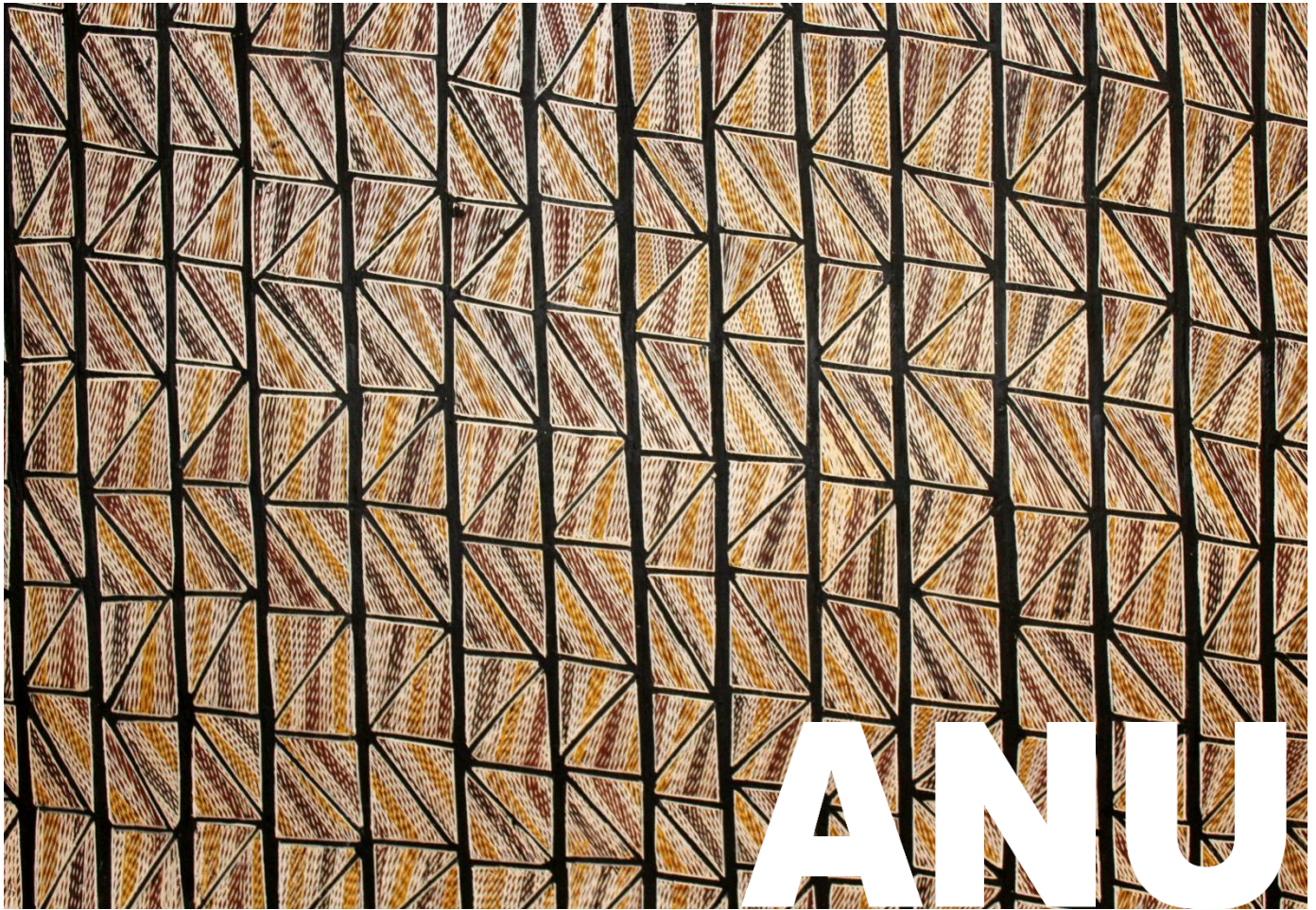




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The cost of children and adequacy of family payments in Australia

Ben Phillips, Richard Webster and Matthew Gray

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University.

Ben Phillips is an Associate Professor at
POLIS: The Centre for Social Policy
Research at the Australian National
University. **Richard Webster** is Senior
Research Officer at POLIS: The Centre for
Social Policy Research at the Australian
National University. **Matthew Gray** is
Professor and Director of POLIS: The
Centre for Social Policy Research at the
Australian National University.

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Abstract

This paper develops estimates of the cost of children in Australia for the first time using financial stress data from the HILDA longitudinal Survey. The paper finds that using financial stress data in pooled waves of HILDA provides a strong basis for estimating equivalence scales and their related cost of children. It is estimated that the cost of children is a little lower than previously estimated and that there are not substantial differences between younger and older children as has previously been found. The results show that around 8 per cent of families with children receive family payments that improve their living standard relative to that same family without children. The results also show that family payments have become less adequate through time. Some suggested policies are provided which help to return the original adequacy of family payments and lower child poverty rates.

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Acronyms

ABS Australian Bureau of Statistics

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1. Introduction

Australia's welfare system is broadly made up of payments for adults (pensions and allowances) and payments to parents that assist in covering the direct cost of children (family payments). The system is tightly means-tested and relatively frugal. The intent of the payment is for a basic living standard covering only essentials and a bare minimum of discretionary spending.

This paper considers family payments which are designed to cover the direct costs of children. Like the rest of the Australian welfare system the intention is to provide only a basic living standard often described as a social safety net. Like most elements of the Australian cash welfare system family payments are means tested so the payment is designed to cover the basic direct costs of children for low-income families but the payment is then tapered away so that higher income families receive a lower payment or no payment.

This paper attempts to consider adequacy of the family payments (family tax benefit or FTB) for low-income families and also considers whether existing means testing of the payment is appropriate.

This paper estimates the cost of children by broad income level using an economic approach whereby we model the financial living standard of different families with children and compare those living standards with those of couple only families. The amount of additional income required to equalize living standards between these couple only and couple with children families is assumed to be the cost of children. This approach is the well-known 'iso-welfare' approach to estimating the cost of children. However, equalizing living standards between a couple only and a couple with children family does not necessarily imply that the estimate of the cost of children is 'adequate' or meets the needs of the children in that family.

In Australia (and overseas) the standard way to calculate the cost of children using the iso-welfare approach is to use household expenditure survey data and compare the share of expenditure on certain basic goods and services such as food and utilities. We will also consider this approach but our major focus will be to use financial stress responses from the HILDA survey.

Upon establishing the cost of children for a given level of income we can compare this cost to the family payments provided by the Australian welfare system. Where the payment (family payments) exceeds the estimated cost of children the payment is considered sufficient to cover the cost of children that at least maintains the living standards of an otherwise similar couple only family.

With a means tested approach it should be expected that the family payment system will only be adequate for lower income households. The focus on this paper will be on

the adequacy for lower income families, however consideration will be given to the rate at which the payment is reduced (tapering) and whether that rate is too steep.

2. Measuring the Cost of Children

Estimates of the costs of children are used in a wide range of economic and social policies. An important use is in the design of welfare payments in determining the adequacy of the current or alternative systems.

There is no consensus as to how to define or measure the costs of children and there are several approaches that are used. The literature on the costs of children has attempted to answer three broad questions (Browning 1992; Gray and Stanton 1999):

- The **needs question**—how much income does a family with children need, compared to a childless family, to attain a specific standard of living?
- The **expenditure question**— how much do parents spend on their children?
- The **iso-welfare question**: how much Income does a family with children require to have the same level of wellbeing (utility) as a family with no children?

There is some overlap between the needs question and the iso-welfare question. While the needs question is about the specific standard of living the iso-welfare question is about wellbeing more broadly defined (utility), in practice the iso-welfare question uses a consumption-based proxy for utility. which leads to some lack of distinctiveness from the needs questions in practice.

In broad terms the approaches to estimating the costs of children are:

- The budget standards approach: this approach involves defining a bundle of goods and services which are deemed necessary to meet the needs of a children and then costing this. This approach is generally used to answer the needs question.
- Various approaches based on observing either the actual expenditure patterns of households of different compositions, or other indicators of household well-being such as financial stress.

The different approaches to estimating the costs of children all have strengths and limitations and all require the use of strong assumptions. Consequently, the different approaches can produce quite different estimates and there is no unambiguous ‘true cost’ of child (Gray and Stanton 2010). The US National Academy of Sciences Panel on Poverty and Family Assistance concluded that ‘although the empirical evidence helps determine the limits of what makes sense, there is no objective procedure for measuring the different needs for different family types’ (Citro and Michael, 1995, p. 161). It is thus important to draw upon a range of estimates of the costs of children using different approaches and data sources.

This paper provides new Australian estimates of the costs of children using the equivalent living standards approach (iso-welfare). Various approaches are used to estimate the equivalent living

standards concept of the costs of children all of which involve estimating the impact of children on the cost function to parents. The approaches differ in the assumptions they make about the impact of children on the cost function and how to equivalise the living standards. The main methods which have been used are the Engel and Iso-Prop methods, the Rothbart method, and Complete Demand System methods.

In essence the equivalent living standards approach involves estimating the amount of additional income a family with children require to obtain the same 'standard of living' as a couple without children. Using the Engel procedure as an example, the share of the family budget devoted to food is used as an indicator of living standards (Engel 1895). The central concept is simple: as family income falls, a family devotes a greater proportion of its total weekly spending to food. So, Engel suggested that the proportion of a family's total spending that was devoted to food could be considered a reliable proxy for a family's standard of living.¹ Similarly, the 'Rothbarth' or 'adult goods' method, uses the level of household expenditure on goods consumed only by adults (adult clothes etc), as the living standard indicator in households with and without children.

Within the equivalent living standards approach a relatively new methodology that has been developed is to use financial stress, financial hardship or deprivation (rather than the proportion of expenditure to food (or other essentials)) as the well-being 'measuring stick' to compare the living standards for households of different sizes and compositions (see for example Breunig and Cobb-Clarke 2005; Breunig, Hasan and Hunter 2019).²

Like all approaches to estimating the cost of children, financial stress data has both strengths and weaknesses. Strengths include the fact that financial stress questions are a direct measure of financial stress for the purpose of considering economic welfare (living standards) whereas the expenditure share is an indirect measure of welfare that for some households may have little do with welfare but rather be the result of their own preferences. It may also be that a family's expenditure share is the function of the nature of parenting children rather than an indicator of financial wellbeing. In addition, in the current Australian context financial stress data is more readily available and up to date than household expenditure data.³

Financial stress can be measured in several ways (for example, any stress, more than 3 forms of stress, any of the more extreme forms of financial stress) and there is no clear measure that is best suited to modelling the cost of children. Moreover, financial stress measures, at least for individual persons or families, may be the outcome of differing financial planning or literacy levels. For modelling at population level this may be less of an issue but where certain demographic groups are known to have different financial literacy or financial planning abilities the cost of children estimates may partly reflect those differences and not the genuine cost of children component.

