table 4** Distribution of women aged 18–44 years and their partners (%) according to ‘how likely are you to have (more) children in the future?’

Women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
0	<b>45.8</b>	3.8	0.8	0.7	0.2	0.2	51.5
1–3	2.8	<b>3.8</b>	1.1	0.3	0.3	0.1	8.4
4–5	0.6	1.1	<b>3.0</b>	1.1	0.5	0.6	6.9
6–7	0.4	0.3	0.8	<b>1.7</b>	0.9	0.5	4.6
8–9	0.2	0.2	0.5	1.6	<b>3.7</b>	2.5	8.7
10	0.2	0.2	0.8	1.1	3.2	<b>14.4</b>	19.9
<b>% of partners</b>	50.0	9.4	7.0	6.5	8.8	18.3	100.0

Note: This table is based on population-weighted analysis.

Cell percentages are calculated by total weighted population and add up to 100 per cent.

The total number of responding couples was 2,180.

Source: 2001 HILDA survey.

Similar to the desire to have children, the majority of women and their partners who said they were definitely not likely to have a child or another child in the future had borne two or more children. Like the desire for children, only a very small proportion of young couples without children agreed that they were definitely not likely to have a child or another child in the future—2.2 per cent (see Appendix Table A3).

As with the desire to have children, the majority of those who said that they were definitely likely to have a child or another child had no children or only one child. The pattern observed between fertility expectations (likelihood of having children) and number of children born held for women and for partners. There was a negative relationship between the likelihood of having children and the number of children born, as measured by Pearson correlation of  $-0.53$ .

As with desire to have children, the proportion of couples who agreed that there was a strong likelihood of having a child or another child in the future (scores 8–10) is highest for women

aged 18–34 years and their partners who have no children or only one child (see the diagonals in Appendix Table A3). By contrast where the woman was aged 35–44 years, the proportion of couples who agreed that there was a strong likelihood of having a child or another child in the future (scores 8–10) according to number of children born was small (see Appendix Table A4).

A substantial proportion of couples (28 per cent) had incongruent expectations on having children in the future. Appendix Table A5 shows that women and partners in couples with congruent expectations (same scores) and incongruent expectations (different scores) had different characteristics. There are also differences in characteristics between women in congruent and incongruent couples (see columns 1 and 3). Compared to women in congruent couples, those women in incongruent couples:

- were younger (39.0 per cent less than 30 years compared with 21.5 per cent)
- were more likely to have no children (39.8 per cent compared with 21.1 per cent)
- were more highly educated (39.9 per cent had diploma or higher education versus 32.1 per cent)
- were more likely to be in full-time than part-time employment (38.9 per cent compared with 33.5 per cent)
- were less likely to be legally married (62.5 per cent versus 83.7 per cent) (results not shown in table)
- were less likely to be in their first marriages (43.6 per cent versus 47.8 per cent)
- De facto women said that they were not sure or that they were unlikely or very unlikely to marry their current partner, 42.4 per cent, compared to 37.3 per cent
- De facto women had shorter current relationship duration, 42.7 per cent were in relationship for two years or less versus 37.0 per cent.

Members of incongruent couples (women and partners) had different characteristics (see columns 1 and 2 of Appendix Table A5). When partners in incongruent couples were compared to women, it was found that partners:

- were older
- had more children
- had married two or more times
- had lower qualifications
- were more likely to have long-term health problems
- were more likely to be in full-time employment
- thought they were more likely or highly likely to marry their current de facto partners, and
- had two or more previous de facto relationships.

## 5. Comparison of fertility desires and expectations

It is expected that higher fertility desires would be associated with higher fertility expectations and vice versa. The association between fertility desires and expectations is demonstrated in Appendix Table A6 for women aged 18–44 years. For the majority of women, 78.6 per cent, their fertility desires were consistent with their fertility expectations. The results in Appendix Table A6 show that high fertility desires (scores 8–10) were matched by high fertility expectations (scores 8–10) if women had no children or had only one child. Similarly there was a match between very low fertility desires and very low fertility expectations particularly if women already had two or more children.

For example, 37.2 per cent of women without children and 32.5 per cent of those with one child who definitely wanted to have a child (score 10) also said that they were definitely likely to have a child (see Appendix Table A6). This figure dropped to 4.0 per cent if they had two or more children. By contrast, the proportion of women who definitely did not want to have a child and who also said they definitely did not expect to have a child increased with the number of children.

The agreement between women's fertility desires and expectations was very high (weighted Kappa = 82.1 per cent, table not shown). However, about one-quarter of women had inconsistent fertility desires and expectations. These women had similar characteristics to women in couples with incongruent expectations described in the preceding section. Compared with women with consistent fertility desires and expectations, women with inconsistent fertility desires and expectations were:

- ▶ much younger—less than 30 years of age (61.4 per cent versus 47.6 per cent)
- ▶ more likely to be in de facto relationships (33.2 per cent versus 19.8 per cent)
- ▶ more likely to have no children
- ▶ more likely to be employed particularly full-time, and
- ▶ more highly educated (table not shown).

## 6. Couples' fertility intentions by number of children born

The analysis in this section focuses on couples where both women and their partners said that they expected to have a child or another child and looks at how many children they intended to have according to the number of children they already had. Readers should note the limitation of the intentions data when interpreting these results. HILDA survey designers arbitrarily decided that only those who returned scores of 6 to 10 on the question 'how likely are you to have children in the future?' be asked to state the number of additional children they intended to have. Thus those with scores of 5 or less who may have intended to have children in the future were not asked about their intentions. It is certainly possible that those with borderline scores of 4 and 5 might have intended to have children.<sup>6</sup>

The majority of couples that intended to have children (scores 6–10 on the likelihood question) had no children (55.6 per cent) or only one child (24.7 per cent). Those with two or more children comprised 9.6 per cent of couples that intended to have children, and a further 10.1 per cent were couples with different numbers of children.

As expected, most of the couples intending to have children (91 per cent) were women aged 18–34 years and their partners (table not shown). Women aged 18–34 years and their partners without children or with only one child comprised 76 per cent of all couples that intended to have children (54 per cent were those without children and 22 per cent with one child).

Table 5 shows the number of children women aged 18–34 years intended to have against the number of children their partners intended to have, based on the number of children the couple already had. The salient results are described below.

- ▶ The majority of women aged 18–34 years and their partners with no children intended to have two or more children.
- ▶ There was a higher level of agreement among couples with two or more children on the number of children intended (77.4 per cent) than couples without children or one child (see the diagonals).
- ▶ The common number of children intended is dependent upon the number of children the couple already had: two if the couple had no children, one if the couple had at least one child, and one or two children if each member of the couple had different numbers of children.

**Table 5** Couples intending to have children by number of children intended: women aged 18–34 years and their partners by couples' number of children

Number of children intended by couple's number of children	Partner: number of children intended			% of women
	1	2	3+	
<b>Women</b>				
<b>Couple: no child</b>				
1	<b>2.8</b>	4.9	0.7	8.4
2	2.9	<b>47.2</b>	9.5	59.6
3+	0.0	14.3	<b>17.7</b>	32.0
<b>% of partners</b>	5.7	66.4	27.9	100.0
<b>Couple: 1 child</b>				
1	<b>45.8</b>	13.8	1.3	60.9
2	13.3	<b>15.9</b>	2.1	31.3
3+*	0.6	1.3	<b>5.9</b>	7.8
<b>% of partners</b>	59.7	31.0	9.3	100.0
<b>Couple: &gt;2 children</b>				
1	<b>61.7</b>	10.1	0.0	71.8
2	10.1	<b>14.2</b>	0.0	24.3
3+*	2.4	0.0	<b>1.5</b>	3.9
<b>% of partners</b>	74.2	24.3	1.5	100.0
<b>Couple: different number of children</b>				
1	<b>23.6</b>	7.4	3.5	34.5
2	13.9	<b>27.9</b>	10.4	52.2
3+*	3.5	6.2	<b>3.6</b>	13.3
<b>% of partners</b>	41.0	41.5	17.5	100.0

Note: This table is based on population-weighted analysis.

The actual number of couples that intended to have children was 290 couples without a child, 134 couples with one child, 49 couples with two or more children and 54 couples with different numbers of children.

\* The number of couples that intended to have three or more children is small.

Source: 2001 HILDA survey.

**Table 6** Women's and partner's agreement on the intended number of children by couples' number of children

Statistic	Value	Asymptotic Standard Error	95% confidence limits	
Weighted Kappa				
Couple: no child	0.4019	0.0014	0.3991	0.4047
Couple: 1 child	0.4611	0.0023	0.4566	0.4656
Couple: >2 children	0.4420	0.0047	0.4343	0.4512
Couple: different number of children	0.2914	0.0033	0.2849	0.2978

## 7. Expected completed fertility and childlessness

The distribution of women aged 18–44 years and their partners by number of children intended according to the number of children ever born and women's age group can be used to estimate completed fertility<sup>7</sup> and lifetime childlessness<sup>8</sup> for cohorts with currently incomplete fertility, as shown in Table 7. The proportion of women and partners intending to have one child or additional children and the mean number of children intended are also shown in this table (columns 2 and 3).

The results show that while more than half of women aged 18–34 years and their partners intended to have a child or another child, only about 7.0 per cent of women aged 35–44 years and their partners intended to do so. Of women aged 18–34 years without children, 78.5 per cent intended to have children with a mean of 2.32 children. The corresponding figures for women aged 35–44 years were 18.7 per cent and 1.66 children respectively.

In general the proportion of partners intending to have children and the mean number of children intended, according to number of children born, were comparable with that of women. However, there were some small differences between the subgroups of women and partners. The proportion of those without children that intended to have children was slightly higher for partners than for women in both age groups, while the reverse was true for those with one child. Furthermore among women aged 35–44 years and their partners, the mean number of children that partners intended to have was higher than that of women irrespective of the number of children born.

**Table 7** Percentage of women aged 18–44 years and their partners intending to have additional children, mean number of children intended, expected completed fertility and childlessness by age group and number of children ever born

Age group/number of children ever born	% intending to have children	Mean number of children intended	Expected completed fertility	Expected childlessness (%)
<b>18–34 years</b>				
<b>Women (MNCEB=1.10)</b>				
No child	78.5	2.32	1.82	
One child	69.9	1.49	2.04	
Two children	25.7	1.26	2.32	
Three or more children	16.2	1.50	3.73	
<b>Total</b>	<b>57.3</b>	<b>2.01</b>	<b>2.25</b>	<b>9.6</b>
<b>Partner (MNCEB=1.15)</b>				
No child	81.7	2.32	1.89	
One child	68.4	1.56	2.07	
Two children	25.3	1.39	2.35	
Three or more children	14.2	1.47	3.81	
<b>Total</b>	<b>57.4</b>	<b>2.00</b>	<b>2.30</b>	<b>7.8</b>
<b>35–44 years</b>				
<b>Women (MNCEB=2.27)</b>				
No child	18.7	1.66	0.31	
One child	22.7	1.24	1.28	
Two children	3.2	1.15	2.04	
Three or more children	3.9	1.12	3.54	
<b>Total</b>	<b>7.5</b>	<b>1.31</b>	<b>2.37</b>	<b>7.3</b>
<b>Partner (MNCEB=2.26)</b>				
No child	20.0	2.40	0.48	
One child	18.4	1.42	1.26	
Two children	4.7	1.35	2.06	
Three or more children	2.5	1.43	3.57	
<b>Total</b>	<b>7.2</b>	<b>1.68</b>	<b>2.38</b>	<b>8.2</b>

Note: This table is based on population-weighted analysis.

MNCEB = mean number of children borne by women or partners of a given age group.

Source: 2001 HILDA survey.

The levels of completed fertility and childlessness that would be achieved when each age group completes its fertility were estimated by combining information on the number of children ever born with the number of children women and partners intended to have. These figures are based on the assumption that those women and partners who intended to have more children would achieve their number of children intended in their remaining reproductive life span. The method of calculating completed cohort fertility used in this paper differs from the usual method, which is to add the fertility already achieved by women of a given age and the last observed cross-sectional fertility rates at each age above that given age to arrive at an estimate of completed fertility (McDonald 2000, pp. 7–10; Sardon 2004, p.295). The usual method assumes that fertility rates remain constant and tends to underestimate completed fertility because cross-sectional fertility rates at older ages are increasing.

In aggregate, the estimates of completed fertility and childlessness for men and women are remarkably close. Women currently aged 18–34 years had on average 1.10 children. If their number of children intended materialises, they would have 2.25 children when they complete their fertility. Though, as a group, the 18–34 year old women would achieve replacement fertility unlike those without children at the time of the survey. The completed fertility of those aged 18–34 years without children would be 1.82 children, compared with 2.04 children for those with one child. The results for their partners were similar. However, these results require qualification. This does not mean that all young women who at the time of the survey had no children would not achieve replacement fertility, as the majority of those who intended to have children wanted more than two children. But the estimated average completed fertility of the whole group is reduced because a significant proportion (21.5 per cent) said they did not intend to have any children.

As a group, women aged 35–44 years and partners without children would not even achieve one child. This is presumably because the fertility intentions of this group have been modified by their life experiences and circumstances and that those women aged 40–44 had very little potential reproductive life left.

The extent of childlessness for women aged 35–44 years was 7.3 per cent and 8.2 per cent for their partners. The extent of childlessness for women aged 18–34 years in 2001 would be 9.6 per cent. The corresponding figure for their partners was 7.8 per cent. HILDA estimates of the expected extent of lifetime childlessness for members of couples or all women aged 20–24 years in 2001 were lower than that of Australian Bureau of Statistics (ABS) estimates (Tesfaghiorghis 2005, pp. 93, 99).

However, there are important caveats with these estimates. First, the preceding analyses have shown a considerable mismatch between the number of children women and their partners intended to have. Thus it cannot be assumed that each member of every couple would be able to have the number of children they intended to have, given that in some couples each partner intended to have different numbers of children. Some women or partners may have fewer children than they intended to have while others may achieve their intentions despite their partners having different intentions. Second, as noted already there is a limitation on the fertility intentions data, as HILDA survey designers decided to ask only those they regarded as likely to have children. Third, it may be more difficult for 18–34 year olds to achieve their intentions in their current partnership than 35–44 year olds, as a significant proportion of the younger group are in de facto relationships. These tend to be less stable than legal married relationships (Weston et al. 2004, p. 8). However, it is

also possible that these young people may fulfil their fertility intentions if the current relationship is legalised or if it breaks up and the partners move onto a more stable relationship. It is also possible that they can have children in unstable relationships or outside of relationships. Thus the estimates of completed fertility and childlessness for those with incomplete fertility, given in the last two columns of Table 7, should only be taken as ideal for each group of women and partners.

Given the mismatch between women and partners on the numbers of children they intended to have, estimates of completed fertility for couples were also undertaken using different assumptions as to whose fertility intentions (women or their partners) materialised so as to indicate the range of future fertility outcomes. Estimates of completed fertility are calculated according to women's age group and number of children ever borne by each member of the couple. The following hypothetical assumptions of fertility intention outcomes were made to arrive at different scenarios of completed fertility:

- ▶ The couple had the number of children the woman intended to have.
- ▶ The couple had the number of children the partner intended to have.
- ▶ The couple had the mean number of children the woman and her partner intended to have.
- ▶ Fertility intentions of the member of the couple with lower intentions materialised (refer to the 'lower' column in Table 8). Where fertility intentions were not congruent, outcomes were determined by the number of children intended by the person with lower fertility intentions. Where intentions were congruent, the fertility outcome was determined by the number of children the couple intended to have.
- ▶ Fertility intentions of the member of the couple with higher intentions materialises (refer to the 'higher' column in Table 8). Where fertility intentions were not congruent, outcomes were determined by the number of children intended by the person with higher fertility intentions. Where intentions were congruent, the fertility outcome was determined by the number of children the couple intended to have.