Regardless of the approach taken to estimating the cost of children using the equivalent living standards approach (expenditure or financial stress) a useful feature of these estimates is that

¹ Thus, suppose we had a couple without children who were spending \$500 a week and devoting 30 per cent of this to food. And then we found an otherwise similar couple who had one child and were also spending 30 per cent of their total weekly expenditure upon food, but whose total weekly spending was \$600 a week. Then Engel suggested that this would mean that the cost of the child was \$100 a week (\$600 minus \$500).

² This approach has similarities to the subjective well-being methods surveyed in Bradbury (1989) – though the indicators of hardship are now different.

³ Financial stress data is available on a regular basis from several sources including annually from the Household Income and Labour Dynamics in Australia (HILDA) survey and bi-annually from the ABS Survey of Income and Housing. In contrast expenditure data is collected much less frequently with the most recent data being from the 2015-16 ABS Household Expenditure Survey.

they are very flexible compared to the budget standards approach. They can provide very detailed costs for different family types whereas the budget standards approach requires very detailed and often strong judgements on the cost of children for each family type. Developing an estimate for each family type is time consuming so the economic approach offers a relatively simple way to estimate the cost of children for a wide range of family types be they low or middle or high income, families with different number of children or for children of different ages.

2. Data and statistical methodology

This section describes the data used to estimate the costs of children, some data related issues and the statistical methodology used⁴.

Data

The costs of children are estimated using the Household Income and Labour Dynamics in Australia (HILDA) Survey.⁵ The HILDA survey is a nationally representative household-based longitudinal survey. HILDA started in 2001 and collects data annually from all people aged 15 years or older in each household. In wave 1 data was collected from 7,682 households and 13,969 individuals. All people living in households that participated in the survey in Wave 1 formed the basis of the panel from whom interviews are sought in each subsequent wave. The panel expands over time to include any new household members resulting from changes in who is living in the original households. The sample was topped-up in wave 11. The most recent wave of data that was available at the time this research was undertaken was collected 2022 (wave 22). In wave 22 data was collected from 7,117 households which had 17,199 persons living in them.

The HILDA survey asks respondents (aged 15 years or older) if they experienced a range of financial stresses. The specific question asked is “Since January [relevant year] did any of the following happen to you because of a shortage of money?” with the following list provided:

- Could not pay electricity, gas or telephone bills on time
- Could not pay the mortgage or rent on time
- Pawned or sold something
- Went without meals
- Was unable to heat home
- Asked for financial help from friends or family
- Asked for help from welfare / community organisations.

In addition, HILDA survey includes the question “Suppose you had only week to raise \$4,000 for an emergency. Which of the following best describes how hard it would be for you get that money?” with response options: I could easily raise the money; I could raise the money, but it would involve some sacrifices (e.g., reduced spending, selling a possession); I would have to do

⁴ This section draws heavily from Phillips (2024).

⁵ Another potential data source is the Australian Bureau of Statistics (ABS) Survey of Income and Housing (2019-20). However, as will be shown in this paper the estimates based on the HILDA survey are more robust than those using the Survey of Income and Housing (2019-20). Estimates based on the Survey of Income and Housing are reported in Appendix C.

something drastic to raise the money (e.g., selling an important possession); or I don't think I could raise the money.⁶

The financial stress measure takes the value of one if at least one of these types of financial stress (including the ability to raise money in a crises) and zero otherwise. The measure is thus a simple 'any stress' measure. This measure does not place any greater weight on households who experience a greater number of financial stresses than households that experience a smaller number of financial stresses. This is essentially a judgement call and based on what one might expect to best correlate, across a wide range of income, with financial wellbeing. Were the measure of financial stress to only include the deeper forms of stress, such as going without meals, then such models would perform badly at discriminating between the cost of children for higher income households for whom these deeper forms of financial stress are extremely rare.

The sample is restricted to couples with and without dependent children. A dependent child is defined as a person being under 18 years of age. The sample is further restricted to adults who are less than 55 years of age but older than 20 years. Couples with any adult children and any couples living with other related or not related household members are excluded. Those aged 55-years and over are excluded from the modelling since cost of children approach attempts to compare the cost of a family with children with a reasonable counterfactual family without children – the difference being the cost of children. For example, a couple family without children who are retired and aged over 65 are not a realistic comparator group to families with children. Individuals with an age under 55 but with a partner aged over 55 are retained. the older partner is not retained. Households with very low equivalised household incomes are excluded (\$200 per week or less).⁷

An alternative to using financial stress to estimate the equivalence scales is financial satisfaction. Respondents to the HILDA survey are asked to rate their financial satisfaction on a scale of 1 to 10. While conceptually a promising metric is only limited variation with most respondents, even people with substantial financial stress, rating their satisfaction as a 6, 7 or 8. A possible reason for this is that people compare themselves to their reference group which may be other low-income people in their neighborhood. The regression results were broadly sensible across the whole population, but the models performed poorly in terms of fit and statistical significance for more detailed results such as the age of children or different income groups. Models based on financial satisfaction are therefore not reported in this paper.

Estimation approach

As outlined in the introduction, the approach used to estimate the cost of children is to estimate the income required in households with and without children that will lead to them having the same living standards as measured by financial stress. The costs of children are expressed using equivalence scales which indicate how much additional income is needed to maintain living standards as the number of children increase compared to a couple family without children. An example can help illustrate the interpretation of the equivalence scales. If the

⁶ In waves 9-19 this question was whether the respondent could raise \$3,000 for an emergency. From wave 20 the question was whether the respondent could raise \$4,000 for an emergency.

⁷ Households with very low incomes often have living standards more like households with much higher incomes. Such households may have such low incomes because of business income or low investment returns that often not a good indicator of typical living standards or income for that household. The ABS often recommends the removal of households with incomes in the bottom 2 percentage points of the income distribution for this reason.

reference family is a childless couple, then they have an equivalence scale of 1.00. If the equivalence scale for a couple with one child is 1.20, then this implies that a couple with one child needs 120 per cent of the income of the childless couple to enjoy the same standard of living. These equivalence scales can be converted to a dollar cost at a particular household income.

When estimating the amount of income needed to "equivalise" living standards the choice must be made as to which measure of income to use. The two broad choices are gross or disposable household income. Disposable household income is, arguably, a better measure of living standards as the measure deducts personal income tax payments. Given there are arguments for and against both gross and disposable household income both sets of results are reported in the paper. Anticipating one the conclusions of this paper, choice of income variable has relatively little impact on the estimated costs of children.

The number of couple families with children in the different age ranges in a single wave of the HILDA survey are relatively small (see

Table 1) and therefore the costs of children are estimated both using pooled waves of the HILDA survey which increases the sample size and results in smaller standard errors, even after considering the loss of sample efficiency from having the same individuals in multiple waves of the data. The estimates made using single waves of the HILDA survey also provides information on the extent to which there is any time trend in the estimated costs of children.

Table 1. Number of children in couple families of different ages and gross household income level, HILDA 2021

Number of children	Age of children			
	0-5 years	6-12 years	13-17 years	0-17 years
Lower income				
1 child	192	50	37	279
2 children	356	226	90	672
3 children	192	186	78	456
4+ children	115	139	53	307
Middle-income				
1 child	115	139	53	307
2 children	505	349	128	982
3 children	241	226	100	567
4+ children	76	78	57	211
All households				
1 child	557	137	110	804
2 children	1,270	958	412	2,640
3 children	621	676	323	1,620
4+ children	232	297	137	666

Source: HILDA Wave 21 (2021).

Statistical models estimated

Cross-sectional analysis over time

To estimate the equivalence scales using cross-sectional data (treating each wave of HILDA as a separate cross-section) a logit regression model is used with the dependent variable being whether the person experiences at least one type of financial stress and explanatory variables including household income and measures of the age of children variables.⁸ Equation (1) specifies the logistic regression model which is the basis for the equivalence scale calculation for children aged 0-17 years and separately for children of different ages:

$$\text{logit}(\Pr(FS_i = 1)) = \beta_0 + \beta_1 \ln(\text{income}_i) + \beta_2 \ln(N_{\text{Children}05_i}) + \beta_3 \ln(N_{\text{Children}612_i}) + \beta_4 \ln(N_{\text{Children}1317_i}) + \sum_{a=1}^k \gamma_a X_i \quad (1)$$

where FS_i is a binary variable equal to 1 if the household experienced at least one type of financial stress out of eight possible types and 0 otherwise. $N_{\text{Children}05_i}$ is the number of children aged 0-5 years, $N_{\text{Children}612_i}$ is the number of children aged 6-12 years and $N_{\text{Children}1317_i}$ is the number of children aged 13 to 17 years. The number of children variables are expressed on a logarithmic scale (+1) to allow for economies of scale. $\ln(\text{income})$ is the natural logarithm of gross household income per week. X_1 to X_k refer to k control variables. Control variables are

selected based on the model fit via Akaike Information Criterion (AIC) and include adult age groups (age 18-24, age 25-34, age 35-44 as base category and age 45-59), tenure (home owner, home mortgage, renting as base category and living rent free), a dummy variable for gender of the respondent, labour force status (full-time employed as base category, part-time employed, unemployed, not in the labour force) and a series of dummy variable for state and territory of the adult and a further regional variable for capital city/rest of state.

Pooled data analysis using HILDA waves 13 (2013) to wave 21 (2021)

The models using the HILDA data pooled over wave 13 to wave 21 have similar specifications as Equation (1). The sample size for the pooled data analysis is about 41,500 (couples and couples with children), with most individuals appearing in more than one wave. Household income is adjusted for inflation and expressed in 2022 dollars.

The standard errors for the parameter calculations account for clustering generated by having repeated observations on individuals using the variables recommended in the HILDA documentation to overcome clustering issues for longitudinal data. While the pooling of data does significantly increase the sample size the estimated standard errors are increased once we account for the clustered nature of the HILDA longitudinal data.