Table 8 shows the results for different types of couples<sup>9</sup> classified according to number of children ever born. Data for each type of couple as a proportion of total couples by women's age groups is shown in the last column of Table 8. The results presented give the completed fertility of the couple as a whole. The key results are summarised below.

- ▶ If the couple had at least one child or had the same numbers of children, the estimates of completed fertility are similar when based on the intentions of either the woman or the partner (that is, women and their partners in these couples had similar intentions).
- ▶ Couples with different numbers of children or without children had different intentions and the estimates of completed fertility vary accordingly.
- ▶ The completed fertility estimates were less sensitive to changes in the assumptions for couples that had the same numbers of children.
- ▶ While the estimates of completed fertility for couples where the woman was aged 18–34 years, as a group, vary from 2.12 to 2.60 children, there was little variation for women aged 35–44 years and their partners.

**Table 8** Estimates of couples' completed fertility under different assumptions of number of children intended by age group of women and number of children ever born by couple

Age group/ number of children born by couple	Intention assumptions					% of couples*
	Women's	Partners'	Mean	Lower	Higher	
<b>18–34 years</b>						
Couple each						
– without children	1.79	1.85	1.82	1.56	2.30	39.85
– with 1 child	2.08	2.07	2.07	1.87	2.27	18.40
– with 2 children	2.30	2.26	2.28	2.18	2.38	17.14
– with 3 children	3.17	3.18	3.17	3.10	3.25	6.15
– with 4 or more children (4.55)	4.76	4.85	4.81	4.76	4.85	2.51
Woman=0 and partner ≥ 1 child (1.83)	3.25	2.94	3.09	2.80	3.39	4.63
Partner=0 and woman ≥ 1 child (1.78)	2.53	2.85	2.69	2.37	3.01	2.43
Woman=1 and partner ≥ 2 children (2.6)	3.13	3.10	3.11	2.97	3.26	1.77
Partner=1 and woman ≥ 2 children (2.59)	2.80	2.91	2.86	2.80	3.00	2.30
Other (3.33)	3.65	3.54	3.59	3.47	3.72	4.82
Group mean and total couples	2.31	2.32	2.32	2.12	2.60	100.00
<b>35–44 years</b>						
Couple each						
– without children	0.38	0.45	0.41	0.31	0.52	5.83
– with 1 child	1.31	1.32	1.31	1.22	1.41	8.95
– with 2 children	2.04	2.06	2.05	2.03	2.07	32.86
– with 3 children	3.03	3.02	3.02	3.01	3.03	19.05
With 4 or more children (4.38)	4.41	4.40	4.40	4.40	4.42	10.50
Woman=0 and partner ≥ 1 child (2.38)	2.55	2.51	2.53	2.46	2.61	3.51
Partner=0 and woman ≥ 1 child (1.88)	2.04	2.13	2.09	2.01	2.16	4.32
Woman=1 and partner ≥ 2 children (2.81)	2.95	2.95	2.95	2.95	2.95	2.46
Partner=1 and woman ≥ 2 children (2.76)	2.83	2.84	2.84	2.79	2.89	3.23
Other (3.19)	3.22	3.20	3.21	3.20	3.23	9.29
Group mean and total couples	2.49	2.50	2.49	2.46	2.53	100.00

Note: This table is based on population-weighted analysis.

\* The actual number of couples where the woman was aged 18–34 years was 1,216 and 1,220 where the woman was aged 35–44 years.

Source: 2001 HILDA survey.

## 8. When to have the next child?

In the 2002 HILDA survey, women and partners who intended to have children were asked 'in which year do you intend to have a/your next child?'. While more than half of those who intended to have one child or two children were sure about the exact year in which they intended to have the next child, a relatively large proportion were unsure about the exact year but indicated the time range, and a small proportion were unable to answer the question. Table 9 presents the distribution of women aged 18–44 years and partners who intended to have children by when they intended to have them and the number of children intended. The main results are summarised below.

- ▶ If women and partners intended to have one child (or one more child), 57.4 per cent of women and 52.3 per cent of partners specified an exact year (between 2002–05) when they intended to have the next child.<sup>10</sup> However, the proportion intending to have the next child in the next three years declined with the number of children intended.
- ▶ If those who said 'don't know but within the next two years' and those who specified an exact year in the period 2002–05 are combined, 84.0 per cent of women and 76.0 per cent of partners who intended to have one child (or one more child) will do so in the in the next three years.
- ▶ The higher the number of children intended, the higher the proportion of women and partners who specified a longer duration or a vague answer as to when they intended to have the next child (that is, 2006 or later and 'don't know but within the next 3–5 years' plus '6 years+/unsure').

In conclusion the time when women or partners intended to have the next child is dependent on the number of children intended. If they intended to have only one child (or one more child), they were likely to intend to have the next child sooner rather than later, within the next three years. Even for those who intended to have two or more children, however, close to 60 per cent of both women and partners intended to have the next child sooner rather than later, that is, within the next three years.

These findings are consistent with the AIFS Fertility Decision Making Project. In the AIFS study, about one-half of men and two-thirds of women aged 20–39 years who intended to have children expected to have their first child or one additional child within the next three years (Weston et al. 2004, pp. 93–5). The AIFS survey, however, did not ask the time frame according to the number of children intended.

**Table 9 Women aged 18–44 years and partners who intended to have children (or more children) by when they intended to have them and number of children intended**

Year to have the next child	Women: number of children intended			Partners: number of children intended		
	1	2	3+	1	2	3+
2002–05	57.4	45.5	44.8	52.3	42.5	42.9
2006 or later	2.0	5.8	7.0	1.8	10.0	3.1
Don't know but within the next:						
2 years	26.6	13.1	14.1	23.7	15.8	15.0
3–5 years	10.0	23.7	23.7	12.7	22.0	33.7
6 years+/ unsure	4.0	11.9	10.4	9.5	9.7	5.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Sample size	229	299	132	211	277	113

Note: This table is based on population-weighted analysis.

Source: 2002 HILDA survey.

For women aged 18–44 years and their partners who intended to have a child or to have another child, the year in which they intended to have that child is also dependent on the number of children they already had. The results in Table 10 are limited to women and partners without children or with only one child, as the numbers of those with two or more children who intended to have more children were small.

The key result is that if women or partners had no children, the year they intended to have their first child is further in the future than if they already had one child, irrespective of the number of children they intended to have. A higher proportion of women and partners without children than those with one child said that they 'don't know but within the next 3–5 years' plus '6 years+/unsure' when asked about which year they intended to have their first child. This probably reflects the fact that those without children are younger, have more potential years of child-bearing ahead of them, have not yet formed stable relationships or have just formed such relationships. This could be investigated in further work using HILDA survey data.

These results confirm the AIFS finding that parents were more likely than those without children to expect to have a child or the next child within the next three years (Weston et al. 2004, pp. 94–5). The AIFS study explained this difference by saying that those without children tended to be younger and were more likely to be single.

**Table 10 Women aged 18–44 years and partners who intended to have children (or more children) by when they intended to have them by number of children ever born and number of children intended**

Number of children/year to have the next child	Women: number of children intended			Partners: number of children intended		
	1	2	3+	1	2	3+
<b>Without children</b>						
2002–05	45.2	43.2	41.1	45.3	39.8	39.3
2006 or later	5.4	5.8	7.7	0.0	11.7	2.5
Don't know but within the next:						
2 years	30.5	10.9	14.5	30.9	14.8	13.6
3–5 years	15.1	26.3	25.2	7.4	22.1	39.5
6+ years/unsure	3.8	13.8	11.5	16.8	11.6	5.1
Total %	100.0	100.0	100.0	100.0	100.0	100.0
Sample size	44	229	120	41	219	92
<b>With one child</b>						
2002–05	61.6	52.0	77.8	50.9	53.3	65.9
2006 or later	1.1	3.6	0.0	1.7	0.0	6.7
Don't know but within the next:						
2 years	21.5	30.9	11.5	25.8	23.5	14.3
3–5 years	9.8	10.0	10.7	12.4	23.2	13.1
6+ years/unsure	6.0	3.5	0.0	9.2	0.0	0.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0
Sample size	113	42	8	103	43	15

Note: This table is based on population-weighted analysis.

Source: 2002 HILDA survey.

## 9. Conclusion

The analysis found that most women aged 18–44 years and their partners had the same number of children or did not have any children. However, it also found that a substantial proportion of couples (19.3 per cent) had different numbers of children; 16 per cent of couples where women were aged 18–34 years and 23 per cent of couples where women were aged 35–44 years.

The study found that in a majority of couples there was agreement between women aged 18–44 years and their partners about the desire to have children, or to have more children if they

already had one or more children. However in a relatively large proportion of cases (37.6 per cent) there was no concordance. In a small proportion of couples, women said they would definitely not like to have (more) children but their partners wanted to have (more) children. Similarly, a small proportion of women said they definitely wanted to have (more) children but their partners did not.

In a large proportion of all couples, both women and partners agreed that they did not want to have (more) children in the future. The majority of these couples had two children or more and had probably decided they had enough children. By contrast, the majority of couples who definitely wanted children either did not have any children or only had one child, while the proportion of couples with two or more children who wanted more children were relatively low.

There was a much higher level of agreement between members of a couple about the expectation of having children than the desire to have children, suggesting that some deliberate compromising occurs between members of a couple. Like the desire to have children, the expectation of having children is affected by the number of children the couple already had. It was found that the desire to have children and the perceived likelihood of having children in the future was only strong for 18–34 year old women and their partners without children or with only one child. Furthermore, the proportion of 18–34 year old women and their partners without children who both agreed that they definitely did not want to have children or that they were definitely not likely to have children in the future was very small, less than 3.0 per cent.

The study also found that when women with inconsistent fertility desires and expectations were compared to those with consistent fertility desires and expectations, the former group were found to be much younger, more highly educated, more likely to be in de facto relationships, more likely to have no children, and to be employed, particularly full-time.

The analysis found that there were differences in characteristics between women and partners in couples with both congruent and incongruent expectations about having children in the future. These differences in their characteristics may be one reason for couples having different expectations in the future.

Comparisons of the characteristics of women and partners in couples with inconsistent expectations about having children in the future showed that partners were older, had two or more previous de facto relationships, had more children, had lower educational qualifications, were more likely to have long-term health problems and were more likely to be employed, particularly full-time.

Women aged 18–44 years and partners who said they were likely to have children in the future were then asked to state the number of children they intended to have. Where women and their partners agreed that they were likely to have children in the future, there was a relatively high level of mismatch between them in the number of children they intended to have. The agreement between women and their partners on the number of children intended was weaker than that of desires and expectations about having children.

The relationship between women and their partner's number of children intended is dependent on the woman's age and number of children ever born. The majority of women and partners without children intended to have two or more children. There was a higher level of agreement among couples with two or more children on the number of children intended than couples without

children or one child. The analysis also found that women and partners with no children, the common number of children intended was two. This is irrespective of the woman's age. However, if they already had one child or more, the common number of children they intend to have was one more child.

Estimates of completed fertility for women aged 18–34 years and their partners, based on their number of children intended and children ever born, indicate that they would achieve more than replacement fertility (more than 2.06 children). However, women and partners without children, as a group, would not achieve replacement fertility irrespective of age. Women aged 35–44 years and partners with only one child, as a group, would also not achieve replacement fertility.

An important caveat to this analysis, however, is that not all women and partners will achieve their intended number of children because of the level of mismatch between couples in this regard, as well as the downward revision of expectations and intentions with age through circumstances and experience.

Because of the mismatch in fertility expectations and intentions between members of couples, different scenarios of fertility intentions were used to estimate couples' future completed fertility. The estimates were only sensitive to different assumptions for couples without children, couples with one child or those couples who had different numbers of children.

This study examined when women and partners, who intended to have children, intended to have a child or their next child. The findings were that the year in which women or partners intended to have the next child is sooner rather than later (next three years) if they intended to have only one child (or one more child). It was also found that the year when women and partners without children intended to have their first child is further in the future than if they already had children.

The study found a considerable mismatch between members of a couple in terms of desires, expectations and intentions to have children. This may indicate current or future problems with the stability and/or quality of their relationships. The AIFS survey found lack of stable relationships and secure and adequate income was an important factor in men and women not being able to have the children they wanted (Weston et al. 2004).

In terms of future analysis, the HILDA survey provides an opportunity to study the congruence of partners' future fertility desires, expectations and intentions according to a broad range of demographic and socioeconomic variables. Although the HILDA survey did not collect information on how couples make fertility decisions, it may provide some insight on whether fertility intentions materialise and future courses of fertility.

# Appendix A

**Table A1 'Would you like to have children' scores of women aged 18–34 years and their partners (%) by couple's number of children**

Couple's number of children/ women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
<b>No children</b>							
0	<b>2.3</b>	0.7	0.5	1.4	0.0	0.5	5.3
1–3	0.3	<b>1.5</b>	1.2	0.7	0.7	0.3	4.7
4–5	0.2	0.7	<b>1.3</b>	3.1	1.4	1.1	7.8
6–7	0.0	0.6	0.9	<b>2.6</b>	2.1	2.9	9.1
8–9	0.0	0.8	0.8	3.0	<b>7.0</b>	5.4	17.0
10	0.5	1.0	2.8	3.9	10.5	<b>37.4</b>	56.1
<b>% of partners</b>	3.3	5.4	7.4	14.7	21.7	47.5	100.0
<b>One child</b>							
0	<b>4.8</b>	0.7	0.4	0.7	0.0	0.4	7.0
1–3	0.3	<b>2.6</b>	1.3	1.2	0.9	1.7	8.0
4–5	0.3	2.2	<b>2.4</b>	1.0	0.3	3.0	9.2
6–7	0.9	0.5	1.1	<b>1.9</b>	1.4	2.1	7.9
8–9	1.0	0.5	3.1	0.7	<b>3.0</b>	4.4	12.7
10	0.9	0.9	2.9	4.1	11.9	<b>34.6</b>	55.3
<b>% of partners</b>	8.3	7.3	11.2	9.5	17.6	46.1	100.0
<b>&gt;2 children</b>							
0	<b>43.8</b>	3.4	2.4	1.2	0.9	2.2	53.9
1–3	5.4	<b>3.0</b>	2.0	1.2	0.2	0.4	12.2
4–5	1.9	2.4	<b>2.1</b>	0.7	0.5	1.6	9.2
6–7	2.7	1.0	0.4	<b>0.7</b>	0.4	0.8	6.0
8–9	0.5	1.0	0.7	1.9	<b>1.2</b>	1.0	6.3
10	1.8	0.9	0.7	0.8	0.4	<b>7.8</b>	12.4
<b>% of partners</b>	56.1	11.6	8.3	6.5	3.7	13.8	100.0
<b>Different number of children</b>							
0	<b>19.8</b>	0.5	3.2	2.9	1.7	0.0	28.1
1–3	2.2	<b>0.0</b>	2.6	0.0	0.8	0.0	5.6
4–5	1.6	0.0	<b>4.0</b>	1.5	0.8	2.3	10.2
6–7	0.9	0.9	1.6	<b>0.9</b>	1.9	0.7	6.9
8–9	1.5	0.0	2.0	4.3	<b>1.2</b>	3.7	12.7
10	2.4	0.8	2.3	5.1	3.7	<b>22.3</b>	36.6
<b>% of partners</b>	28.3	2.1	15.6	14.8	10.2	29.0	100.0

Note: This table is based on population-weighted analysis.

Row and column totals are rounded and may not add to total figures.

The actual numbers of couples were 386 without children, 201 with one child, 389 with two or more children and 129 with different numbers of children. Of the couples with different numbers of children, there were 104 missing cases.

Source: 2001 HILDA survey.

**Table A2 'Would you like to have children' scores of women aged 35–44 years and their partners (%) by couple's number of children**

Couple's number of children/ women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
<b>No children</b>							
0	<b>23.0</b>	10.6	1.1	1.7	0.0	0.0	36.4
1–3	8.3	<b>2.2</b>	5.3	0.0	0.0	0.0	15.8
4–5	0.0	1.7	<b>2.8</b>	0.0	2.0	0.0	6.5
6–7	0.0	2.4	0.0	<b>1.3</b>	2.9	0.0	6.6
8–9	0.0	0.0	0.0	0.0	<b>9.9</b>	1.8	11.7
10	3.3	0.0	3.1	0.0	8.3	<b>8.3</b>	23.0
<b>% of partners</b>	34.6	16.8	12.4	3.0	23.1	10.1	100.0
<b>One child</b>							
0	<b>43.6</b>	4.3	0.0	3.0	3.3	0.9	55.1
1–3	6.6	<b>1.3</b>	1.2	0.0	0.0	0.0	9.1
4–5	2.5	0.6	<b>1.1</b>	0.0	0.0	2.7	7.0
6–7	0.5	1.1	0.0	<b>3.5</b>	0.0	1.9	7.0
8–9	0.8	0.0	0.0	0.0	<b>2.2</b>	0.0	3.0
10	0.9	0.0	2.3	2.0	1.7	<b>11.9</b>	18.8
<b>% of partners</b>	54.9	7.4	4.6	8.4	7.2	17.5	100.0
<b>&gt;2 children</b>							
0	<b>71.8</b>	5.7	2.2	1.2	0.8	0.9	82.6
1–3	3.1	<b>1.8</b>	0.7	0.4	0.4	0.0	6.5
4–5	1.0	0.5	<b>0.6</b>	0.2	0.1	0.1	2.5
6–7	1.0	0.2	0.3	<b>0.8</b>	0.1	0.3	2.7
8–9	0.6	0.6	0.2	0.1	<b>1.0</b>	0.5	2.9
10	0.9	0.2	0.0	0.1	0.5	<b>1.1</b>	2.8
<b>% of partners</b>	78.3	9.0	4.0	2.9	2.9	2.9	100.0
<b>Different number of children</b>							
0	<b>50.0</b>	5.8	5.5	0.0	1.5	1.0	63.8
1–3	0.6	<b>0.0</b>	1.8	0.0	0.0	1.1	3.6
4–5	2.8	2.0	<b>3.7</b>	0.0	0.0	0.0	8.4
6–7	1.5	1.1	2.5	<b>1.0</b>	0.0	1.2	7.3
8–9	2.0	1.1	0.0	0.0	<b>0.7</b>	0.7	4.5
10	0.6	0.0	1.8	0.0	2.7	<b>7.3</b>	12.4
<b>% of partners</b>	57.5	9.9	15.3	1.0	5.0	11.3	100.0

Note: This table is based on population-weighted analysis.

Row and column totals are rounded and may not add to total figures.

The actual numbers of couples were 61 without children, 92 with one child, 792 with two or more children and 130 with different numbers of children. Of the couples with different numbers of children, there were 121 missing cases.

Source: 2001 HILDA survey.

**Table A3 'How likely are you to have (a child/more children) in the future?': scores of women aged 18–34 years and their partners (%) by couple's number of children**

Couple's number of children/ women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
<b>No children</b>							
0	<b>2.2</b>	1.2	0.0	1.4	0.2	0.5	5.5
1–3	0.0	<b>2.1</b>	1.3	0.5	0.8	0.4	5.1
4–5	0.4	0.9	<b>4.2</b>	1.8	0.6	1.5	9.4
6–7	0.0	0.5	1.0	<b>3.5</b>	2.3	1.4	8.7
8–9	0.2	0.2	0.0	3.6	<b>11.0</b>	8.3	23.3
10	0.3	0.2	1.2	2.7	9.2	<b>34.4</b>	48.0
<b>% of partners</b>	3.1	5.1	7.7	13.4	24.1	46.6	100.0
<b>One child</b>							
0	<b>5.5</b>	0.2	1.3	0.0	0.0	0.0	7.0
1–3	0.7	<b>4.5</b>	1.8	0.5	0.9	0.4	8.8
4–5	0.0	1.0	<b>5.2</b>	2.3	0.4	0.9	9.8
6–7	0.0	0.0	2.7	<b>3.7</b>	0.9	0.0	7.3
8–9	0.6	0.4	0.4	2.9	<b>7.8</b>	4.3	16.4
10	1.3	0.5	1.5	2.2	6.4	<b>38.8</b>	50.7
<b>% of partners</b>	8.0	6.5	12.9	11.7	16.5	44.4	100.0
<b>&gt;2 children</b>							
0	<b>49.1</b>	5.3	1.8	1.4	0.3	0.2	58.1
1–3	5.9	<b>4.5</b>	1.0	0.2	0.0	0.0	11.6
4–5	1.5	3.3	<b>3.1</b>	1.0	0.2	0.8	10.0
6–7	1.5	1.0	0.9	<b>1.5</b>	0.4	0.3	5.6
8–9	0.0	0.5	1.8	1.1	<b>0.6</b>	0.5	4.5
10	0.3	0.3	0.6	0.6	0.9	<b>7.6</b>	10.2
<b>% of partners</b>	58.3	14.9	9.2	5.8	2.4	9.4	100.0
<b>Different number of children</b>							
0	<b>19.8</b>	1.8	3.3	0.8	0.7	0.0	26.4
1–3	2.7	<b>2.8</b>	3.9	0.0	0.9	0.0	10.3
4–5	1.8	1.6	<b>5.7</b>	0.9	2.6	1.4	14.0
6–7	0.0	0.0	0.8	<b>0.7</b>	1.4	0.8	3.7
8–9	1.5	0.0	1.6	4.9	<b>2.0</b>	2.4	12.3
10	0.0	0.0	2.2	2.7	4.3	<b>24.1</b>	33.3
<b>% of partners</b>	25.8	6.1	17.5	10.0	11.8	28.8	100.0

Note: This table is based on population-weighted analysis.

Row and column totals are rounded and may not add to total figures.

Source: 2001 HILDA survey.

**Table A4 'How likely are you to have (a child/more children) in the future?' Scores of women aged 35–44 years and their partners (%) by couple's number of children**

Couple's number of children/ women's scores	Partners' scores						% of women
	0	1–3	4–5	6–7	8–9	10	
<b>No children</b>							
0	<b>35.5</b>	6.3	1.6	0.0	0.0	0.0	43.4
1–3	6.0	<b>6.7</b>	2.0	0.0	0.0	0.0	14.8
4–5	2.0	0.0	<b>12.0</b>	4.7	1.7	0.0	20.4
6–7	0.0	0.0	1.6	<b>3.1</b>	0.0	1.8	6.4
8–9	0.0	0.0	0.0	0.0	<b>7.2</b>	0.0	7.2
10	0.0	0.0	1.5	0.0	4.2	<b>2.1</b>	7.8
<b>% of partners</b>	43.5	13.0	18.7	7.8	13.1	3.9	100.0
<b>One child</b>							
0	<b>55.1</b>	4.6	0.0	1.8	1.0	0.0	62.5
1–3	6.9	<b>2.4</b>	1.1	0.0	0.0	0.0	10.4
4–5	0.5	0.0	<b>0.0</b>	1.3	1.0	0.0	2.8
6–7	0.0	0.0	2.1	<b>2.1</b>	0.0	0.6	4.8
8–9	0.9	0.0	0.0	0.0	<b>2.2</b>	1.2	4.3
10	0.0	0.8	0.8	1.0	3.9	<b>8.7</b>	15.2
<b>% of partners</b>	63.4	7.7	4.0	6.2	8.1	10.6	100.0
<b>&gt;2 children</b>							
0	<b>81.7</b>	4.9	0.4	0.3	0.0	0.2	87.5
1–3	2.7	<b>4.1</b>	0.2	0.1	0.0	0.0	7.0
4–5	0.4	0.5	<b>0.6</b>	0.1	0.2	0.0	1.8
6–7	0.3	0.2	0.2	<b>0.3</b>	0.4	0.1	1.5
8–9	0.0	0.1	0.3	0.1	<b>0.2</b>	0.5	1.2
10	0.0	0.1	0.0	0.0	0.1	<b>0.7</b>	0.9
<b>% of partners</b>	85.1	9.9	1.8	0.9	0.9	1.4	100.0
<b>Different number of children</b>							
0	<b>62.1</b>	7.0	0.8	0.0	0.0	0.0	69.9
1–3	3.0	<b>5.7</b>	2.5	0.9	0.0	0.0	12.1
4–5	0.0	1.1	<b>3.5</b>	1.3	0.0	0.0	5.8
6–7	1.0	0.0	0.0	<b>0.8</b>	0.0	0.0	1.8
8–9	0.0	0.0	0.0	0.6	<b>0.7</b>	0.0	1.3
10	0.0	0.0	2.3	0.0	0.7	<b>5.9</b>	9.0
<b>% of partners</b>	66.1	13.8	9.1	3.6	1.5	5.9	100.0

Note: This table is based on population-weighted analysis.

Row and column totals are rounded and may not add to total figures.

Source: 2001 HILDA survey.

**Table A5 Comparison of members in incongruent and congruent couples by selected characteristics**

Selected characteristics	Incongruent couples		Congruent couples	
	Women	Partner	Women	Partner
<b>Age group</b>				
18–24	17.3	8.9	6.8	3.8
25–29	21.7	18.4	14.7	13.2
30–34	28.8	27.2	21.2	17.7
>35	32.2	45.5	57.3	65.3
Total – number	960.0	960.0	1,476.0	1,476.0
mean age (years)	31.2	34.8	35.1	37.8
<b>Number of children born</b>				
None	39.8	37.9	21.1	21.0
1 child	20.4	20.6	15.9	16.3
>2 children	39.8	41.5	63.0	62.7
<b>Number of times married</b>				
Once	90.8	88.0	90.3	86.7
Two or more	9.2	12.0	9.7	13.3
<b>Educational level</b>				
Bachelor or higher	29.7	27.0	21.9	22.5
Diploma	10.2	7.8	10.2	8.9
Certificate 3 or 4	11.3	29.2	10.7	32.6
Certificate 2 or lower	48.8	36.0	57.2	36.0
<b>Labour force status</b>				
Employed–full-time	38.9	82.3	33.5	84.8
Employed–part-time	30.5	7.6	35.3	5.5
Jobless	30.6	10.1	31.1	9.7
<b>% with a long-term health condition*</b>	9.7	17.9	11.3	16.1
<b>Years lived together before marriage</b>				
Still in first marriage	43.6	43.0	47.8	47.9
0–1 year	22.4	22.8	22.3	21.9
2–3 years	21.1	21.5	18.2	18.3
>4 years	12.9	12.7	11.7	11.9
<b>De facto couples</b>				
<b>How likely to marry current partner</b>				
Very likely	39.1	42.0	41.4	45.8
Likely	18.5	23.6	21.3	20.0
Not sure	25.9	23.0	18.6	19.1
Unlikely	9.0	5.2	4.8	7.3
Very unlikely	7.5	6.2	13.9	7.8
Total–number	330.0	330.0	237.0	237.0
<b>Number of previous de facto relationships</b>				
Still in first de facto	62.3	61.1	65.2	60.8
One	22.0	16.7	22.2	21.9
Two or more	15.7	22.2	12.6	17.3
<b>Duration of current relationship</b>				
< 1 year	24.0	24.5	21.0	21.0
1 to less than 2 years	18.7	20.7	16.0	14.8
2 to less than 5 years	34.8	31.6	30.4	31.7
> 5 years	22.6	23.2	32.4	32.0

Note: This table is based on population-weighted analysis from the 2001 HILDA survey.

\* Around 16.1 per cent of partners had long-term health conditions. The percentage of women and partners in incongruent couples with fair/poor current health were similar (8.4 and 8.9 per cent respectively). However, the figures for congruent couples were higher at around 11 per cent each.

**Table A6** Comparison of 'would you like to have (more) children' by likelihood of 'are you to have (more) children' scores in the future by number of children born: women aged 18–44 years

Like to have children scores (desires)	Likelihood of having children scores (expectations)					
	0	1–3	4–5	6–7	8–9	10
<b>No children</b>						
0	<b>12.1</b>	0.9	0.2	0.0	0.0	0.0
1–3	1.1	<b>3.9</b>	0.2	0.0	0.4	0.2
4–5	0.4	0.5	<b>4.8</b>	1.1	0.4	0.4
6–7	0.3	0.3	1.3	<b>3.8</b>	1.9	0.9
8–9	0.3	0.4	1.3	2.1	<b>9.7</b>	2.3
10	0.6	0.3	2.7	0.6	7.4	<b>37.2</b>
<b>One child</b>						
0	<b>26.0</b>	0.6	0.0	0.0	0.5	0.3
1–3	1.0	<b>4.1</b>	0.9	0.5	0.3	0.7
4–5	0.4	3.0	<b>3.9</b>	0.4	0.4	0.7
6–7	0.6	1.7	0.5	<b>2.3</b>	1.7	0.2
8–9	0.5	0.6	1.0	1.3	<b>4.4</b>	1.1
10	1.0	0.6	1.7	1.3	3.3	<b>32.5</b>
<b>&gt;2 children</b>						
0	<b>70.1</b>	2.2	0.4	0.0	0.0	0.2
1–3	2.7	<b>4.2</b>	0.6	0.2	0.0	0.1
4–5	0.9	1.3	<b>2.4</b>	0.3	0.0	0.0
6–7	1.5	0.4	0.6	<b>1.3</b>	0.2	0.0
8–9	0.8	0.3	0.4	0.6	<b>1.8</b>	0.1
10	1.2	0.3	0.3	0.3	0.3	<b>4.0</b>

Note: This table is based on population-weighted analysis.

Cell percentages are calculated by total weighted population (630,334 without children, 402,203 with one child and 1,281,407 with two or more children) and thus add up to 100 per cent. The actual samples of women were 588 without children, 410 with one child and 1,438 with two or more children.

Source: 2001 HILDA survey.

## Endnotes

- 1 The author would like to thank Andrew Whitecross and Helen Moyle for their useful comments on earlier drafts of this paper.
- 2 Most of the analyses in this paper are based on Wave 1 data except for Section 8 ('when to have the next child?'). The latter is based on Wave 2 data.