Given the interest, from a family payments perspective, as to whether the costs of children vary with household income, equivalence scales are estimated for different household types and for households at different points in the income distribution (low- and middle-income households). The focus in this paper is on lower income households as family payments are mostly directed to these households.

Two regression models are estimated. The first is for all households and is used to estimate the overall equivalence scale for all households. The second model is for lower income families. Income groups were based on splitting the sample into three equally sized populations (terciles) based on the sample. Equivalence scales were estimated for higher-income households. However, the variables capturing number of children by age were in a few cases not statistically significant. This is not entirely surprising given that relatively few higher income households experience financial stress. Given concerns about the robustness of the results for higher-income households the resulting equivalence scales for high-income households are not reported. On the basis of judgement in this analysis we use the low income family equivalence scale results for the bottom income households but apply the all household result for other households. Middle income results could have been used, however we have greater confidence in the all household results than middle income only results. Later analysis does show that vast majority of family payment households are in the bottom income tercile of couple and couple with children families so this choice does not make any substantial difference to the analysis results.

For the regression models using disposable household income as the explanatory variable households are categorised into lower- and middle-income based on equivalized disposable household income.

Equivalence Scale Calculations

The estimated coefficients from a simplified form of equation 1 (where age of children is not distinguished) are used to calculate the equivalence scales (ES) by equalising the predicted

probability of financial stress of couples with different numbers of children. That is, for a couple with one child the natural logarithm of N_{Children} is set equal to 2 (one child plus adding the constant 1)) and this predicted value is set equal to the predicted value for a couple without children (setting the natural logarithm of N_{Children} equal to 1, i.e., zero children plus adding the constant 1).

$$\hat{\beta}_0 + \hat{\beta}_1 \ln(\text{income}_{1\text{child}}) + \hat{\beta}_2 \times \ln(2) + \sum_{a=1}^k \gamma_a X_i = \hat{\beta}_0 + \hat{\beta}_1 \ln(\text{income}_{\text{couple}}) + \hat{\beta}_2 \times \ln(1) + \sum_{a=1}^k \gamma_a X_i$$

$$\hat{\beta}_1 \ln(\text{income}_{1\text{child}}) + \hat{\beta}_2 \times \ln(2) = \hat{\beta}_1 \ln(\text{income}_{\text{couple}}) + \hat{\beta}_2 \times \ln(1)$$

$$\ln(\text{income}_{1\text{child}}) - \ln(\text{income}_{\text{couple}}) = \ln\left(\frac{\text{income}_{1\text{child}}}{\text{income}_{\text{couple}}}\right) = -\frac{\hat{\beta}_2 \times \ln(2)}{\hat{\beta}_1}$$

$$ES = \frac{\text{income}_{1\text{child}}}{\text{income}_{\text{couple}}} = e^{\left(-\frac{\hat{\beta}_2 \times \ln(2)}{\hat{\beta}_1}\right)} \quad (2)$$

All other control variables are held constant, so that we are comparing couples without kids to couples with one child that are otherwise identical in the socio-demographic aspects that are captured by our control variables.

The same approach is applied to the full version of Equation (1) except that the estimated coefficient $\hat{\beta}_2$ on the number of children is replaced with the estimated coefficient that corresponds to the number of children of the age group that we are interested in, i.e., either $\hat{\beta}_2$, $\hat{\beta}_3$, $\hat{\beta}_4$ or $\hat{\beta}_5$. The number of children from other age groups is held constant.

Confidence intervals on the equivalence scale estimates

As outlined above, the equivalence scales are calculated from the parameters (coefficients) for income and the various children related variables estimated using regression models regression equations.⁹ The equivalence scales are a non-linear combination of these parameters. The parameters used for calculating the scales have standard errors associated with them. The calculation of the standard errors and confidence intervals is not straightforward since the equivalence scales are a non-linear combination of the regression coefficients for household income and the number and age of children from the underlying regression models. Calculating the standard errors for the non-linear combination of parameters (the equivalence scales) must account for the cross-correlation matrix between model parameters. To estimate the standard errors, the SAS macro *nlest* macro (non-linear estimate) is used.

It's important to remember with the equivalence scale estimate that a 'significant' parameter estimate alone does not guarantee a small standard error for an equivalence scale estimate. A

⁹ There are also several other variables that are estimated that are 'control' variables, however, the parameter estimates for these are not needed for estimating the equivalence scales.

significant parameter suggests that the estimated impact of a variable is not equal to zero, but it may be that the standard error still allows reasonably large variation above zero which could lead to substantially different equivalence scales from random chance alone.

For the models which used pooled waves of HILDA data the standard errors for the estimated regression parameters need to be 'robust' standard errors that account for the clustering of the HILDA survey generated by the longitudinal nature of the pooled sample. That is, pooling doesn't really increase the sample size as dramatically as it may appear as most people are in each of the pooled waves and will often give the same or at least strongly correlated financial stress responses in each wave.

Methodological limitations

The most important assumption made in this estimation is that our indicator of financial stress is a suitable indicator of well-being that is equally relevant across households of different composition. So, for example, if people were more likely to seek help from welfare organisations when they have children – simply because many welfare organisations only provide help to parents – then this would bias the estimates of the cost of children (upwards in this case). While we think such biases will be small, if they exist at all, there is no definitive test for comparability of the stress indicator across family types. More generally, some family types might respond to financial stress by restricting other areas of expenditure that are not included in the set of financial stress indicators. Our estimation approach assumes that the list of stress items includes items that are of salience for financial stress.

Similarly, if fertility is influenced by financial stress, rather than the other way round, then the results will not be an accurate reflection of the costs of children.

Finally, previous research has shown that the relationship between financial stress indicators and income and family size is often noisy, with many other factors (such as personal organisational skills) intervening. To the extent to which these factors are independent of the relationships estimated, this imprecision is captured by our standard error estimates.

3. Choice of Modelling Approach

An array of different approaches has been trialed as part of this research. There are several questions that need to be answered including:

- 1) Which data set and for which year/s?
- 2) Functional form for the iso-welfare regressions?
- 3) What form of income (disposable or gross income)
- 4) What variable is best used for the iso-welfare regressions?
- 5) How to restrict the sample for different income levels analysis (gross, disposable or equivalized)

The list of questions above does mean that the potential combinations of results are quite extensive with potentially hundreds of different sets of results. Determining the best approach is

not always obvious and to some extent judgement is required. The full set of results for each combination will not be presented. We will largely focus on the results for the model which in our judgement is most sensible.

The main data options are the HILDA longitudinal data set (annually from 2001 to 2022), ABS Survey of Income and Housing and the ABS Household Expenditure Survey. All these surveys are high quality surveys that are nationally representative. The HILDA survey offers the choice of financial stress and financial satisfaction variables but does not include comprehensive expenditure data. The Survey of Income and Housing is a slightly larger survey than HILDA but is only available every two years and has not been updated since 2019/20. Financial stress was only introduced to the SIH in 2019/20. The HES has financial stress data and comprehensive expenditure data from 1998/99 but is only available every 4 to 6 years and the latest data is now quite dated at 2015/16. Another difference between the ABS surveys and HILDA is that HILDA provides financial stress (and satisfaction) for each adult in the household whereas the ABS surveys only include a single response for each household determined by one selected adult. Overall, we find that the sample size of single year surveys is not sufficient to produce low enough standard errors to ensure we can have confidence in the results for the more fine-grained analysis such as the cost of children for low-income families for children of a certain age. As such, our preference is to use pooled HILDA data over a 10 year period (2013 to 2022).

The functional form can potentially take many different forms. The standard approach taken in the literature is to include a logged form of income. For the number of children and age of children we take a logged form of the number of children. Non-linear forms of the explanatory variables such as number of children plus the number of children squared are less restrictive regarding economies of scale with respect to the number of children and their impact on costs but we did find those regressions did not perform as well as the logged form. Our preference was to use the log form for income and the log of the number of children and to include a small number of other factors to account for differences that exist relating to gender and tenure of the household. The inclusion of wealth was considered, however, its inclusion does interact heavily with the income variable and produced costs of children (equivalence scales) that weren't always sensible and sometimes meant the income variable was not significant.

Much of the past work in Australia (NATSEM) has focused on the use of gross income. Gross income was chosen largely due to the practical benefits for the work undertaken by NATSEM for child support work where the formula for child support is based on a gross income concept. However, for this analysis where the focus is the adequacy of the family payments system (also means tested according to a gross income concept) our judgement is that disposable income (after-tax) is the sounder approach under a progressive tax system where higher income earners pay a higher amount and rate of tax.

The variable choice for iso-welfare analysis needs to consider the data to be used (sample size, recency and frequency) but also the model fit and statistical significance of relationships and the general sensibility of the results. Past analysis in Australia has typically used the expenditure share approach (basics expenditure share/Engel or adult goods/Rothbarth). To undertake these approaches we need to use the ABS' HES which is now 9 years out of date. The sample size is also quite small relative to a pooled HILDA approach. Our interest in the lower income households means that sample size issue becomes more important. The results for the HES were not satisfactory particularly when restricting the sample to only low income couples. The SIH (2019/20) is a slightly larger sample than the HES but still the sample size with only single

household responses was relatively small and results were often quite variable and sometimes not significant. HILDA financial stress modelling performed well with results that agreed with the general literature in Australia and the regression results for the overall sample and low income were significant and produced sensible results.

Financial satisfaction is also covered in the HILDA survey. The results were not as sensible and often not significant. A likely driver of this is that most people (even those in considerable financial stress) would rate their financial satisfaction as either a 6,7 or 8 out of ten. We can't be sure why this would be, but it may relate to people comparing themselves to their reference group which may also be poorer persons.

Our interest in this research is to focus on lower income households. Family payments mostly go to lower income households. The literature would generally suggest that expenditure on children is an 'inferior good' meaning that as a household's income increases the share of expenditure devoted to the cost of children declines (even though the absolute expenditure increases). Given this likely outcome it is important that when calculating the share of income devoted to child expenditure (via equivalence scales) that we calculate such estimates at different points of the income distribution. We expect that equivalence scales will be higher for lower income families. As such, we produce estimates for low, and 'All' households.

High income households tend to have low rates of financial stress and the regression models can often show limited financial stress responsiveness to income – which would indicate that the cost of children to high income parents is low or even zero – which is not a sensible result as clearly high income families do have a cost attached to their children it is just that this expenditure appears not to lead to substantially different financial stress rates. In determining income level our preference is to use the standard in social policy for determining income level – equivalized household income. Unequalised gross or disposable income is not a reasonable metric for comparing couples without children and those with children as they should be expected to have different living standards for the same level of income.