- 3 The results, based on an analysis of actual sample and weighted population, are similar. However, the results between the weighted and unweighted population analyses are different when small sample sizes are involved. As a consequence the results in this paper are based on population-weighted analysis. However, the actual sample sizes are given in marginal distributions so that readers have an idea of what sample sizes are involved.
- 4 Partners could have the same number of children, but from different relationships.
- 5 The number of children borne by a couple are categorised as follows:
  1. Both 0 (couple without children).
  2. Woman (0) and partner (>0) (woman with no child and partner with one or more children).
  3. Woman (>0) and partner (0) (partner with no child and woman with one or more children).
  4. Both 1 (couple had one child each).
  5. Woman (1) and partner (>1) (woman with one child and partner with two or more children).
  6. Woman (>1) and partner (1) (partner with one child and woman with two or more children).
  7. Both 2 (couple had two children each).
  8. Both 3–6 (couple where each partner has the same numbers of children: 3, 4, 5 or 6).
  9. Other (couple who had different numbers of children not included in the above).
- 6 This has changed in Wave 5 where all women were asked.
- 7 The completed fertility rate, as measured here, is the average number of children that a cohort of women had over their reproductive lifetime.
- 8 The proportion of women aged 45–49 years that are childless usually measures the extent of childlessness in the population.
- 9 These are:
  1. Couples without children.
  2. Couples with one child.
  3. Couples with two children.
  4. Couples with three children.
  5. Couples with four or more children.
  6. Woman without children and partner with one or more children (woman=0 and partner  $\geq 1$  child).
  7. Partner without children and woman with one or more children (partner =0 and woman  $\geq 1$  child).
  8. Woman with one child and partner with two or more children (woman=1 and partner with  $\geq 2$  children).
  9. Partner with one child and woman with two or more children (partner =1 and woman  $\geq 2$  children).
  10. Other.
- 10 They were interviewed in the second half of 2002.

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# Psychosocial factors and intergenerational transmission of welfare dependency: a review of the literature

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## 1. Summary

This paper explores possible relationships between social, psychological, interpersonal and family factors and the intergenerational transmission of welfare dependency. Three key questions are addressed. First, how does the problem of welfare dependency present itself? Second, what is the evidence for transmission of welfare dependency across generations? Third, what is the evidence for a dependency culture or, if there is not a culture of dependency, what other accounts can be given for some children of parents on welfare also becoming welfare recipients themselves?

From a review of the recent literature, it is concluded that there has been a tendency to treat the problem of welfare dependency and intergenerational transmission as simple matters of fact when the evidence suggests both notions are far more complex. The evidence from the literature does not support the notion of a single causal intergenerational transmission mechanism nor does it support the proposition of a simple culture of dependency dynamic that can generally account for children from income-supported homes becoming income supported later in their lives.

Instead, the literature suggests that a broader, more ecological, or multi-causal, framework with an emphasis on the environmental resources available and capacities of adults and children to use them may be far more useful in understanding how the need for income support can continue from one generation to the next.

## 2. Preamble

The major thrust of this literature review was to consider the evidence for the role of psychosocial factors in intergenerational welfare dependency. The review began by asking the question: what, if any, psychosocial factors are involved with intergenerational transmission of welfare dependency? However, as the literature search proceeded, it became increasingly apparent that all was not as straightforward as it would seem. The whole notion of intergenerational transmission of welfare dependency was much more complex than is often recognised, at least explicitly, in the literature. The literature was also replete with divergent views and confusing findings.

Because of the complexity of, and confusion in, the literature reviewed, the original question of ‘what, if any, psychosocial factors are involved with intergenerational transmission of welfare dependency?’ was initially put aside to focus on the evidence for the existence of intergenerational transmission of welfare dependency itself. In addition, a much closer analysis of the way the primary concept of welfare dependency had been, and is being, used was undertaken. In other words, the givens became problematic and the review questions turned to: what is welfare dependency?; what is ‘intergenerational transmission?’; and is there any empirical base to the concepts?

The literature on welfare dependency, whatever it may be, is littered with polemic and presumptions. No doubt this is due, in part at least, to the political context in which the issue of welfare dependency is located. The many different researchers and the varying political agendas have meant a range of different definitions of the problem and a range of different proposed solutions. The divergence of views, and sometimes contradictory findings, have been noted by previous reviewers in Australia (for example, Kelleher & Jean 1999; Saunders 2000). However, it was Bonell’s (2004) review of 20 years of overseas research on teenage pregnancy—an equivalently political and problem-laden phenomenon—that reinforced the need to approach the review here with great care.

Bonell (2004) noted that there were many different ways in which the fact of teenage pregnancy was defined as a problem and as many different solutions implied. For example, teenage pregnancy has been defined as a problem because of health consequences, because of poverty consequences, because of fertility rate consequences, and because of welfare consequences, among other things. Bonell (2004) also found that there were significant differences between the problem definitions and research conducted in the United Kingdom (UK) and the United States (US). For example, according to Bonell (2004), many researchers from the United States, but none from the United Kingdom, conceptualised teenage pregnancy and parenting as a problem in large part because of its implications for welfare expenditure. In contrast, quite a few UK studies looked at economic factors influencing teen pregnancies, while no research from the United States did so (Bonell 2004). In both of the examples cited above, the differences in the research in the two countries were statistically significant. Bonell (2004) attributes these differences to a combination of political, religious and research design factors.

Bonell’s (2004) review acts as a cautionary note that the research literature on welfare dependency will also reflect political, and perhaps religious, factors and will differ substantially across cultures. Feather (2002) has made a particular point about the importance of culture in this area. He emphasises that attitudes to work and non-work are influenced by cultural values and that different social welfare systems, arising from different cultures, have different effects. Cobb-Clark and Gorgens (2004) also point to this difference. Therefore, in reviewing the literature here, priority was given to Australian research. Where overseas research was used, the country of origin is also noted.

Emphasis was also placed on reviewing recent research literature. The literature search was conducted on publications over the past decade, using social, psychological, interpersonal and family as the key search terms. A previous literature review on *Transgenerational income support dependence* (Kelleher & Jean 1999) conducted by the Australian Institute of Family Studies was used as an additional source, allowing a wider scope for the review than originally anticipated.

So, in the end, more literature was reviewed and more questions asked. Following Bonell (2004), this paper starts by asking: how does the problem present itself? The paper then moves on to question the evidence for intergenerational transmission and to consider the role of culture. Finding no evidence for a dependency culture hypothesis, other psychosocial factors that may play a part are then considered.

### 3. The idea of welfare dependency: a contested notion

#### How does the problem present itself?

In the introduction to a major collection of articles on Australian welfare, Saunders (2000) describes Senator Jocelyn Newman's intention to reform the welfare system because the rising rates of welfare dependency are placing an increasing burden on government expenditure. This concern is not limited to Australia. Saunders further notes in a later article:

Most governments in the western world have become concerned in recent years about the increasing burden of welfare spending consequent upon the long-term rise in the number of people claiming benefits. (Saunders 2001, p. 29)

The problem of welfare dependency, and the very use of the term, appears to have entered the discourse because of the increase in the amount of money spent on welfare by governments. Bonell's (2004) analysis found this same motivation underlying significant numbers of US research studies on teen pregnancy—teen pregnancy was defined as a problem because of the increasing number of teen parents on welfare.

Curiously, however, figures vary somewhat when presented in support of the observation of welfare increase in Australia. For example, Henman and Perry (2002) state that the proportion of people of workforce age receiving social security payments has grown from 4 per cent in 1966 to 12 per cent in 1980 to 21 per cent in 2000 (roughly one in five). Saunders (2000) states that one in seven Australians of workforce age today relies almost entirely on income support payments, and this represents a much higher level of dependency than in the 1960s and 1970s. On the other hand, Birrell, Maher and Rapson (1997) state that in mid-1995, some 32 per cent of the Australian population aged 20 and over were dependent on welfare, including aged and veterans' pensions. While there can be no doubt that the number receiving income support payments has increased over the past few decades, other aspects of the welfare figures should be questioned.

First, it is not clear in many of the articles reviewed what exactly they meant by being on welfare or receiving income support, and what exactly they meant by being dependent on welfare—however defined. Assuming that this dependency is an economic one, studies using it in this way do not give any detail on how much income support means the recipient is dependent, although it seems that in some instances even a supplemental parenting benefit is counted. In other instances, the condition potentially leading to income support receipt is taken as a proxy measure of welfare dependency (for example, Seth-Purdie 2000 uses unemployment duration). Furthermore, it is often

implied that there is an element of pathological, psychological dependency involved. Again, this is rarely discussed explicitly but will be addressed further in this paper.

Bartholomae, Fox and McKenry (2004) point to the problem of measurement in their own work in the United States. Their measurement of being a welfare recipient was a respondent's agreement to having received public assistance welfare. But, as they note, the types of assistance ranged 'from food stamps to energy assistance' (p. 790). Pech and McCoull (2000) in Australia also recognise that there is a need to develop a more sophisticated measure of income support dependence. Certainly in the Australian case there is at least a need to recognise the three different tiers of payment available in the income support system: from pensions (for example, Age Pension and Carer Payment), to allowances (for example, Youth Allowance), to benefits (for example, Family Tax Benefit). Being in long-term receipt of a Family Tax Benefit may be considerably different from being in long-term receipt of a pension for carers.

The key point here is that the concept of welfare dependency, or income support, is generally not well defined and/or is measured in loose and variable ways. Among other things, failure to explicitly define the concepts being measured and/or failure to measure them in the same way creates problems for comparison and for inferences. These variable and sometimes indeterminate measures of welfare dependence used in reports reviewed here can, in part, account for the variable and sometimes divergent findings commented on in the preamble.

Second, it should be noted that the increase in numbers receiving welfare payments in Australia includes a large proportion of those on Age Pensions and Department of Veterans Affairs (DVA) pensions. Although, according to Birrell, Maher and Rapson (1997), even if the aged data is removed there is still a 'very high one-in-five working-age ... dependency ratio' (p. 4). Why DVA numbers are still included is unclear. However, what is more important here is that any investigation of factors, psychosocial or otherwise, associated with those on welfare must take into account why they are on welfare. At the least, one would expect that influencing factors for those on a DVA pension would be substantially different from those on an unemployment benefit.

It is particularly important to understand what categories of people are included in welfare data of the sort described earlier, most notably because the issue of transmission of welfare dependency is only relevant to those with young families. Research related to Age and DVA pensions is, in fact, of very peripheral interest to the topic of concern here. So, while there may have been a dramatic increase in the absolute numbers receiving income support payments from the state, the proposal regarding intergenerational transmission and the potential interventionist implications is only applicable to a subset of those on income support: mainly the unemployed and those on disability and parenting benefits.

In considering the make-up of income support recipients the Indigenous population must be kept particularly in mind, given the difficulties under which many of them live their lives (Penman 2004b). Information from Smith (2004) suggests that the changing nature of the relationship between the social security system and Indigenous Australians may need to be taken into account. This relationship can be characterised as a transition from enforced exclusion up to the 1960s, to progressive inclusion over the past 30 years. In 1994, 55 per cent of Indigenous survey respondents stated that some form of social security payment was their main income (compared with 13 per cent of other Australians). This same percentage (55 per cent) was identified in the data of Pech and McCoull (2000) six years later.

While the relative state of Indigenous income dependence has not changed over 30 years (that is, the proportion of Indigenous to non-Indigenous), there has been an absolute increase in the number of Indigenous people on income support. Three major factors have contributed to this increase: a 33 per cent increase in the Indigenous population between 1991 and 1996; a dramatic increase in the Indigenous working age population; and the continued failure of mainstream employment opportunities to keep pace with the needs (and numbers) of Indigenous youth (Smith 2004).

There is no doubt that both the inclusion of Indigenous people in the welfare system and their demographic changes since inclusion would have made a contribution to the burgeoning welfare debt, but this is difficult to estimate. Nevertheless, there may well be a need to consider Indigenous Australians as a special case of income support and this is reviewed in Section 4.

Regardless of how the numbers of income support recipients are derived, the growing concern about the size of the welfare budget brings with it an equivalent growing concern to reform the welfare system (as noted earlier in Senator Newman's remarks). The most concern, and greatest thrust for reform, occurs in Anglo countries where the problem has been construed as one of welfare dependency. The very use of the term welfare dependency reflects a particular set of values and assumptions as well as particular solutions to the problem.

Treating the term benignly, Saunders notes that the 'belief is that dependency on state support corrodes individuals' self-respect and represents a threat to social cohesion' (Saunders 2001, p. 29). With such a presumption it is obvious that the solution is to help make the welfare dependent become independent (of government support).

A number of Australian authors (for example, Birrell, Maher & Rapson 1997; Raper 2000; Henman & Perry 2002) have argued against the very idea of welfare dependency. As Henman and Perry (2002) have put it, neither the concept of welfare dependency nor the similar one of withdrawal from participation has proven adequate in understanding the causes behind the phenomenon of income support increase. The structural realities of labour market and household composition change suggest that cultural welfare dependency or individual failings are not the source of the increase in welfare recipients—certainly not the sole source. Field (2000), from a British stance, argues similarly for the United Kingdom. Further evidence for economic structural changes in the labour market affecting youth in particular is summarised in Kelleher and Jean (1999).

Others working in this field have noted the political motivation underlying the term welfare dependency and have commented accordingly. For example, Strathdee and Hughes (2002) have characterised it thus:

From this psychological/moral perspective [of the government], marginalised youth are deficient, and young people from welfare dependent families have received a cultural inheritance at odds with the Australian government's desire to reduce the number of people on welfare. (p. 37)

Similarly, Travers (1998) describes the concept of welfare dependency as the notion of a cycle whereby dependence, poverty and generally feckless behaviour are perpetuated from one generation to the next. This is the notion of welfare dependency incorporated into the idea of intergenerational transmission that was the initial focus of this review.

From the analysis presented here, it would seem that the notion of welfare dependency is a contested one. But, it must be emphasised, it is not the fact that individuals can be financially dependent on government income support that is being contested; rather, it is the social value implied by the US use of the word dependency. As the authors discussed above implied, calling someone dependent suggests a personal failing, when in fact receiving income support may well arise because of, for example, a labour market failing. In the circumstances, the somewhat more neutral term of income support will be used and caution maintained in considering the idea that dependency of any sort is transmitted across generations.

## What is the evidence for transmission?

Pech and McCoull (Pech & McCoull 2000; McCoull & Pech 2000) have undertaken highly relevant research to address the question of intergenerational transmission in Australia. From their review of social security data, they found that most young people from disadvantaged backgrounds do not spend long periods on income support between 16 and 18, although they are more likely to do so than other young people. They also found ‘a large proportion of total income support receipt is concentrated among relatively few families, and that there may be little long-term mobility out of the income support system’ (Pech & McCoull 2000, p. 50).

On the other hand:

Even among those young people whose parents were apparently the most disadvantaged and income support dependent, only a small minority (about one in six) could be categorised as having been highly income support dependent themselves between the ages of 16 and 18. (Pech & McCoull 2000, p. 63)

In the United States, Rank and Cheng (1995) found that three-quarters of welfare recipients do not grow up in households that received welfare. Therefore, the vast majority of welfare recipients do not come from welfare dependent homes. But, if an individual was raised in a household on assistance, they were more likely to use welfare. These findings from the United States parallel the Australian data of Pech and McCoull (2000) and McCoull and Pech (2000).

So, both the US and Australian research indicates there is an increased probability of children from homes receiving income support becoming income supported themselves. But, both the US and Australian data also indicate that the absolute numbers are comparatively minor—that is, only some go on to be income supported and by no means the majority. Under such circumstances it is unlikely that it is the experience of being in an income-supported family by itself that leads to later income support experiences of the children. If it was the experience of being in an income-supported family that counted, one would expect greater numbers of children becoming income supported later in their life.

On the other hand, neither the Australian nor US studies fully meet the criteria for intergenerational research studies described in Serbin and Karp (2004). First, individuals should be observed at roughly the same age (or developmental stage) in two or more successive generations. Second, the longitudinal information should be prospective rather than retrospective. Third, the data should be multi-level and obtained from multiple measurement sources or domains. Using these criteria, it can only be concluded that there really is no conclusive evidence, one way or the other. McCoull and Pech (2000, p. 110) concluded similarly: ‘it would be fair to say that early evidence is mixed’ and that ‘our early findings must be interpreted with caution’ (Pech & McCoull 2000, p. 43).

But, while there does not seem to be any conclusive evidence either way, it must also be borne in mind that the vast majority (five-sixths identified in the early data) of children from income-support recipient homes in Australia do not go on to become income-recipient themselves (Pech & McCoull 2000). Similarly, three-quarters of the children in US income-supported households do not go on to become income supported themselves (Rank & Cheng 1995). Put this way, the issue of intergenerational welfare dependency is really an issue of how a small group of people stay on income support from one generation to the next. Put this way, it also becomes apparent that intergenerational welfare dependency is not the sole or even major reason for the massive increase in the numbers of people receiving income support, if, indeed, it is any reason at all.

Given the above data and arguments, the concept of intergenerational transmission of welfare dependency would seem to be problematic. The term welfare dependency itself is a contested notion and to then link it to the idea of intergenerational transmission is to imply a phenomenon of dependency being passed on through the generations. There are also other reasons—considered in the next section—to make one wary of this concept.

What follows is a consideration of the various psychosocial factors that may contribute to one particular pattern of children from income supported homes becoming income recipients themselves, as well as what evidence there may be for why so many do not. In addition, consideration is also given to psychosocial factors that play some part in being a recipient of income support, regardless of parental experience in that regard, and to factors related to poverty in general. At the end of all these considerations the paper returns to the issue of the existence of a transmission mechanism and questions, once again, whether there is evidence for the fact of transmission.

## 4. What might culture have to do with it?

### A dependency culture?

The probability, if nothing else, of children from families claiming income support ending up the same has been observed in various countries. One argument that was advanced by Oscar Lewis in the 1950s to account for the urban poor in Latin America was that there was a ‘culture of poverty’ (Saunders & Stone 2000). According to Lewis, this distinctive culture arose as a way of coping with the deprivation but the way of coping then went on to perpetuate poverty at the same time.

More recently, this argument has been taken up to account for a similarly observed phenomenon in the United States. Mead (2000) argues that there is a mindset, a set of values, attitudes and beliefs, that he calls ‘dutiful but defeated’ (p. 48). It is this theory of a particular mindset that is behind the proposal of a dependency culture to account for the appearance of intergenerational transmission of welfare dependency. Indeed, this theory of a dependency culture is critical to the idea of welfare dependency itself.

The theory of a dependency culture arose within an American culture and efforts have been made there to substantiate or disprove it. For example, Rank and Cheng (1995) tested two models: a welfare model consistent with the culture of poverty argument and an economic model. They found

that three-quarters of welfare recipients do not grow up in households that receive welfare. Therefore, the vast majority of welfare recipients do not come from welfare dependent homes. They conclude that they found no empirical support for the dependency culture proposition.

Again in the United States, Bartholomae, Fox and McKenry (2004) extended Rank and Cheng's (1995) study and tested cultural and structural models of generational welfare use. They found no evidence for the culture of poverty argument (for example, as described by Mead 2000) but did for the structural model based on parental and public resources accounting for the phenomenon. They concluded that differences in education, socioeconomic status, attitudes and community resources explained the relationship between parental income support and their children's income support—a dependent family culture did not.

Stenberg (2000), in Sweden, tested three types of explanations: cultural-behavioural (for example, culture of poverty), structural-economic (for example, low level of investment in human capital), and policy-related factors (for example, welfare gives poor people incentives to fail). Using Swedish longitudinal data, he found a clear intergenerational effect of welfare dependency that was specifically associated with a combination of social assistance in the family of origin, children's school adjustment, and parental criminality. Children without this combination did not show 'inheritance of welfare dependency'. Stenberg (2000) concluded that, in the Swedish case, there was no single or straightforward explanation for what appears to be intergenerational transmission. Elements of all three types of explanations seemed to be at play. However, Stenberg also recognised that he could not dismiss the possibility of a cultural effect in his findings—that is, peculiar to Sweden. Remarks of Saunders (2001) that 'Australia is not Sweden', need to be borne in mind here.

Saunders and Stone (2000) have undertaken the only direct Australian test of the dependency culture proposition found. They examined whether elements of a dependency culture could be detected among different groups of young people. They found no signs of it in young people between 16 and 18 at school or in young people employed or in training. They did find signs of it amongst some unemployed youth, but by no means all. Moreover, as Saunders and Stone (2000) argued, the weak or broken family ties experienced by the youth in this subgroup makes it difficult to see how a distinctive dependency culture could have been transmitted to them by their parents. Instead, they suggested it was more likely lack of parental guidance towards a work/study pathway that could account for the appearance of a dependency culture amongst some young people. Saunders and Stone conclude from their research that:

If we go looking for a specific dependency culture as the explanation for why parents on income support tend to produce children who go on income support, then we are likely to end up chasing shadows. (Saunders & Stone 2000, p. 132)

In an earlier review of the intergenerational income support literature, Kelleher and Jean (1999, p. 3) concluded:

There is no definitive answer to the question of whether or not there is a culture of intergenerational welfare dependency. If there is a family culture of unemployment or welfare dependency, the literature is divided on how this can be measured, what factors contribute to such a culture and what can be done to prevent the culture continuing into the next generation.

Here, this review can perhaps be a bit more definitive. There appears to be sufficient evidence to suggest that the culture of dependency proposition receives little support. At best, and if anything, the appearance of a dependency culture accounts for only a small group of income support recipients. So what else may be going on?

Rank and Cheng's (1995) arguments may be useful here. They suggest that when income support recipients follow in their families' footsteps it is not because they have learnt the easy life of welfare; rather their parents had financial and economic constraints that limited their investment in the human capital of their children. In support, they refer to Elliot Liebow's study of black street-corner men:

Many similarities between the lower-class Negro father and son do not result from 'cultural transmission' but from the fact that the son goes out and independently experiences the same failures, in the same areas, and for much the same reasons as his father. What appears as a dynamic, self-sustaining cultural process is, in part at least, a relatively simple piece of social machinery which turns out, in rather mechanical fashion, independently produced look-alikes. (Rank & Cheng 1995, p. 8)

## The special case of Indigenous income support

There are a number of reasons why Indigenous Australians should be considered as a distinctive group in the considerations here. Not only is their culture and their history different from other Australians but they are, as a group, among the most economically disadvantaged of Australians as well (Penman 2004b). Because of this gross disadvantage, just over half of the population rely on some form of social security payment as their main source of income. This figure does not include the additional numbers of Indigenous people employed in Community Development Employment Projects (CDEP) schemes. On the other hand, while the numbers receiving direct social security support, and 'indirect' CDEP support, are high it is important to bear in mind that the percentage of Indigenous people reliant on welfare has not changed significantly over 30 years (Smith 2004).

Daly and Smith's research in Kuranda and Yuendumu (for example, Daly & Smith 2003; Smith 2004) shows there are many individuals who do cycle through the social security system over their lifetime and that a number of families show the appearance of intergenerational dependency. Moreover, there is concern in Indigenous communities that there are a number of people on welfare who do not know how to work and are not motivated to do so. Pearson (2000) is particularly concerned about the number of Indigenous people reliant on welfare in the Cape York communities and argues that a welfare dependency culture does exist amongst the Indigenous population and that it is poisoning Indigenous society.

Pearson (2000) argues that the 'generally accepted causal chain—racism, dispossession and trauma create social problems which create passive welfare dependency—is wrong' (p. 150). He argues it is wrong on two counts. First, prior to the 1970s, even though racism was rife, and dispossession and trauma facts, the Indigenous population did not have the kind or degree of social problems they do today. Other evidence would corroborate this observation (see, for example, Penman 2004b). Second, Pearson claims that the social problems came after the 'economic condition of passive welfare dependency'—that is, after Indigenous inclusion into the welfare system. There is little doubt that the timing is right, but Pearson provides no other evidence for claiming a passive welfare dependency culture exists. As such, it is not feasible to

accept a correlational observation for a causal claim here, especially because of counterarguments by Martin (2001).

Martin (2001) points out, in a constructive consideration of Pearson's argument:

... 'dependency', in terms of a culturally established and validated capacity to demand and receive resources and services ... from others, is a core principle through which Aboriginal agency is realised in the structuring of social relationships. (p. 6)

After considering the evidence and the arguments, Martin (2001) concludes:

Pearson is undoubtedly correct in his view that there is evidence of increasing social pathology in the Cape York communities ... [but] he is not correct in positing access to welfare incomes for Aboriginal people as contributing to this social breakdown in a direct and causal sense. (p. 11)

From Martin's (2001) point of view, culture does play a role in the appearance of intergenerational welfare dependency, but not quite the one posited in the dependency culture proposition discussed above. Rather than seeing dependency in the pejorative way often implied in the welfare debate (based largely on the moral worth of a productive individual), in Indigenous culture receiving welfare shows a position of strength—that is, they have the power to commandeer from White agencies.

From within Indigenous culture the idea of dependence is quite different. Smith also notes the need to recognise this difference: 'the dependence being experienced by families is quantitatively different from that experienced by other Australian families. It is also qualitatively different' (Smith 2004, p. 56). In particular, it is important within Indigenous communities to speak of the household on income support, not the individuals. It is also important to recognise that most households are not solely dependent on welfare, rather on a mix of social security, CDEP, ABSTUDY, and irregular income from art and crafts.

Even with the risk and resource-pooling that goes on in Indigenous households, these households and the people in them experience substantial economic exclusion from mainstream society (Daly & Smith 2003). This exclusion and its consequences are of such a nature that it is not possible to separate out the profound effect of economic disadvantage and what, if any, cultural dependency may exist. As Daly and Smith (2003) show, not only are there appearances of intergenerational welfare reliance in Indigenous households, but also present are many other factors that are known to correlate with ongoing disadvantage in later life. These factors include the absence of a parent, unemployment status of adults in households, low income, poor educational levels of adults and poor health.

In all, there is no clear evidence that Indigenous households in receipt of income support show a dependency culture based on a set of values that support exploiting the welfare system and avoiding work. While there is evidence that their cultural view can turn receipt of income support from a pejorative to a positive, this is not sufficient to account for the numbers of people in receipt of income support. Many other economic exclusion factors play an equally, if not more, important role in the Indigenous need for income support.

Even though there is no clear evidence for a dependency culture, there is still a strong argument for the need to treat Indigenous people as a separate group in the Intergenerational project. Both their distinctive culture and the depth of social disadvantage warrant it.

## 5. If not a culture of dependency, then what?

### Other specific, psychosocial accounts

The culture of dependency hypothesis has provided a major psychosocial explanatory framework for a pattern of observed correspondence between some parents and then their children on income support. The evidence reviewed here does not support the dependency culture hypothesis for white Australians, though there is some support within the research literature for Indigenous Australians. However, even that support suggests that the notion of dependency within Indigenous culture takes on a different sense than that implicated in the dependency culture hypothesis.

So, if the dependency culture hypothesis does not help explain why some parents on income support have children who later become income support recipients themselves, are there any other psychosocial factors that do? Most of the research literature that addresses this question does not look at intergenerational transmission of welfare dependency as such. Instead, the literature looks at the relationships between psychosocial factors and being impoverished or, more specifically, an income support recipient. And, in most instances, the particular focus has been on unemployment and income support.

#### Psychological

According to Pech and McCoull (1998), the US research literature tells us that many persistently poor children do not experience poverty in early adult life but growing up poor increases the probability of long-term poverty in adulthood by three times for poor blacks and eight times for poor whites. But:

Researchers have not found that specific psychological and attitudinal factors are important, with the possible exception of attitudes to schooling ... This suggests that unfavourable attitudes are not the primary vector for transmission of intergenerational disadvantage. (Pech & McCoull 1998, p. 3)

More recently in Australia, Butterworth (2003) looked at the relationship between mental health and income support and found there is a statistically significant correlation between the incidence of mental health and receipt of income support. Thirty per cent of those receiving income support had a clinically diagnosable mental disorder (substance abuse, anxiety or depressive disorders). Interestingly, it seems that substance abuse is associated more with unemployment and anxiety and depressive disorders than with being a single parent.

Butterworth noted that 'maternal depression and mental illness has negative consequences on a child's development' and then speculated 'it may be, for example, that maternal mental health is an important mediator of intergenerational welfare dependence' (Butterworth 2003, p. 41). The idea of mediating variables is returned to later. But for now, it is important to note that Butterworth's data does not suggest a causal role for mental health, rather just an associative one. If the relationship between type of disorder and type of benefit is considered it is just as easy to argue that being on income support produces the disorder, as the disorder brings about the need for income support.

## Social relationships

The concept of social capital has been used broadly to reflect the community resources available to individuals and communities to achieve outcomes. More specifically, social capital has been defined as ‘networks of social relations which are characterised by norms of trust and reciprocity’ (Stone, Gray & Hughes 2003, p. 3).

Stone, Gray and Hughes (2003) investigated the relationship between social capital and labour market outcomes. They found few significant relationships between social capital and labour force status in the ‘informal realm’ (that is, family and friends) when they used a core network measure. In contrast, a general measure of social capital type was significantly and strongly related to labour market outcome. Specifically, those with few informal networks, few connections with the wider community and institutions, and low levels of trust were far more likely to be unemployed. But there was no indication of causality or its direction. ‘While social capital does relate to labour force status and job search methods used it does so unevenly.’ In fact, it looks as if socioeconomic status (SES) is a moderating and influencing variable such that ‘the use of family and friends by those from low SES in finding jobs is less likely to result in high quality work’ (Stone, Gray & Hughes 2003, p. 23).

Strathdee and Hughes’ (2002) qualitative study in New Zealand helps to make more sense of the conclusion of Stone, Gray and Hughes (2003). Basically, the change in the structure of the labour market with less unskilled jobs for young people has meant that while social networks are still being used, they no longer yield high quality employment opportunities. In other words, it is not so much the failure or lack of social capital, but the quality of the employment opportunities available, especially for youth.

These employment opportunities are also affected by where people live. Haveman et al.’s (2004) review of US studies shows that neighbourhood quality and the resources available are related to children’s attainments in later life. Birrell, Maher and Rapson’s (1997) Australian study shows that there are substantial geographical variations in the percentage of people on welfare support. In particular, it would seem that rural youth are disadvantaged in occupational outcomes, even when parents’ own occupation and education is taken into account (Evans & Kelley 2002). Miller (1998) also found that regional characteristics, along with family, were more important in determining unemployment outcomes for youth than personal characteristics.

However, it is not just differences between regions or between rural and metropolitan areas that influence labour outcomes; differences are also noted within metropolitan areas. Kelly and Lewis (1999, 2000) show that there are significant neighbourhood effects of youth employment and unemployment within cities. Youth from neighbourhoods with low SES have higher unemployment. Longitudinal Survey of Australian Youth (LSAY) data also show significant neighbourhood effects on unemployment. Youth from the lowest 20 per cent of neighbourhoods (in terms of SES) experience a higher level of unemployment (Penman 2004a).