4. Results

4.1 Financial Stress Analysis

To motivate the policy analysis of the cost of children the figures below outline the living standards as measured by financial stress rates for a range of different family types in Australia.

Figure 1 shows that financial stress rates for all family types have lowered since the early 2000s. Most of this reduction occurred prior to the Global Financial Crisis (2008) and rates have remained relatively stable since. Couple only families consistently have the lowest rates of financial stress while lone parents have the highest. Couples with children and lone persons have similar rates of stress with around 30 to 40 per cent of adults in these families reporting some form of financial stress.

Figure 1 Family Type

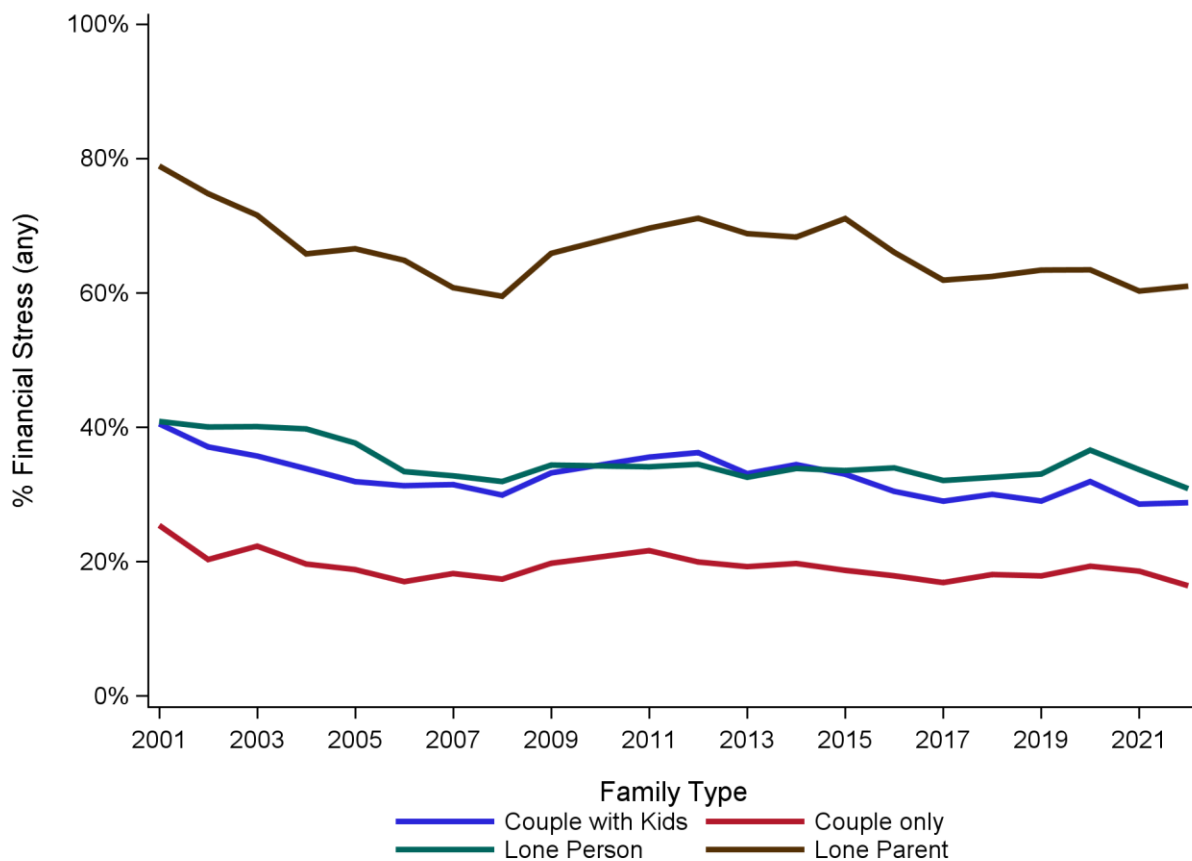


Figure 2 shows that low income households (based on equivalized disposable income) have substantially higher rates of financial stress than higher income households. Lower income

(bottom third) has rates of stress around three times that of higher income households. All income levels have moderately lower financial stress compared to 2001.

Figure 2 Income Group (All Households)

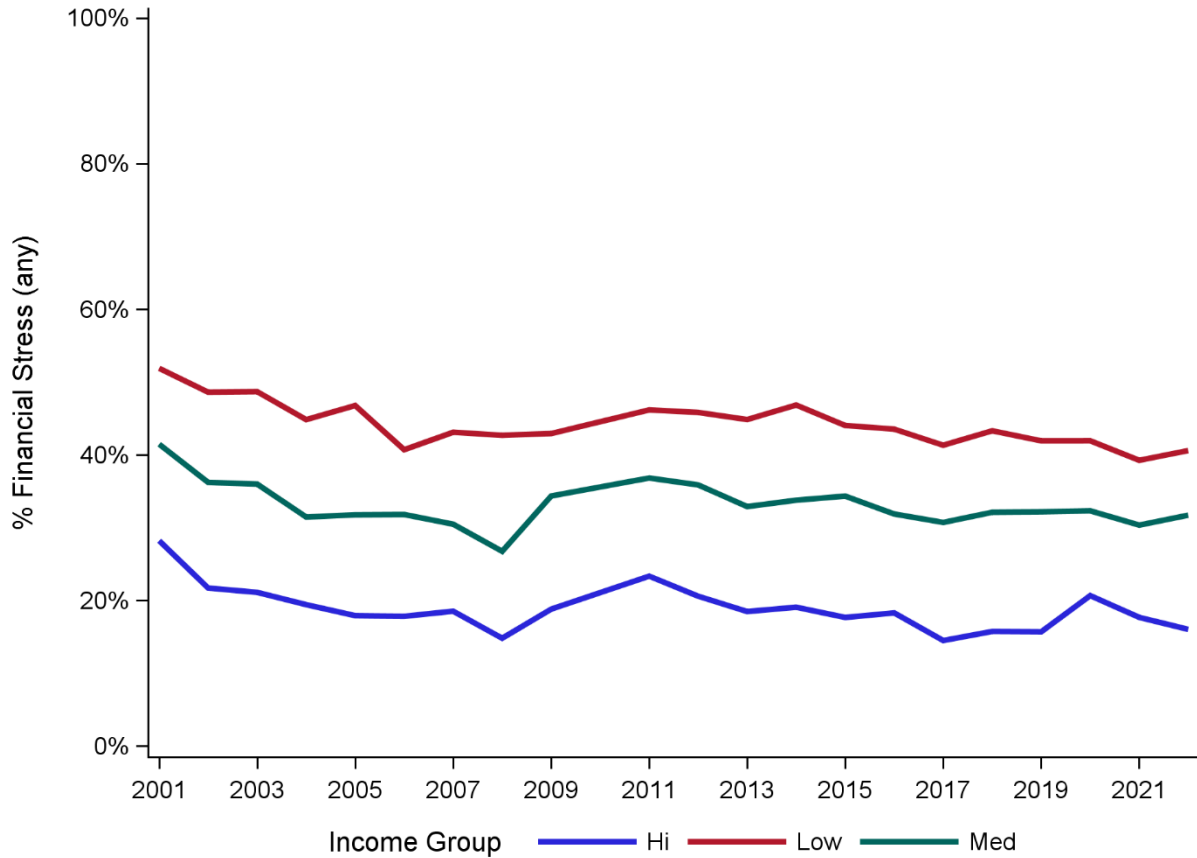


Figure 3 shows that financial stress (in aggregate) does not vary greatly by the number of children unless the household has more than 3 children. Households with 4 or more children have much higher rates of financial stress than families with fewer children. This finding is likely complicated by other factors such as families with more than 3 children having lower income than families with fewer children.

Figure 3 Number of Children

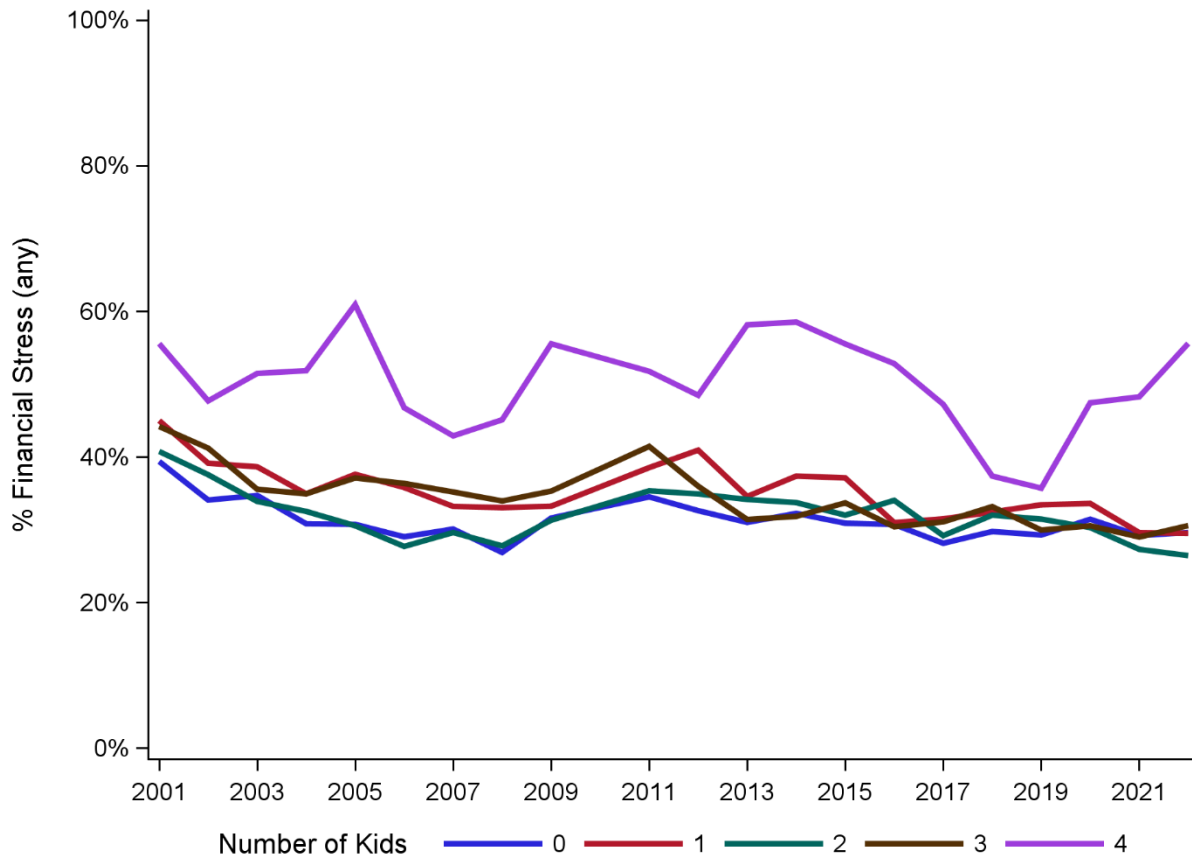
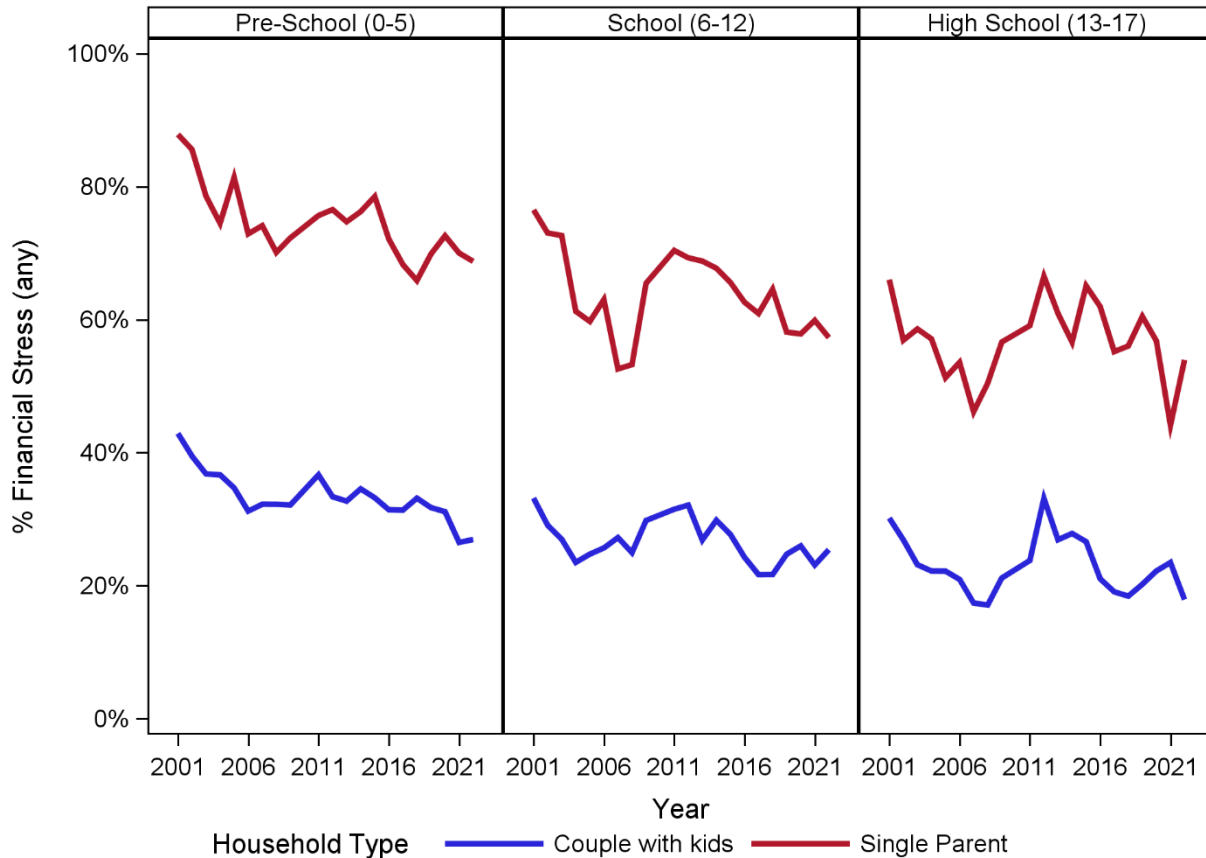


Figure 4 shows that both couple families (1) and lone parent families (4) have lower rates of financial stress when the youngest child in the house is of high school age (13 to 17). The highest rates of stress are for families with children in pre-school years (0 to 5). These findings may be confounded by other factors, such as female workforce participation of families with younger children may be lower than those in families with older children. The cost of children estimates in this paper attempt to abstract from such differences.

Figure 4 Financial Stress (any) by Age of children by family type



To summarise, the financial stress figures above show us that higher income families have lower rates of financial stress, lone parent families have higher rates of financial stress than other family types and that couples with children have higher rates of financial stress than couple only families and that families with younger children tend to have higher rates of financial stress than those families with older children. Having more than three children in a family correlates with higher rates of financial stress. All these findings are subject to confounding factors, for example, it may be that families with 4 children have lower income – not that the fourth child is particularly expensive compared to the first, second or third child.

4.1 Equivalence Scale/Cost of Children Results

HILDA provides longitudinal surveys for each year between 2001 and 2022. To develop equivalence scales logistic regression models of financial stress were used to calculate parameters for the log of income variable and the log of the number of children variables. A range of other variables are included to control for other factors but these variables are not needed for the equivalence scale calculation.

The regressions considered in this paper include the latest available year (2022) and a pooled regression based on the 10 most recent waves. For the latest wave in HILDA we did find an unexpected and unexplained substantial rise in the equivalence scales relative to earlier years. There can be considerable standard errors in single year/wave equivalence scale estimates and our judgement was to use pooled data over a 10 year period. We have excluded the 2022 wave as the wave appears to be a significant outlier¹⁰. The pooled regression was based on 2013 to 2021 (9 waves) which substantially lowers the standard error of equivalence scales estimates. Figure 5 shows the individual wave results for average equivalence scales between 2012 and 2022. There is no strong trend between 2012 and 2021 but 2022 is clearly an outlier.

¹⁰ Early estimates from the HILDA sample for 2023 indicate that the 2022 result was an outlier with equivalence scale estimates returning much closer to 2021 levels.

Figure 5 Equivalence scale financial stress estimates for couple parent families by number of children, 2012 to 2022, disposable household income approach

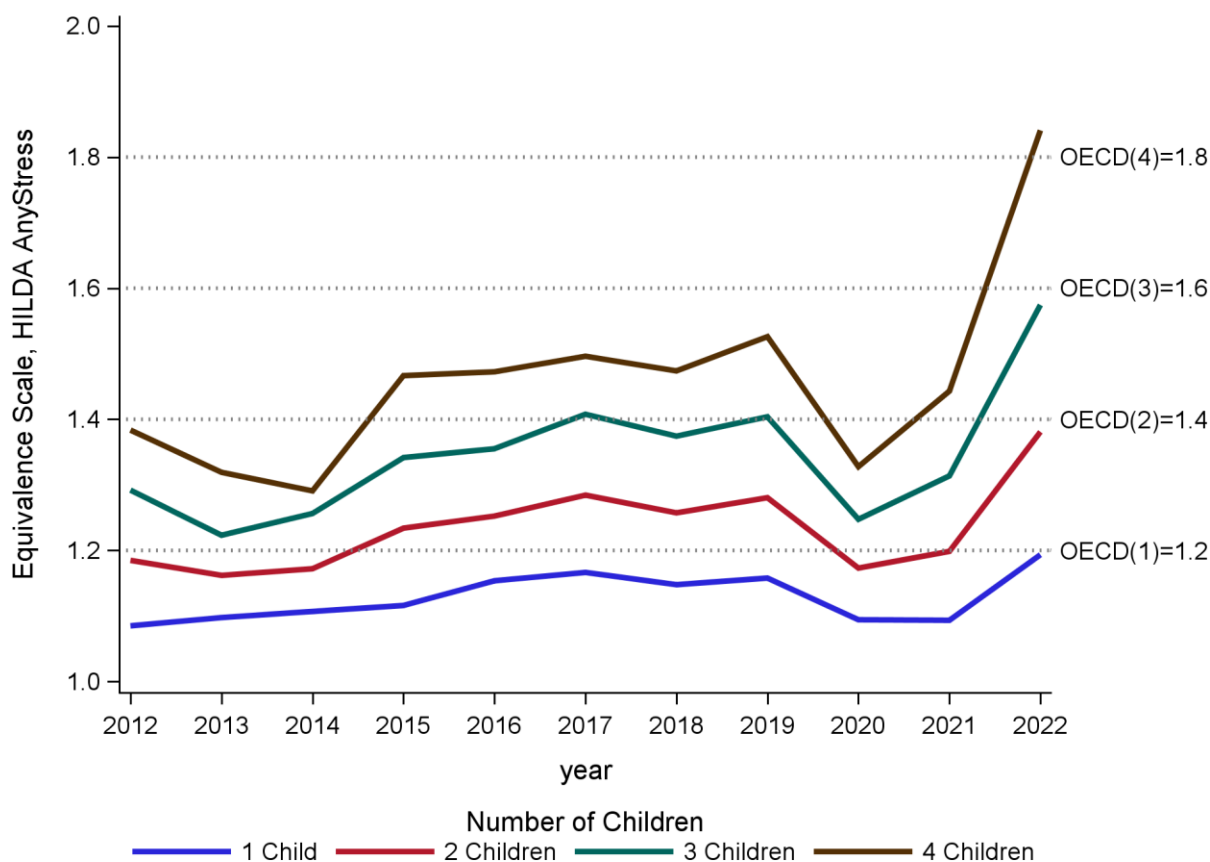


Table 2 and Table 3 below show the regression results for our preferred model for financial stress using HILDA. Financial stress (any of the 7 potential forms in HILDA) is modelled using the log of disposable income, three log of number of children variables (ages 0 to 5, 6 to 12 and 13 to 17) and the additional control variables for gender and housing tenure.

Table 2 shows the results for the full sample based on the HILDA pooled data between 2013 and 2021. Table 3 shows the same model except that the data is restricted to only the bottom one third of households ranked by disposable income (equivalized). All parameter standard errors are estimated using robust regression in that clustering due to the longitudinal nature of the survey is accounted for. Without such a correction the standard errors would assume that each sample for each year is independent when in fact they are usually from the same household.