These neighbourhood effects could well be contributing to the observed intergenerational reliance on income support. As Kelly and Lewis (1999) note, apparent intergenerational effects could well arise from the geographic location of parents and the increasing financial dependency of youth on those parents. Youth will get less work if they are located in disadvantaged areas and are still financially dependent on their parents. But, most importantly, ‘the most substantial determinant

of both youth employment–population ratios and youth unemployment is the level of adult unemployment in a neighbourhood’ (Kelly & Lewis 1999, p. 14).

### **Family relations and support**

Most of the research literature suggests that single parent families can contribute to poorer child outcomes (for example, Daly & Smith 2003 in Australia; and in the United States, Haveman et al. 2004; Israel & Seeborg 1998; Couch & Lillard 1997). While, in most of these studies, the single parent families were mother-headed, single motherhood does not necessarily lead to poor outcomes. For example, in the United States, Biblarz, Raftery and Bucur (1997) have shown that men raised in a mother-headed family structure do as well as men from two-biological parent families in terms of socioeconomic attainment and social mobility.

Being a single parent, or specifically a single mother, by itself does not appear to be the key influencing factor. Instead, being single and raising children is associated with a constellation of other factors that can play a role in poor outcomes for children. For example, McCoull and Pech (2000) conclude cautiously:

Evidence from overseas, and to a less extent Australia, suggests that family poverty, lone parenthood, parental unemployment and welfare receipt are associated to a greater or lesser extent with less favourable outcomes for some children. (p. 97)

Israel and Seeborg (1998) showed that a number of family variables influenced income performance in the United States, both directly and indirectly. Low-income performance was associated with teenage pregnancy, substance abuse, having a mother-only household and a mother who left school early, low educational expectations, and being black and female. But, most importantly, early dependence on welfare by the respondents’ parents was not a significant predictor of the respondents’ income levels. According to Israel and Seeborg (1998) ‘this set of findings suggests that it is the condition of poverty rather than reliance on welfare that inhibits intergenerational movements out of poverty’ (p. 772). In all, these multi-factor studies show that there is a complex clustering of socioeconomic and other family factors at play.

Two Australian studies point to some interesting aspects of these other family factors. Evans and Kelley (2002) found in their multivariate study that ‘above and beyond parent’s educational experiences, the scholarly resources that parents provide for their children have a demonstrable effect decades later on the children’s occupation success’ (p. 76). The importance of an early literary culture for children’s later education and occupational success has been noted in other arenas (for example, for Indigenous children see Penman 2004b). Indeed, literacy and numeracy achievements in junior high school are the single most important factor influencing employment outcomes into adulthood (Penman 2004a).

McDonald, Brownlee and Greenblat (1993) investigated the possible multivariate effect of locality, parental background and some young person variables on being unemployed and out of school between 15 and 19 years. Only 15 per cent of the variance was explained by these factors and much was due to the young person’s age. When age was removed as a variable, only 9 per cent of the variance was explained. What was most interesting however, was that the percentage of the variance explained increased to 21 to 22 per cent when parents’ and child’s aspirations were included. Lower aspirations were related to outer/rural regions, lower satisfaction with

child's educational progress, neither parent completed Year 12 and low income. There is a strong suggestion here that the higher the aspirations of the parents, the more likely their children would continue on at school and get jobs.

There is also an interesting finding from Weatherburn and Lind (1998) that may have implications for the situation of unemployed youth. They show that it is not social disadvantage alone that increases the motivation to engage in criminal acts; rather it is economic and social stress that disrupts the parenting process that leads to a breakdown in restraints on juvenile crime. It makes sense that this same economic and social stress that disrupts the parenting process could also have other negative impacts on youth that in turn lead to disadvantage.

When the above possibility is considered in the light of other studies showing that constructive parenting practices can act as buffers for at-risk children (Serbin & Karp 2004, in the United States) it would seem that parenting styles and the resources available for parenting are an important variable cluster. This is considered in more depth in the next section on developmental accounts.

## Developmental accounts: risks and outcomes

From the review so far, it is quite clear that single factors, or even a small cluster of like factors, are inadequate to understand the complex processes at play that lead to some children from income-supported families becoming recipients of income support themselves. Zubrick et al. (2000) recommend that to understand child wellbeing and developmental outcomes there is a need to adopt an ecological framework that respects this complexity of relationships between children, families and communities within a wider social, economic, political and cultural context.

The idea of an ecological framework is a useful tool for identifying sensitivities to the degree of complexity at stake here. Apart from Zubrick et al.'s (2000) proposals, however, no research using the ecological framework to understand pathways to/from being on income support was found. On the other hand, two significant reviews of longitudinal, multivariable studies of child development that show the requisite sensitivity to complexity were found.

The Centre for Community Child Health (2000) in Australia reviewed a number of longitudinal studies looking at risk and protective factors involved in child outcomes. While these studies were primarily from overseas and no specific mention was made of welfare dependency, some general points are still worth noting.

The Centre identified a number of important risk factors that can lead to poor developmental outcomes including, presumably, being in poverty and/or on income support. These factors include: perinatal stress; difficult temperament; poor attachment; harsh parenting, abuse or neglect; parental mental illness or substance abuse; family disharmony, conflict or violence; low socioeconomic status; and poor links with the community (Centre for Community Child Health 2000).

There are clearly a number of psychosocial factors involved here but they cannot necessarily be untangled from within that set of influences or from other more economic or physical wellbeing factor clusters. As the Centre's review shows, risk factors for adverse outcomes often co-occur and they may have cumulative effects over time.

The cumulative effect of familial stressors such as low socio-economic status, young maternal age at birth, large family size and family instability may therefore have a pervasive effect on the well-being of young people. (Centre for Community Child Health 2000, p. 5)

Results from the Australian Temperament Study (Sanson et al. 1991, cited in Centre for Community Child Health 2000) support their claim, as does the more recent work by Seth-Purdie (2000).

According to Seth-Purdie (2000):

[t]he socio-economic gradient across all learning, health and behavioural outcomes appears substantially to reflect differences in the degree to which families are able to meet the developmental needs of young children. (p. 3)

Using longitudinal data, she showed that the more risk factors are present in childhood, the more probable is unemployment, and the longer the duration of unemployment for 16 to 21 year olds in New Zealand. It is of import to note here that it was not any particular combination of risk factors that mattered; rather it was the sheer accumulation of them.

However, it is also important to note from the Centre's review that many high risk children exposed to chronic family adversity (that would include welfare dependency) over long periods of time do not develop intractable problems later in life. Those resilient children had easy temperaments, a good stable caregiver, positive role models/mentors, and positive opportunities at major life transitions (Centre for Community Child Health 2000).

With the focus on dependency, support, poverty or the like, it is easy to forget how many resilient children there are or can be. Focusing on resilience, it is easier to realise that the cited probability of children from income-supported homes going on to become income supported themselves is just that—a probability. And as Seth-Purdie (2000) aptly noted, probabilities are not destinies.

Serbin and Karp's (2004) review of longitudinal studies of intergenerational predictors (but not necessarily causes) of psychosocial risk in the United States takes a slightly different stance, with a focus on early parenthood. They show that early parenthood has been correlated with many forms of future disadvantage in a number of countries, including low parental education, family poverty, single parenthood, low occupation status and job instability (that is, most of the conditions that lead to a need for income support). But, despite this, it is important to note 'the majority of children of adolescent mothers did not go on to become teenage parents' (Serbin & Karp, 2004 p. 340). The minority who did go on to become teenage mothers were more likely to have failed a grade in school, and to be living in poverty and to have experienced negative parenting styles.

There are some important points to draw from Serbin and Karp's (2004) review. First, the intergenerational early motherhood pattern reflects the same pattern found with intergenerational income support—that is, it is a minority pattern. Second, the occurrence of such a minority pattern is related to particular combinations of factors: it is not just the same experience of the parents affecting the children (for example, welfare leading to welfare) but the experience along with other negative/risk factors. Third, parenting style was identified as an important element in this combination.

The potential importance of parenting style and resources was raised earlier and the Centre for Community Child Health's (2000) review also identified this cluster of factors as important for developing resilience (or otherwise) in children. Rickel and Becker (1997) similarly rely on a

notion of restrictive or nurturing child rearing practices to account for another intergenerational transmission phenomenon—in this instance child abuse and teen pregnancy.

When the findings about parenting styles are put together with other research, there is the suggestion of a particular dynamic at work here. It is not so much that parents teach (either explicitly or implicitly) their children to rely on income support but that they fail as parents to teach how not to and/or they are unable to provide the basic psychological/educational resources needed to bring about a good outcome. This is the same reasoning used by Saunders and Stone (2000) to account for some youths displaying elements of a dependency culture.

This is not to suggest that those on income support are necessarily inadequate: instead, drawing on Weatherburn and Lind's (1998) argument, it would seem that it is when the economic and social stress experienced by parents on income support becomes great enough, it disrupts their parenting process and this in turn affects their children.

There is some further support for this proposition in the work of Moore et al. (2002) in the United States, which is worth looking at in some detail. They start their work with a very important observation that is very pertinent to any Australian study:

Families experience poverty and welfare in several combinations. For example, families can be consistently poor but go on and off welfare over time; be consistently poor and consistently on welfare; or be consistently poor but never on welfare. However, the relative effects of these patterns on the well-being of children has received little attention. This is a particularly striking omission because there is no typical welfare spell. (Moore et al. 2002, p. 210)

They drew on longitudinal data to assess the effects of different patterns of poverty and welfare on the mathematics achievement, reading skills and social behaviour of 10 to 11 year olds. They found that, after taking background differences into account, children who experienced stable albeit disadvantaged economic conditions did not have worse outcomes than children who were never poor. But children in families whose financial circumstances declined or fluctuated (thus creating stresses without developed coping patterns), were more at risk of behavioural problems and scored lower on literacy/numeracy tests than children who had never been poor. These particular impacts on the children are important because behavioural problems and low literacy levels are two predictors of later unemployment and economic disadvantage.

## 6. Summing up

### A complex issue

There has been a tendency in the literature to treat the ideas of welfare dependency and of intergenerational transmission as simple matters of fact. However, both notions are much more complex than is usually recognised and attempts have been made here to show both the complexities and their ramifications.

As demonstrated in the first part of this review, there is no simple fact of intergenerational transmission of welfare dependency. The very use of the phrase welfare dependency is emotively, if not politically, laden and it has not been readily accepted by all researchers. Indeed, it would be interesting to see what the research might look like if income support, or even poverty, or even more interestingly, income mobility was the predominant focus. All concepts have been used to various effect but it is the idea of welfare dependency here that has proved to be problematic.

The way in which the problem is defined leads to the search for answers in one direction and not another. For example, if the focus was on income mobility then there would be a need to look for change pathways. The question might be what gets people out of poverty, not what makes them dependent on welfare. But here, with a focus on welfare dependency, the mechanism that makes people become dependent, as it were, on welfare has been sought. In particular, the paper was concerned with the specific mechanism that can account for the observation that some children of welfare dependent families also go onto welfare, while others do not.

The mechanism was postulated as an intergenerational transmission mechanism that passed on welfare dependency from one generation to the other. However, no strong evidence for such a mechanism was found. There was some probability evidence and some minority evidence but nothing sufficiently convincing to proceed to identify psychosocial factors affecting the mechanism.

In order to resolve some of the confusion, a distinction is made in this review between addressing the question of intergenerational transmission of welfare dependency and that of psychosocial factors related to economic disadvantage and reliance on income support. Having made that distinction, it has proved of importance in pointing the way to identifying and evaluating two different conceptual frameworks. These are discussed below.

## Conceptual frameworks

### Transmission mechanism

The idea of poverty and welfare dependency being transmitted from parents to children underlies the search for the intergenerational transmission mechanism. In many ways, it makes sense to conceive of the problem of increasing welfare dependency as one passed on or transmitted from the parents to the children. It makes even more sense when it can be shown that there is a greater probability of children going onto welfare if their parents have also been in receipt of welfare.

Within the understanding offered by this transmission metaphor, the point of research is to look for the conduit or path by which poverty and disadvantage are passed on, as if something is being passed on in the genetic make-up, from parents to children. Such a conception shores up the search for a causal mechanism and for a single pathway (for example, genetic transmission). Yet, from a reading of the literature, there are a number of good reasons why any search for a single, causal transmission mechanism should be treated with caution.

First, for the idea of transmission to be useful, or real, it would be necessary to be able to demonstrate that the causal mechanism lies in something to do with the parents. The evidence reviewed earlier showed that it is not transmitted as part of the family culture. There was no evidence in support of the dependency culture proposition. Indeed, as Saunders and Stone (2000)

remarked, if people continued to look for support for a dependency culture, they would end up chasing shadows.

So, if it is not a culture, or world view, that the parents pass on what else could it be? The trouble with this question is that is very difficult (if not impossible) to answer. As Serbin and Karp (2004) argue, not only are there direct biological influences and environmental factors of parenting and socialisation, but there are other things that do not involve a direct 'transfer' of characteristics between generations yet are nevertheless shared. In particular, parents and children have common physical, social and cultural environments (see neighbourhood effects mentioned earlier). These common environments are as likely as anything else to bring about commonalities between parents and their children. Rank and Cheng (1995) argued similarly. They also pointed out that when it comes to impoverished parents there is one further crucial factor: 'The fundamental dynamic underlying intergenerational welfare use is the fact that the playing field is not level as children begin their lives' (Rank & Cheng 1995, p. 681). So in effect, the children of poor or income-supported parents start off their life at a disadvantage and as they develop are exposed to a whole range of factors that they share with their parents, some of which may or may not be passed on.

The second set of considerations has to do with the presumption of homogeneity in the characteristics of those on income support. As Moore et al. (2002) conclude from their US research there is a 'substantial heterogeneity of the population receiving welfare and in poverty. Simple one-size-fits-all approaches are unlikely to be appropriate' (p. 222). So to suggest that there is a single causal mechanism and a single transmission pathway may be to oversimplify the problem. This would seem particularly so when the evidence is considered in terms of relative numbers and not probabilities.

In Australia, Pech and McCoull (2000) found that only one in six children from income-supported homes followed a path onto income support themselves. In the United States, Rank and Cheng (1995) found one in four children fitted this pattern. In both instances, those following the transmission pattern are in the minority. This does not support the hypothesis of a single causal mechanism or pathway. Something more must be going on: something more that means some children become income supported like their parents but most do not.

The work of Stenberg (2000) points out that, at the least, there is a complex constellation of factors with some significant crossover effects. For example, he found that social assistance during childhood lost its intergenerational effect for children without adjustment problems and with non-criminal fathers. On the other hand, he found that the effects of being raised in a lower socioeconomic class and the effects of household income were important among children without adjustment problems and without criminal fathers. But then again, in families that did have such adjustment and criminal problems, the socioeconomic effect was totally eliminated.

Stenberg's (2000) work, more than any other found, shows that there is nothing simple going on here. And, all in all, the literature suggests that the commonality of factors shared by children and their income-supported families cannot be sufficiently or fully accounted for with the idea of a single or discrete transmission mechanism. The issue may well need to be looked at through a different lens.

## **Making or constructing a life: resources and capacities**

Having argued from the evidence that the transmission and related cultural dependency notions are not able to fully or sufficiently account for the observed phenomenon (of some children from income-supported families becoming income support recipients themselves), the question remains about what psychosocial factors may be related to disadvantage/income support.