Table 2 Regression Parameters for Modelling of Financial Stress (any) in HILDA (All Income)

Variable	Parameter	Standard Error	P Value
Intercept	12.518	0.559	<.0001
Log Income	-1.807	0.071	<.0001
Log(Kid0_5)	0.340	0.050	<.0001
Log(Kid6_12)	0.244	0.053	<.0001
Log(Kid13_17)	0.370	0.066	<.0001
Own Outright	-1.187	0.176	<.0001
Mortgage	-0.199	0.136	0.145
Rent	0.710	0.136	<.0001
Other	0.871	0.523	0.097
Male	-0.132	0.014	<.0001

Table 3 Regression Parameters for Modelling of Financial Stress (any) in HILDA (Low Income)

Variable	Parameter	Standard Error	P Value
Intercept	8.065	0.915	<.0001
Log Income	-1.184	0.126	<.0001
Log(Kid0_5)	0.278	0.077	0.0003
Log(Kid6_12)	0.249	0.078	0.0014
Log(Kid13_17)	0.203	0.096	0.0349
Own Outright	-1.115	0.208	<.0001
Mortgage	-0.330	0.149	0.028
Rent	0.814	0.150	<.0001
Other	0.929	0.553	0.093
Male	-0.126	0.018	<.0001

The regression results show that both all household and low income household models have regression parameters that are highly significant – in particular those parameters that matter for the calculation of equivalence scales – income and the log of the number of children variables.

The results in Table 2 and Table 3 lead directly to the calculation of Table 4 results for the equivalence scales. Table 3 shows that for the all household result the average result increases from 1.13 for a single child to 1.44 for 4 children. For low income households the numbers are higher starting at 1.17 for one child and increasing to 1.58 for 4 children. This result is as expected for lower income households with regard being higher than the all household result.

The results in Table 4 are relative to a couple only family. For example, on average having one child in a low income household costs a family 17 per cent more (1.17) than a couple only

family. Technically, the correct interpretation is that the income of the couple with one child needs to be 17 per cent higher than that of a couple only family to have the same living standard (as represented by financial stress).

The results in Table 4 are lower than those typically used in Australian social analysis where the OECD scale of 0.3 is added for each child – implying the first child equivalence scales in Table 4 would be 1.2, 1.4, 1.6 and 1.8¹¹. The table below also shows the result for hypothetical family types. These results show that for low income households that younger children are more expensive than older children, however the differences are very small and not statistically significant. For all households the results suggest similar costs for different ages with possibly slightly higher costs for older children. As expected, more children cost more than fewer children and that second and third children are relatively cheaper than the first. That result is, however, assured due to the modelling of a log number of children. Modelling using the less restrictive quadratic approach yielded poorer quality regression results and is not used in this paper.

Table 4 Equivalence Scales for All and Low Income only (bottom tercile) households. Low Income determined by equivalised disposable income

	Low-income (\$200-\$1025 pw)	All Households
Equivalence scales		
Children 0 to 17 years		
1 child	1.17	1.13
2 children	1.30	1.23
3 children	1.44	1.33
4 children	1.58	1.44
Children 0-5 years		
1 child	1.18	1.14
2 children	1.30	1.23
3 children	1.39	1.30
Children 6 to 12 years		
1 child	1.16	1.10
2 children	1.26	1.16
3 children	1.34	1.21
Children 13 to 17 years		
1 child	1.13	1.15
2 children	1.21	1.25
3 children	1.27	1.33

¹¹ The standard OECD equivalence scale is 1 for the first adult, 0.5 for a second adult and 0.3 for children. A couple with one child would have an OECD equivalence scale of 1.8 compared to 1.5 for a couple only family. The ratio of the two being what is calculated in Table 4 (1.2).

The model chosen for the main results uses disposable income (after-tax) and sample selection for the low income household regression is based on equivalized disposable income. There are a range of alternative models that can also be used. Instead of disposable income, gross income can be used. For sample selection for low income household based regression models non-equivalised income can also be used.

In this research disposable was preferred to gross income as spending on children comes out of after-tax income. Were the modelling undertaken for a different purpose, such as for the analysis of child support in Australia gross income may be preferable as the child support system is largely based on a gross income concept.

For sample selection, from a social policy perspective, equivalizing income is the standard approach to splitting up households with different numbers of persons and different family structures. For example, in considering low income families using disposable income only in a regression with both couples and couples with children will mean that a family with 5 children on a disposable income of \$100,000 would be considered to have the same financial living standard as a couple with no children on the same disposable income. A better approach is to equalize all incomes first and then rank families. The equalizing in this research was based on the OECD method where a couple only has a relative score of 1 compared to a couple family with one child with a relative score of 1.2. Larger couple families with children are linearly scaled up with an extra 0.2¹².

Figure 6 shows the hypothetical equivalence scales (same as Table 4) but also includes 95 per cent confidence interval error bars. The all household results have relatively small errors suggesting a high level of confidence in these results. The low income results have wider error bands suggesting less confidence in these results. This result is largely driven by the low income regression results being based on a small sample (one third that of the all household's regression).

Figure 6 also shows modestly small errors for younger children equivalence scales than older children. The main message from Figure 6 is that the results for the all household equivalence scales we can have a high degree of confidence, while some more caution is required for the low income household results. The results are generally consistent between the low income and all household results except that the low income scales are moderately higher which is the expected result.

¹² Usually the OECD scales are expressed as 1 for a single person, 1.5 for a couple only and 0.3 for children in a couple family. However, in this analysis our interest is the comparison of couple only families to couple with children families so we use the same relativities but assign a score of 1 to couple only families.

Figure 6 Equivalence scale financial stress estimates for couple parent families by number of children and household income category, Wave 13-21 (2013-2021), disposable household income approach (Low Income determined by equivalised disposable income)

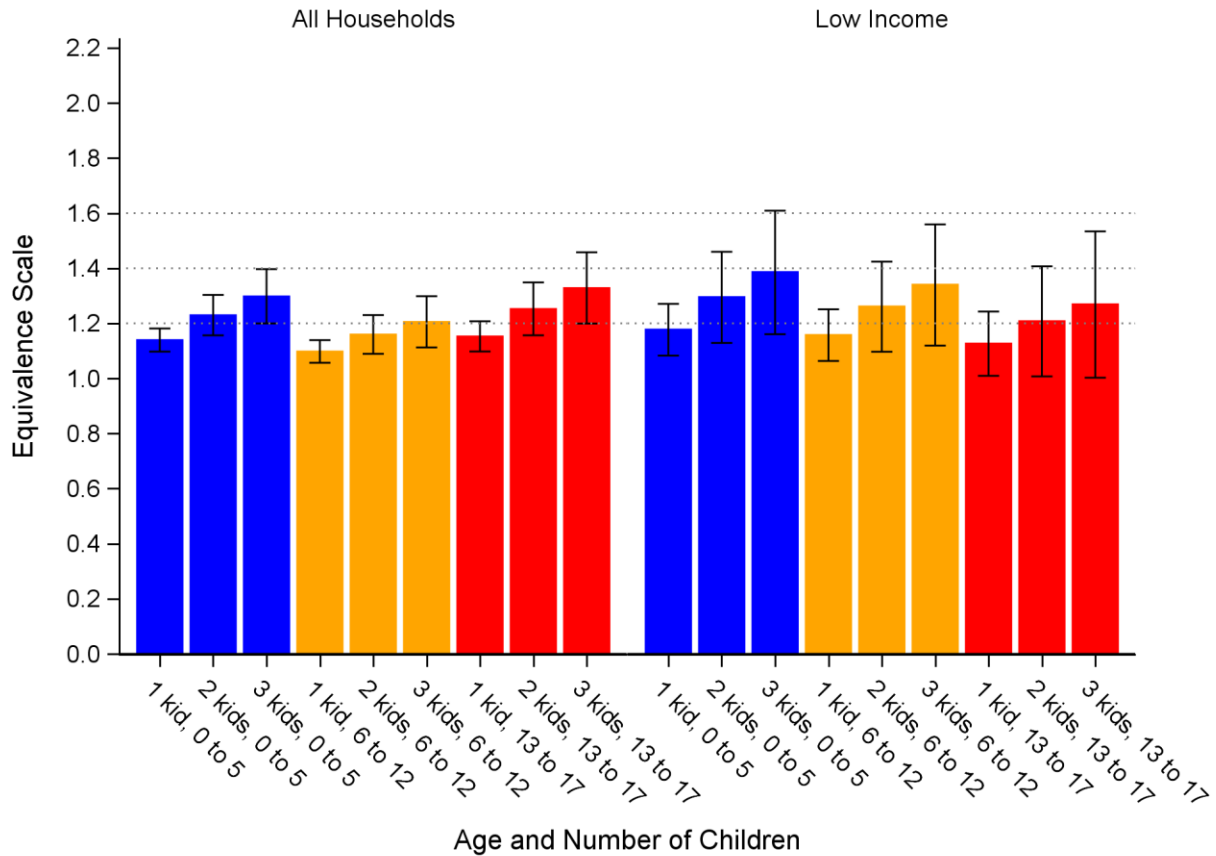


Figure 7 and Figure 8 shows the comparable results for gross and disposable income for all households and low income households. The all household results are very similar with gross income producing slightly higher equivalence scales. For low income households Figure 7 shows that ranking income by equalized income leads to lower equivalence scales relative to the gross and disposable income approaches where income is not ranked using equivalence scales. In Figure 7 the all household result is identical between the two disposable income approaches as the full sample is being used and the ranking makes no difference.

Figure 7 Average equivalence scales (all households) for couple parent families, pooled estimated 2013-2021, gross and disposable household income approaches

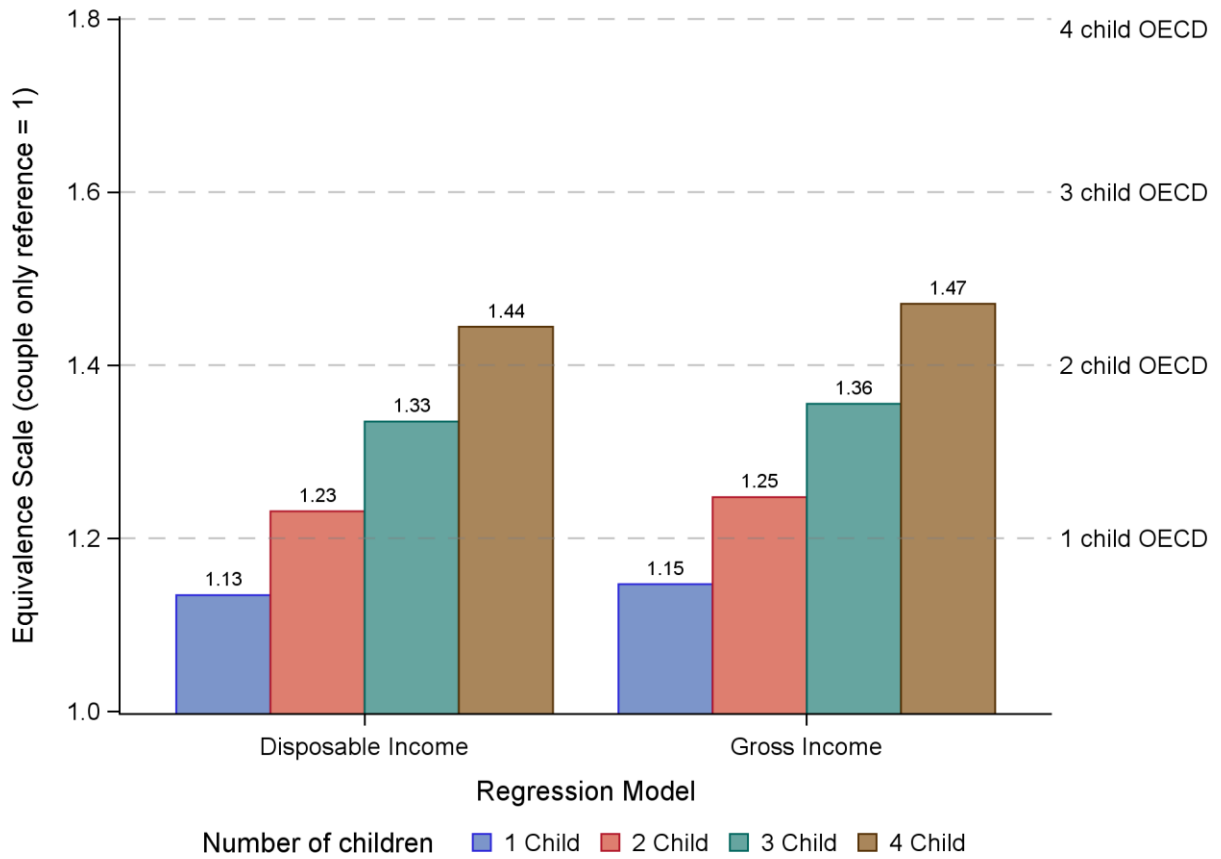
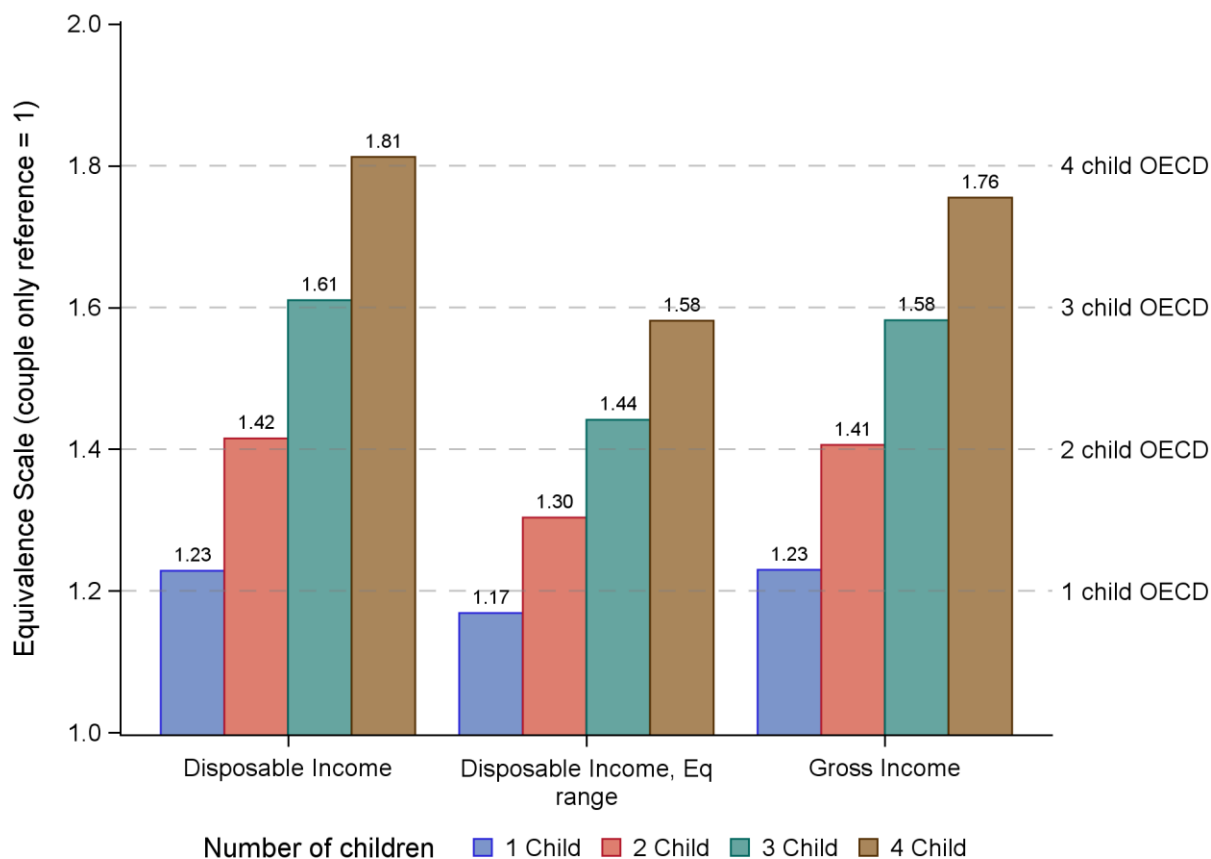


Figure 8 Average equivalence scales, lower-income households, by estimation approach

A range of alternative approaches have been trialed as part of this work. The ABS Survey of Income and Housing 2019-20 (SIH) and 2015-16 Household Expenditure Survey (HES) offer a range of alternative approaches. The SIH and the HES also ask households similar financial stress questions. The HES includes detailed expenditure survey questions which allow the more traditional expenditure share approaches such as the Engel and Rothbarth methods where a share of certain goods and services are used as a proxy for living standards. HILDA survey also asks a range of questions around financial satisfaction which may also be used as a proxy for living standards.

A major concern with the SIH and HES approaches is that both only allow a single sample which as we found with a single wave/sample year in HILDA can produce results with a high standard error and therefore equivalence scales that may vary from year to the next that is related to randomness rather than genuine changes in the cost structure or spending patterns of families with children. It is possible to pool HES and/or SIH samples from different years, however, the most recent HES is for 2015-16 while the previous version was from 2009-10 so there is a concern around the HES being quite dated compared to what is available with HILDA. The SIH only has financial stress for 2019-20. Older versions of the HES (going back to 1998-

99) do have financial stress but their age categories for children are much broader than HES and SIH versions from 2015 onwards which does limit the analysis here somewhat.

It should be noted that this research focusses on couple families with children. Ideally, there would also be similar estimates for single parent families. Unfortunately, the methodology employed in this paper doesn't relatively easily translate to single parents. An important part of the analysis is finding a counterfactual family. For the single parent family the comparison would be against similarly aged single persons. The assumption in the work above is that a couple family and a couple family with kids are statistically 'similar' apart from the presence of children is much more challenging to apply to single parents when compared to single persons. There would appear to be much more substantial differences between single parents and singles than just the presence of children and the inclusion of a few control variables is not enough to account for the significant differences that exist between the groups. Estimating the cost of children for single parents would seem to be more challenging than that for couple families and is beyond the scope of this project.

The iso-welfare approach taken in this report is highly flexible in that a great range of results can be produced for different income levels, age of children and number of children. An alternative is to calculate a budget standard for hypothetical families. The University of New South Wales estimates such standards for a range of families (Naidoo 2024). The budget standards for couples with children have three income assumptions for lower income families. The first two families relate to a single employed adult in a couple family and secondly, a dual income couple family. A third family type is for both parents in the couple to be unemployed. Employment income is set at two-thirds the median full-time hourly rate and the first member of a couple is assumed to work full-time while the second member is either working part-time or not in the labour force. Firstly, two-thirds of a median wage for dual earners either single (FT) earner or dual earners (FT/PT). Families receive whatever welfare payments they are entitled to with the unemployed family couple members both receiving parenting payment (partnered) each.

Table 5 Implied Budget Standards (UNSW) Equivalence Scales vs Iso-Welfare (ANU) Equivalence Scales¹³

Family Type (couples)	1 Child	2 Children
Single earner, FT/NILF	1.140	1.280
Dual earner, FT/PF	1.150	1.300
Unemployed (Un,Un)	1.360	1.560
Low Income Couple Iso-Welfare (ANU)	1.158	1.261

Table 5 shows that for the employed families the equivalence scale results are roughly like those estimated using the iso-welfare method employed in this research paper. However, the budget standards for the much lower income unemployed family are much higher than those estimated in the research presented in this paper. It should be noted that the very low income/unemployed family case is quite rare with only [60,300](#) persons receiving parenting payment partnered compared to nearly 1.3 million families who receive FTB part A.

¹³ The UNSW budget standards estimates relate to low income families with 1 or 2 children aged 8 for 1 child and 8 and 11 years for 2 children. The Iso-welfare results relate to low income families with 1 or 2 children aged 6 to 12 years.

Of most relevance to this paper is the budget standard estimate for the unemployed couple's children. These estimates are very high and driven principally by the assumptions around transport. The UNSW work assumes that a couple only family (unemployed) does not have a car, whereas that same family but with children requires a car. This assumption is the reason why the cost of children for low income families (unemployed) is so high relative to the iso-welfare estimate or indeed why the equivalence scales are also much higher than the other budget standard based estimates for higher income (employed) families with children. ABS Census for 2021 indicates that it is true that unemployed couples are less likely to own a car than an unemployed couple with children but around 90 per cent of unemployed couples with children still have a car¹⁴.