The evidence reviewed would suggest the need for a more complex multi-fold or multi-causality mechanism to account for the effects of parents on their children's outcomes. Evans and Kelley's (2002) conclusions capture all the findings given in earlier sections and reinforce the need for this more complex and/or multi-causal view. After investigating the multivariate influence of family background and occupation success in Australia they concluded:

All in all, the pattern of family influences on occupational status is a bit like the long-term consequences of a traditional royal christening party in a fairy tale where a wide variety of fairies each presented a different good gift and a few maleficent fairies threw in a curse a two. (Evans & Kelley 2002, p. 78)

There were many different influences identified by Evans and Kelley and most were small—just a nudge here, a nudge there. No one factor held sway and no particular combination of factors necessarily led to substantially better outcomes. But many factors made their contribution.

In the US literature, the resource model of Bartholomae, Fox and McKenry (2004) or the human capital model of Rank and Cheng (1995) go some way towards capturing the greater complexity required. Their approaches place importance on the lack of resources available to impoverished parents, with an emphasis on human capital development of their children. This model may prove more useful than the transmission one and there is certainly empirical evidence in support of it. However, the underlying economic metaphor—based on capital and investment—may prove constraining in the end, especially in terms of acknowledging the role of other non-economic factors.

In particular, neither the resource/human capital model nor Evans and Kelley's (2002) multivariate conclusions capture any sense of agency or active contribution on the part of the child or its parents. This idea of agency has been recognised in the social psychology literature for some decades now (for example, see Harré 1979) and is usually taken to mean that the actions of people are not wholly determined by their environment; rather, they have a say in what they do. On the other hand, this idea of agency does not mean that there is total free will, simply that there is some voluntary base to actions taken.

While this sense of agency is missing from most of the research reviewed—despite it being a common social psychological understanding—there are hints in the literature that it is important. The most noticeable hint is in the descriptions of resilient children in the longitudinal child development literature. For example, consider this description: 'By the time they reached pre-school age, resilient children had developed a coping pattern that combined autonomy with help seeking when needed' (Centre for Community Child Health 2000, p. 13). Here the children are coping, being autonomous and seeking help—all active concepts on the part of the child acting as an agent of his/her own life. Yet there is not a single inclusion of these concepts or activities—coping, being autonomous or seeking help—anywhere in the literature reviewed here.

What is suggested here is that the idea of a series of ‘nudges’, or a series of ‘investments’, from the child’s environment, needs to be combined with the idea of agency on the part of the parents and the children themselves. To do this, a broader, more inclusive or ecological, framework or metaphor is needed. One such framework that suggests itself is one of making or constructing a life. With this framework, the question of how the roughly five out of six children from an impoverished background go on to construct a life that does not rely on income support would need to be asked. What do their parents do that works? How do the children manage? What other resources are the parents, and the children, able to call upon?

The general proposition of Seth-Purdie (2000) is useful as a guide here: it is the degree to which families can meet the developmental needs of young children that matters to how they grow up. In addition, it is the capacity of the children to use what the families have to offer that also matters. There are a number of important economic factors at stake in any parent’s capacity to meet their child’s developmental needs but these were beyond the scope of consideration in this review. Instead, focus has been on the psychosocial environment only. But it should be noted that this broad framework suggested here can accommodate the psychosocial and the economic.

From the psychosocial literature reviewed here, it would seem that parents are best able to meet the developmental needs of their children if they have access to community resources and social networks; provide a literary culture and other scholarly resources at home; have a nurturing parenting style and create an harmonious home life; and do not suffer from mental health problems or undue stress, especially that arising from fluctuating or decreasing income. But, that is not all. The children also play a role in the process. In disadvantaged circumstances, it is the children with easy temperaments and the capacity to find good role models who will be the more resilient. Furthermore, from the literature reviewed, it may be some complex combination of resources, skills and risks—the nudge here and there—or it may be some particular, but unusual, combinations like that of criminality, social assistance and poor school adjustment as found by Stenberg (2000) in Sweden.

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# Fixing houses for better health in remote communities

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## 1. Introduction

Many Indigenous Australians live in substandard overcrowded houses, often in remote areas. Poor housing is a major contributor to unsafe environmental conditions that lead to the spread of communicable diseases. Australian research has shown that to maintain good health among residents, the ‘health hardware’ (toilets, lights, drains, taps, showers and kitchens) of most houses in an Indigenous community must function most of the time (Pholeros, Rainow & Torzillo 1993). Ultimately, Indigenous housing should be well designed, soundly constructed and maintained in good working order.

This paper will consider specific Indigenous housing issues; summarise the origins, objectives and financial details of, and community responses to, projects under the Fixing Houses for Better Health (FHBH) Program; and provide evidence to debunk common myths about the causes of the poor function of Indigenous housing. FHBH projects operate in rural and remote communities or public housing tenanted by Indigenous people across Australia.

## 2. What are the specific Indigenous housing issues?

**Safe housing** protects residents from electrocution, fire, gas leakage, explosion or asphyxiation; exposure to contaminated water and waste-water, use of dangerous materials (such as lead-based paint and asbestos); and the threat of structural collapse due to termite damage, rust or rot caused by excessive moisture.

**Healthy housing** provides residents with functioning health hardware to improve their health and reduce the pool of infectious diseases such as diarrhoeal disease, skin infections, pneumonia, eye infections, and other common infectious diseases found in many remote area Indigenous communities (Australian Government Department of Family and Community Services 2003).

**Sustainable housing** depends on good initial design, sound construction and ongoing cyclical maintenance. These actions require a workforce of Indigenous housing managers with the capacity

to supervise local maintenance teams; inspect new constructions and upgrades; access technical advice; and coordinate community consultation, especially in the design phase.

### 3. Government research and policy development

Before the policy changes announced in 2001, Australian Government funds were mainly expended on building new houses with fewer resources used for housing maintenance. Better housing that meets agreed standards, is appropriate to the needs of Indigenous people, and contributes to their health and wellbeing, are key desired outcomes of *Building a Better Future: Indigenous Housing to 2010* (Housing Ministers Advisory Committee (HMAC) Standing Committee on Indigenous Housing 2001). ‘Safe, healthy and sustainable housing for Indigenous Australians’ was originally introduced as a new policy direction in the *National Framework for the Design, Construction and Maintenance of Indigenous Housing* (Commonwealth, State and Territory Housing Ministers’ Working Group on Indigenous Housing 1999).

Over the past five years, the Australian Government has been working with state, territory and regional governments to develop sustainable housing assessment and maintenance systems in Indigenous communities. A series of FHBH projects has assessed and fixed health hardware in 2,400 houses across Australia.

### 4. What do FHBH projects aim to achieve?

Fixing Houses for Better Health projects aim to secure better health for Indigenous Australians living in rural and remote communities by improving the physical environment in which they live and sustaining this improvement over time. The Maintaining Houses for Better Health component of FHBH projects employs and trains local community members to maintain health hardware in working order and encourages communities to take responsibility for ongoing maintenance after the FHBH has improved the health hardware.

However, these gains might be unsustainable if appropriate design and construction principles are not incorporated into Indigenous housing in the first place. Therefore, a longer-term objective of FHBH is to promote the adoption of better design and construction methods for new and upgraded Indigenous housing. To this end, FHBH data have been included in the *National Indigenous Housing Guide* to quantify the extent of safety and health hardware problems, clarify the nature of design, construction or maintenance issues and target detailed solutions.<sup>1</sup>

### 5. Background and key concerns of FHBH projects

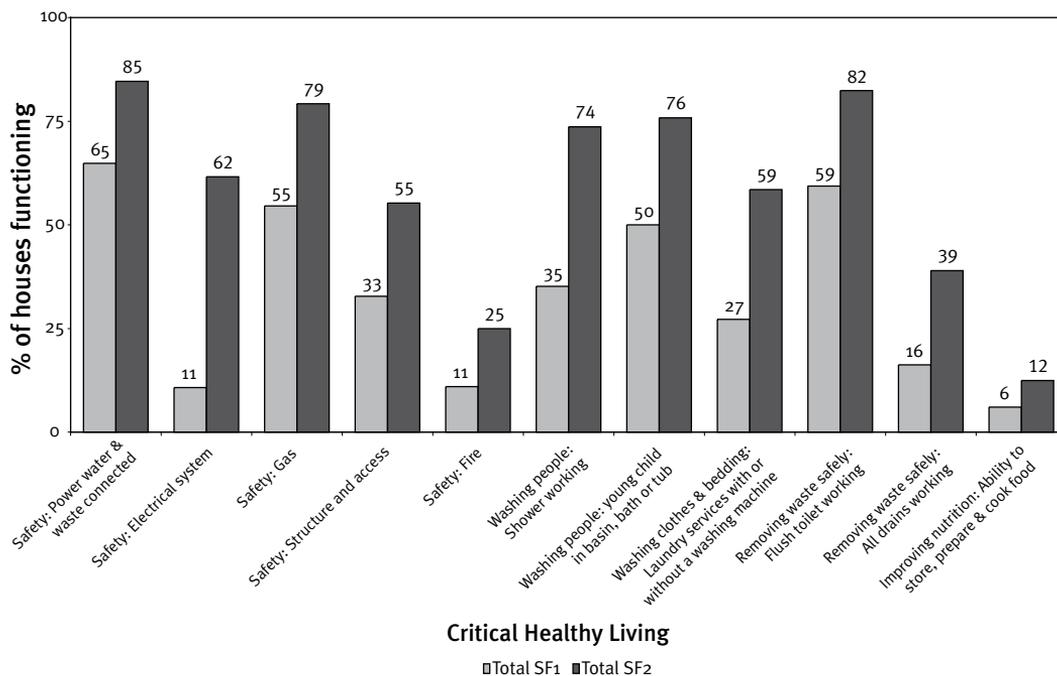
What started as a small public and environmental health review in Central Australia in the mid 1980s (Nganampa Health Council, South Australian Health Commission and Aboriginal Health Organisation of South Australia 1987) has gradually grown in many states and is now a national program that aims to make urgent safety and health hardware repairs to existing housing and surrounding living areas.

The FHBH Program and Housing for Health (HfH) projects have a number of aims, which are listed below.

- ▶ Immediate changes are made by ensuring that ‘fix’ work commences on the first day of every project.
- ▶ All work is prioritised on the basis of maximum health gain (the priority of healthy living practices is explained in more detail below).
- ▶ Defined, standard, and repeatable tests of a house and its components are used to collect accurate and detailed data. This ensures that small-scale immediate improvement goes hand-in-hand with careful documentation of longer-term needs and basic housing faults.<sup>2</sup>
- ▶ Local Indigenous people are employed on every project, ensuring that some local people receive ‘on-the-tools’ training about how to test and do minor fix work on their houses.
- ▶ Licensed tradespersons are employed to carry out more extensive fix work within 24 hours of the project’s commencement.
- ▶ Data generated by projects is used to expose building and product faults and to help define the principles essential for better design, specifications, construction and maintenance.

Figure 1 shows a comparison of average house function for 11 critical healthy living practices. The data range from safety to nutrition and were collected before Survey Fix 1 (SF1) and after Survey Fix 2 (SF2) in all FHBH and HfH projects between 1999 and 2006.

**Figure 1 All HfH and FHBH projects: Comparison of national average function rates for Critical Healthy Living Practices at Survey Fix 1 and Survey Fix 2**



Note: SF1 represents a total of 4,038 houses and 125 projects from four states and one region. It refers to the period before fix work commenced.

SF2 represents a total of 3,279 houses and 106 projects from four states and one region. It refers to the period after fix work commenced.

The total fix budget varies on individual projects from \$3,500 minimum to \$7,600 maximum average per house. Additionally, gas was not installed in all houses and data relate only to those houses where gas was installed.

## 6. FHBH project information

FHBH projects use the HfH approach to assess and fix health hardware. The approach has a safety and health focus and is underpinned by a philosophy of ‘no survey without service’. The first round of projects was known as FHBH1 and was funded in 1999–2000 through the Aboriginal and Torres Strait Islander Commission. These projects surveyed and fixed health hardware in 969 houses in 29 communities for a total of \$3.5 million.

In the 2001 Commonwealth Budget, the then Department of Family and Community Services (FaCS) was allocated \$9 million over four years to continue funding FHBH projects. In 2001–02 and 2002–03, FHBH2 projects assessed and fixed health hardware in 434 houses in 11 communities for a total of \$3 million. In 2003–04, FHBH3 projects assessed and fixed health hardware in 446 houses in 12 communities for \$3 million. In 2004–05, FHBH4 projects assessed and fixed health hardware in 545 houses in 19 communities for \$3 million.

FHBH projects were run in rural and remote communities, with the majority in very remote locations. This complicated the logistics of hiring licensed tradespeople, obtaining consumables and parts, and managing the maintenance component of FHBH projects—known as Maintaining Houses for Better Health (MHBH). State and territory governments and regional councils identified staff to be trained in the HfH method during FHBH projects and allocated resources to support these staff. More than 400 Indigenous people were trained in basic maintenance and employed on the survey teams, hired as trade assistants during the fix work stage or as MHBH workers for ongoing work. Where funding was available, MHBH workers continued to be employed within the housing maintenance team.

## 7. Financial information

Funds were allocated at a rate of \$5,000 per house, although the actual amount spent on each house depended on its condition. FHBH projects expended funds on:

- fees for project managers, licensed trades, data managers, finance managers and MHBH trainers, including travel and accommodation costs
- wages for survey fix<sup>3</sup> team members, trainee managers and MHBH workers
- the purchase of all materials, consumables, tools and testing equipment
- the hiring of office space and purchase of lunches and cleaning services
- national program advice, data analysis, administrative assistance and reporting.

FHBH used an outsourced management model to minimise departmental administration costs. Healthabitat provided the HfH process and general advice and assistance, while consultants, familiar with the HfH process, were contracted to manage the projects in the field. The process immediately engaged the community in action, was closely monitored under licence and was overseen by a workforce of accredited professionals. Where possible, FHBH funds were integrated with state or territory government maintenance funding to maximise the benefits to householders. For example, an Indigenous community housing organisation paid for living-room floors to be tiled in all houses during the fix work stage<sup>4</sup>; and a state government Indigenous housing authority purchased hot water units for installation in identified homes.

## 8. Community response to FHBH projects

During and after a FHBH project, Indigenous community housing officers found that residents tended to report faults more readily because they knew that the FHBH team would fix them quickly. This increased the likelihood that faults were reported early and reduced overall maintenance costs. Community housing managers reported that the projects reinforced the connection between fixing taps and drains and toilets and better, more healthy living.<sup>5</sup> In one project, FHBH activities were combined with a Scabies Day activity to raise awareness about the importance of washing clothes and bedding.

Householders spoke about the FHBH workers 'giving a lot back to their community' and workers said they enjoyed the challenge of surveying houses and making sure every house was checked. Some workers suggested running the tests and checks once a month. In several communities, FHBH workers continue to be employed to check and repair health hardware as part of the MHBH team set up during the project. Housing managers are better able to budget and plan maintenance activities after a FHBH project because they can use data from the surveys as a baseline for future work.

## 9. Benefits of FHBH: Kitchen design

FHBH and HfH surveys have repeatedly shown very poor function rates for kitchens. For example, of the 4,038 houses surveyed between 1999 and 2006, only 6 per cent provided residents with facilities to store, prepare or cook food. In 2000, FaCS funded the design and specification of a modular kitchen that would be safe and easy to install, easy to clean and maintain, reduce insect and vermin habitats, and use robust, good quality materials. An expert steering group reviewed the design before it was manufactured and installed in Indigenous houses with different climatic conditions. High-use components of the design were data logged<sup>6</sup> and the components listed below were monitored for 12 months.

- ▶ Access to kitchen cupboards was recorded each time a door was opened.
- ▶ Stove use was recorded each time a stove was used and the duration of use, hot plates and/or oven use.
- ▶ Sink use was monitored, including when the sinks were used and the depth of water used.
- ▶ Refrigerator temperatures were monitored throughout the trial period.

This trial confirmed the efficacy of the design and informed detailed specifications. The kitchen design is currently being promoted and marketed to the Indigenous housing sector.

## 10. Why are the results so poor at Survey Fix 1?

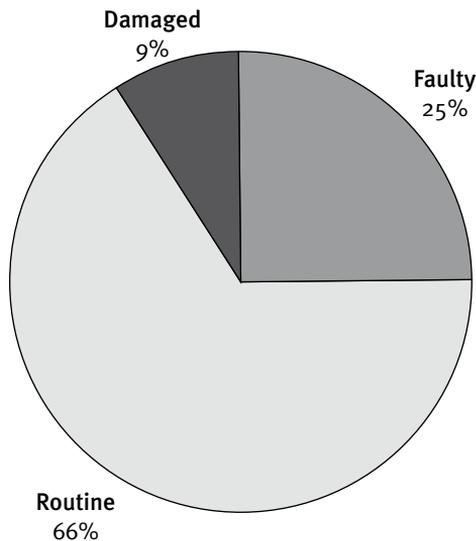
The results in Figure 1 raise a key question: why are the initial SF1 results so poor? The most common explanations given are based on myths as set out below. These broad myths often stand in the way of both policy development and detailed design improvement. Detailed information drawn from the FHBH and HfH projects has been presented below to test these often publicised myths or 'theories'.

### • Tenant damage

While described in many ways, a common explanation offered for the poor performance of houses is tenant damage, or misuse or misunderstanding of how to use the house. This frees policy makers, departments, designers and builders of much responsibility, as it is assumed that whatever gets built will be damaged regardless of the house.

Figure 2 shows that the prime cause of need for fix work in the surveyed houses was **not** damage **but** lack of routine maintenance. The second major reason for repairs was faulty installation or workmanship; this may be related to the self-certification of trades introduced in the past decade.

**Figure 2 National fix work (all FHBH and HfH projects) showing fix reason, as reported by licensed tradespeople (1999–2006)**



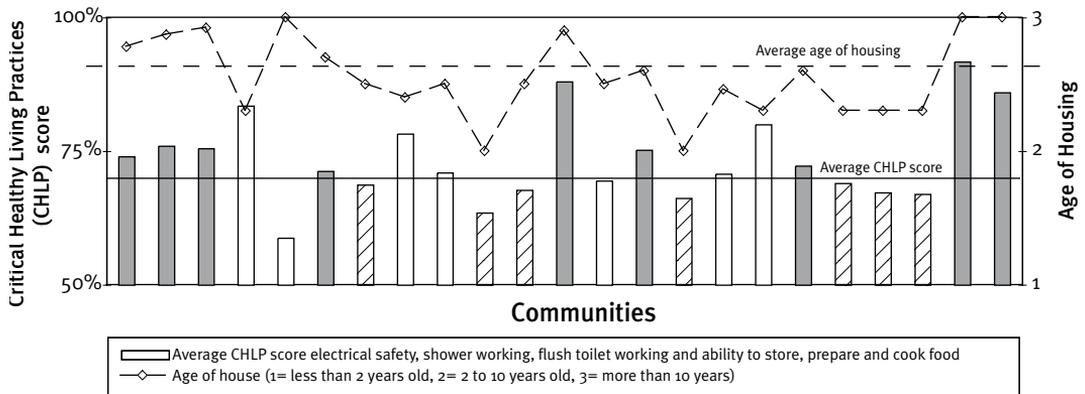
Note: Data represent 41,885 items fixed of 59,039 inspected and reported on by licensed trades.

#### • Age of housing stock

**Myth:** Much Indigenous housing stock is old and the figures simply reflect this fact. This pushes debate to the arena of provision of new housing. Usually combined with the need for new housing is the need for many new houses often reducing their budget and decreasing specification levels for new houses. New housing will perform better than old.

While much Indigenous housing is old and the figures **do** reflect this fact, there is no clear evidence that new housing performs better than old. Figure 3 compares age and overall function for approximately 900 houses in widely scattered communities around Australia. The figure tests two versions of the same premise—that newer houses should perform better than older houses or, older houses should not perform as well as newer houses.

**Figure 3 Relationship between age of house and average house function**



In this figure, the broken line represents the average age of houses in each project community and the dotted line represents the average age of all houses in all projects. Eight projects had houses that were older than the average age of all houses in all projects. The solid grey columns represent projects in which houses were older than average and where house function was higher than average. The downward diagonally marked columns represent projects in which houses were younger than average and where house function was less than average.

Figure 3 demonstrates that in 16 of the 23 project sites, the relationship between age of house and average house function does not confirm the prediction that ‘as a house gets older its ability to function decreases’ or conversely ‘younger houses have better house function’.

Reducing the cost of new houses so that we can build more of them, in order to address real problems of overcrowding, could reduce the money spent on key specification items, leading to loss of house function. Common ‘reductions’ include:

- little or no insulation
- smaller or lower capital cost hot water system with high running costs
- reduced quality of tapware
- reduced door and window quality
- reduced number and quality of light fittings
- fewer inspections of the works
- no verandas, yard works or fencing.

• **Poor design**

**Myth:** Inappropriate design has not allowed people to interact with the house properly and the house has not provided for the needs of those using it. More and better informed consultation at the design stage will improve the performance of housing.

Design and detailed specification do contribute to the performance of houses. Robustness of the house's fittings, hot water system and waste system in response to overcrowding and aggressive water<sup>7</sup> quality should definitely be considered. Areas needing better design, careful specification and detailing include:

- waste water systems able to cope with regularly higher house populations
- hot water systems, considering water quality, running costs and house population
- bathroom layouts and floor drainage able to cope with large numbers of people and floor drainage
- shower rose selection that recognises poor water quality
- light fittings and energy saving bulbs or tubes
- doors and hardware, particularly locks
- windows and new ways of insect screening that allow privacy, ventilation and still permit egress in the event of a fire
- cooktops and ovens able to cook for many families and for large meals
- kitchen bench splashbacks
- kitchen storage units
- solutions to keeping food cool and pest-free
- usable yard areas with cooking, sleeping, shade, food production and storage potential
- in hot weather, thermal performance<sup>8</sup> inside and around the house at least equivalent to sitting outside the house under a tree.

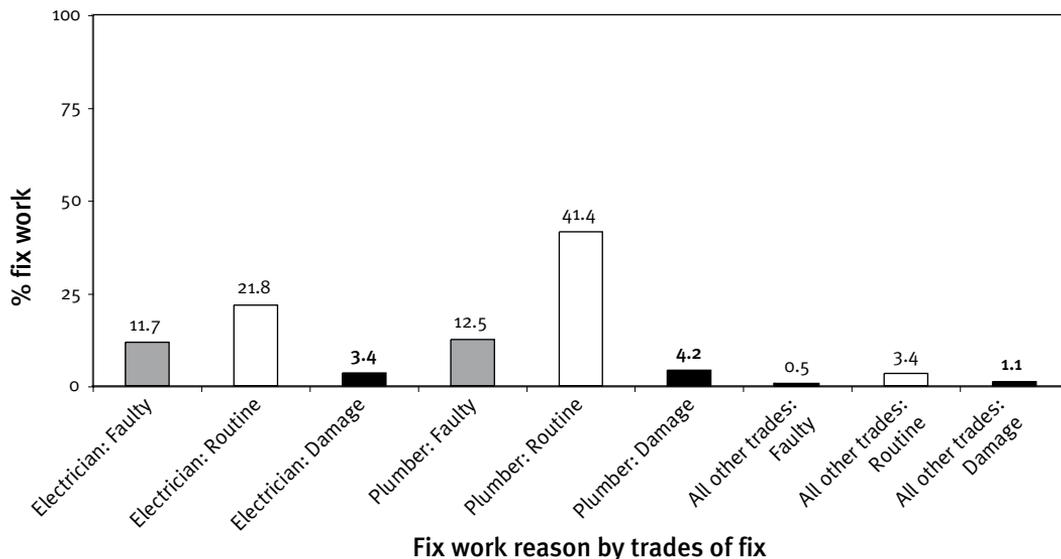
### • **Poor construction**

**Myth:** Buildings are built badly and therefore fail. They need to be built of stronger materials and generally in a more robust fashion.

As previously shown in Figure 2, damage is not the major issue, nor is 'making the house more robust' if the robustness is solely to counter vandalism.

Figure 4 shows the high level of **routine maintenance** faults that may well have been caused by poor initial construction or poor specification of key building components. For example, drains with minimal falls are more likely to become blocked by heavy use. More disturbing is the fix work required due to plumbing and electrical work being assessed by licensed trades as **faulty**. Over 25 per cent of all fix work by licensed trades (or over 10,000 electrical, plumbing and general repairs) was due to the original work being considered faulty — whether installed incorrectly, the wrong part or component being fitted or the essential item being absent from the house. Poor construction coupled with lack of supervision leads to houses that do not function. Consultation, design and specification will not produce better housing unless it is ensured that decisions made during the design process are carried out on the building site.

**Figure 4 Detailed breakdown by trades of fix work needed by reported reason (1999–2005)**



Note: Data represent 41,885 items fixed from 59,039 inspected or reported on by licensed trades.

• **Poor data**

**Myth:** The data do not properly reflect the condition of Indigenous housing. Housing is far better than these data would indicate. Other state and national data show the better performance of housing.

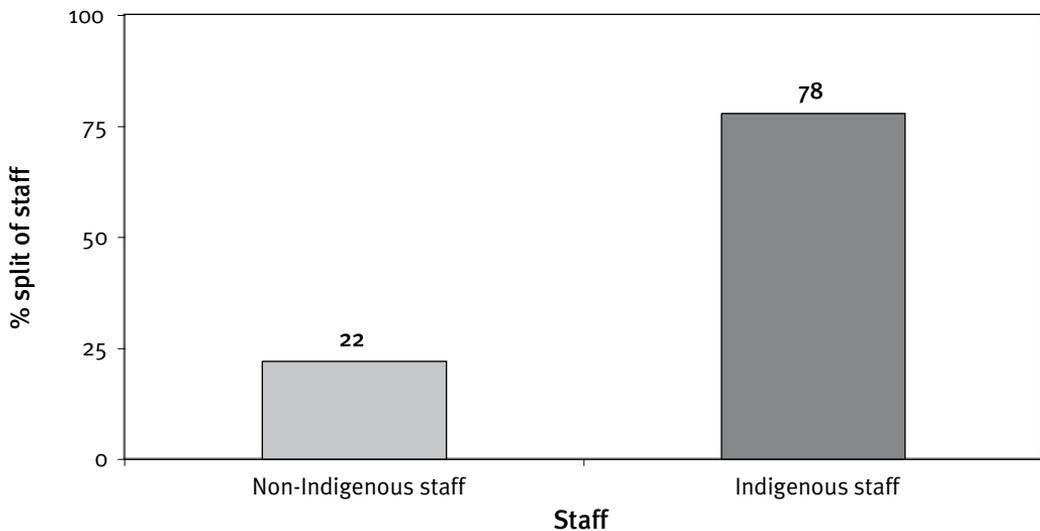
There has been constant criticism of the project data, perhaps because it tells an unpalatable story not just about house function but also about the final product of the entire Indigenous housing delivery and maintenance system. Typical criticisms have been: ‘The questions are too hard and no house would pass!’ The simple test is to examine the questions in detail. For example, with the shower performance test, ask yourself which of the following seven items you would **not** want in your house when showering tomorrow morning?:

- hot water supplied to the shower with pressure
- cold water supplied to the shower with pressure
- hot water temperature above 44°C
- hot water tap working
- cold water tap working
- shower rose working
- shower drainage working.

**Myth:** The data are collected by Indigenous teams who are untrained.

The teams are given training in the field, first on demonstration boards with electrical and plumbing fittings able to be tested and fixed. Team leaders supervise the workers in the field and the data sheets are checked at various stages to ensure accuracy. As the majority of the survey/fix teams come from the participating community, they quickly see that the marks they make on the survey form and their own fix work lead directly to a licensed tradesperson fixing the house and therefore have every reason to ensure accuracy. Figure 5 shows the proportion of Indigenous staff employed on these projects.

**Figure 5 Comparison of Indigenous and non-Indigenous staff numbers working on FHBH/HfH projects**



Note: A total of 1,277 staff from projects totaling 2,870 houses (1999–2005).

**Myth:** What use are the data? They are too complex.

The data are first, and most importantly, used to identify fix work in the house so that immediate change can occur. At the end of each project completed, recommended works and future works on a house-by-house and a trade-based breakdown are left with each participating community. Nationally, common faults identified in houses throughout HfH and FHBH projects have been documented and included in the second edition of the *National Indigenous Housing Guide* (Australian Government Department of Family and Community Services 2003).

## 11. Conclusion

Housing for Health and Fixing Houses for Better Health projects continue the challenging task of making small but important improvements in the day-to-day living environment for Indigenous communities.

Fixing Houses for Better Health projects generate savings for Indigenous community housing organisations by identifying and fixing safety and health hardware faults before they become larger and more expensive problems. The MHBH component represents an important opportunity for local community members to be employed in a practical program of regular checks and repairs to essential hardware. The data collected through FHBH projects illuminates the way to better:

- ▶ Indigenous housing design for new buildings and the upgrading of existing buildings
- ▶ construction and maintenance
- ▶ products and materials
- ▶ expert research on critical knowledge gaps.

Most of all, FHBH projects demonstrate that it is possible, even with small amounts of well-targeted money, to achieve improvement in the living environment of Indigenous people in Australia.

## Endnotes

- 1 The *National Indigenous Housing Guide* is a practical, technical manual for everybody involved in the design, construction or maintenance of Indigenous housing. It is structured around the healthy living practices framework and highlights issues that need to be considered by designers, builders, engineers, tradespeople and maintenance workers. The guide is currently being reviewed to update the data and technical information. It is expected that a third edition will be available in 2007.
- 2 A total of 253 checks and tests are carried out on each house.
- 3 Survey fix: the part of a FHBH project where houses have their function assessed and urgent fix work is completed.
- 4 Fix work stage: the part of a FHBH project where most repairs (fix work) are completed.
- 5 Focus groups were conducted with Indigenous community members, housing managers and FHBH workers in three locations during FHBH2.
- 6 Data logger: A small electronic device used to store various types of information over time. For example, the temperature of the main living room of a house is sampled every hour for six months and then this information can be downloaded into a computer.
- 7 Aggressive water: Water that does damage to pipes, taps or any part of the water system because it is either acidic or alkaline or contains high levels of minerals.

- 8 Thermal performance: How a house responds to varying external temperatures to benefit the occupant, for example, if it is 40°C outside the house and 42°C inside the house, the house would have poor thermal performance.
- 9 Shower performance: Determined by the whether a shower passes seven standard repeatable tests including whether hot water is available, the water temperature is over 44°C, cold water is available, both the hot and cold water taps are working, the shower rose is working and the shower drain is working. **All** these elements are need for the shower to be deemed to be performing.

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