The financial stress estimate is based on an average household, whereas the budget standard estimate is for a hypothetical family with children of a given age with strong assumptions around housing costs and childcare costs. A wide range of hypothetical examples would be needed to provide a reasonable basis for comparison and that is not available at this point for Australia.

5. Adequacy and Family Payments

A challenge with the iso-welfare approach (used above to calculate equivalence scales) is the cost of children estimate does not directly relate to the concept of adequacy. The approach provides an estimate of the cost of children for a couple with children maintaining the welfare of the original couple only family. That cost estimate may be *more* or *less* than what is adequate in a needs-based sense.

If a cost of children estimate is based on an income considered adequate for a couple only family, then the iso-welfare approach can be used to estimate a 'needs' based estimate of the cost of children. For example, if separate analysis showed that an adequate or needs-based estimate for a couple only family was a disposable income of \$50,000 per year then an iso-welfare approach that yielded an equivalence scale of 1.2 for a couple with one child suggests that an adequate or needs-based cost of children estimate would be $(\$50,000 \times 1.2) - \$50,000 = \$10,000$ per year. Implying the family's disposable income needs to be \$60,000 per year for an adequate living standard for both the adults and the child in the family.

This indirect approach to calculating a needs based estimate of the cost of children using the 'iso-welfare' approaches requires a budget standards type estimate of the couple only family. The advantage of the iso-welfare approach is that it's relatively easy to calculate cost of children estimates for a wide range of different types of families with children such as different ages, income levels and number of children which can be quite time consuming and expensive with the budget standards approach.

The iso-welfare approach is based on expected equivalence scales applied to any given income. For very low incomes families this will mean very low estimates of the cost of children in dollar terms. This does not necessarily mean that the family's 'cost of children' is very low – rather that to maintain the living standard of a very low income couple they would need a

¹⁴ ABS Census 2021 Table Builder Pro, counting persons, place of enumeration table.

transfer of income that is also likely quite low – this maintains the low standard of living but does not necessarily ensure that the children’s needs are met in a financial or ‘needs’ based sense.

The results in Table 4 can be applied to the current population of couple with children families to consider adequacy of family payments. As an example, Given the disposable income of a family with 1 child aged 2 we can determine the cost of that child (to the extent that income requirements match up with expenditure). Table 4 suggests that a low income family with a disposable income of \$60,000 has a child cost of $\$60,000 - \$60,000 / (1.18) = \$9,153$ pa. The current rate of family payment for such a family is FTB A plus FTB B = $\$6,705 + \$5,372 = \$12,077$. This implies that family payments this family is entitled to (\$12,077) improves the living standard of the couple family with one child as the payment is 32 per cent larger than that required to maintain the living standards of the couple only family (without a child). If a separate ‘needs’ based analysis considered the couple only income to be adequate, then it could be concluded also that family payments in this instance is also adequate.

Applying this approach to each household in the ANU PolicyMod database we can gauge the relative adequacy of family payments for each household/family¹⁵. Remembering that adequacy here is relative and is really only showing whether the family payment amount improves living standards for the family with children relative to that same family without children. Improving living standards does not necessarily imply that adequacy has been met in a ‘needs’ context.

Naturally, with family payments being means tested the relationship is a tapered one. It should be expected that for very low income family’s family payments will be more than ‘adequate’ and for high income families who don’t receive family payments the payments will be zero and therefore completely ‘inadequate’. These high income families are therefore expected to cover the full cost of children privately.

Figure 9 shows how well family payments ensure that couples with children maintain the living standard of that couple with children family relative to an otherwise similar couple only family. The chart shows a scatterplot that associates ‘adequacy’ with the adjusted taxable income (ATI) for each family in the PolicyMod database for the 2024-25 financial year. Marked on the chart are the percentile points of the ATI distribution for families with children (regardless of eligibility for FTB) and also the low income threshold where family payments taper away as income (ATI) increases. A fitted line (Loess Regression) approximates the relationship between the adequacy (ratio of family payments to the cost of children) of each family’s family payment (FTB A + FTB B) and adjusted taxable income. A ratio above 1 indicates that family payment is greater than the estimated cost of children while a ratio below 1 indicated the family payment is below the estimated cost of children for that family. For simplicity only families are included in the analysis that have children aged between 0 and 17 years of age. Families with children or other non-dependents are excluded from the analysis. A ratio above 1 suggests that family payments improve their living standards, whereas a value below 1 implies a lower living standard relative to a couple only family who are otherwise ‘identical’ except for the presence of children.

Figure 9 shows that typically, couple families with children in the bottom 10 per cent of the ATI distribution (for couple with children families) family payments improves their living standards (on average) by providing a welfare payment that lifts the living standards of these families relative to that of a couple only families (from a very low base). Income levels above the bottom

¹⁵ For more detail on the ANU PolicyMod microsimulation model of the Australian tax and transfer system see the model documentation (Phillips 2023). [PolicyMod documentation.pdf](#)

10% family payments, as currently set, lower living standards relative to a couple only family by providing a welfare payment that is lower than the amount needed for a couple family only to maintain their current living standard in the absence of FTB.

Figure 9 shows that for very low income families family payments (FTB A and FTB B combined) will more than maintain the living standards of a couple family. For those families with an ATI in the bottom 10 percent for couples with children FTB overcompensates/improves living standards (admittedly from a likely very low base). This result is particularly the case for smaller families particularly one child only where FTB A and FTB B combine for a more generous payment as FTB B is a per family payment.

Figure 9 shows that between the 10th and 20th percentile (where the FTB A taper rate begins) the typical rate drops sharply below 1 meaning that family payments start to undercompensate families with children relative to their 'cost of children'. Families with incomes above around \$130,000 are mostly receiving little or no family payments and so their ratio is approaching zero. Couples with children at this point in the income distribution are around the 30th percentile of ATI for couples with children.

Figure 9 Ratio of Family Payments to Cost of Children, Couples with Children (FTB recipients), ANU PolicyMod, 2024-25

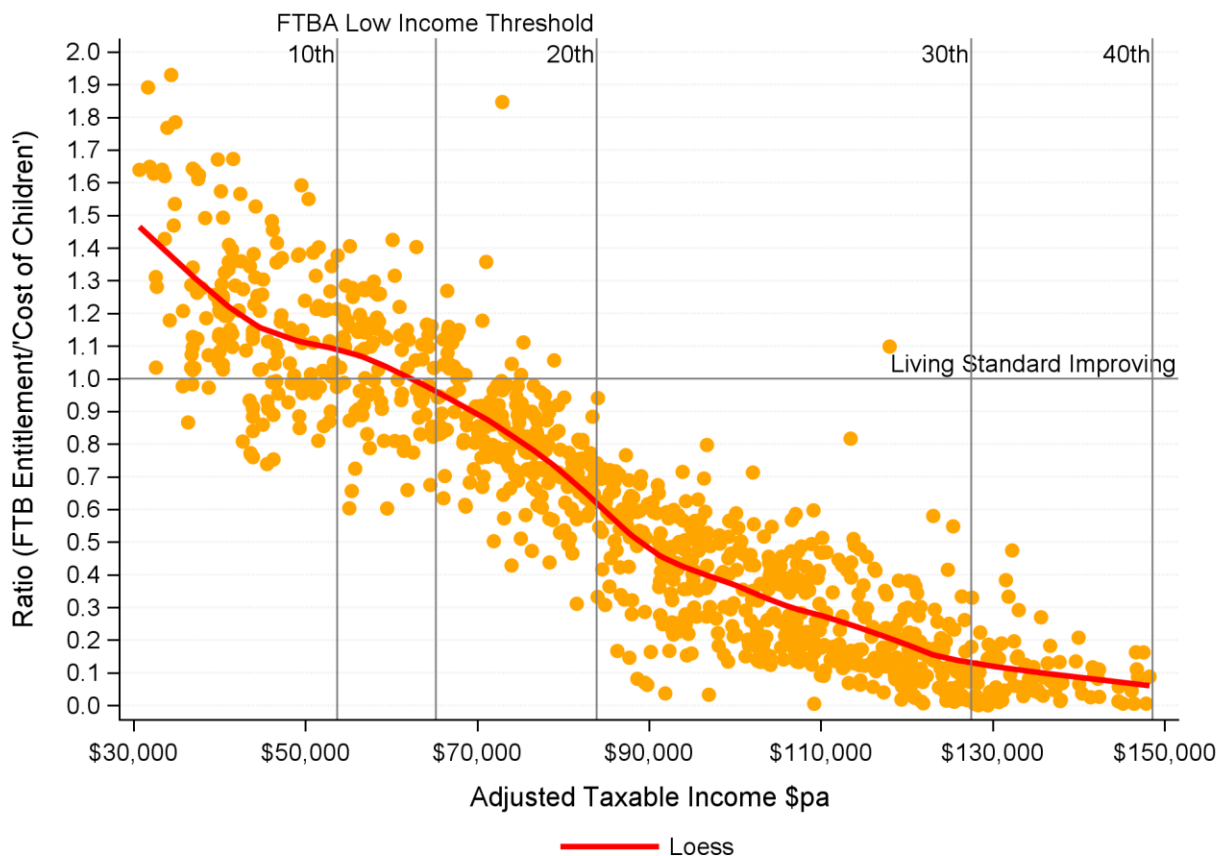


Figure 10 shows a similar analysis to Figure 9 except that a separate regression line is fitted for families by the number of children in a family. Family payments are split between FTB A which is paid to the parents on a per child basis while FTB B is paid on a per family basis. Figure 10 clearly shows that for lower income families smaller sized families (particularly with one child only) are more adequately compensated for the cost of children than larger families. As income increases the FTB entitlement tapers and small families will naturally lose a greater percent of their FTB over a shorter range of income and by the 20th percentile of the ATI distribution single child family ratios are typically similar or lower than larger families.

Table 4 shows that the cost of children exhibits economies of scale, meaning that each additional child in a family costs less than the previous child. The current FTB system does partly account for this by having a single payment FTB B for each family that does not depend on the number of children. Naturally, a one child family receiving a single FTB A payment and a single FTB B payment will tend to be more generously compensated on a per child basis than a couple with 2 or more children where they receive the per child FTB A payment but only one FTB B payment. An issue in Figure 10 is identified, however, that the nature of tapering can often mean that relatively higher income families will quickly lose all their (smaller) FTB payment relative to a larger family.

Figure 10 Ratio of Family Payments to Cost of Children by number of children, Couples with Children (FTB recipients), ANU PolicyMod, 2024-25

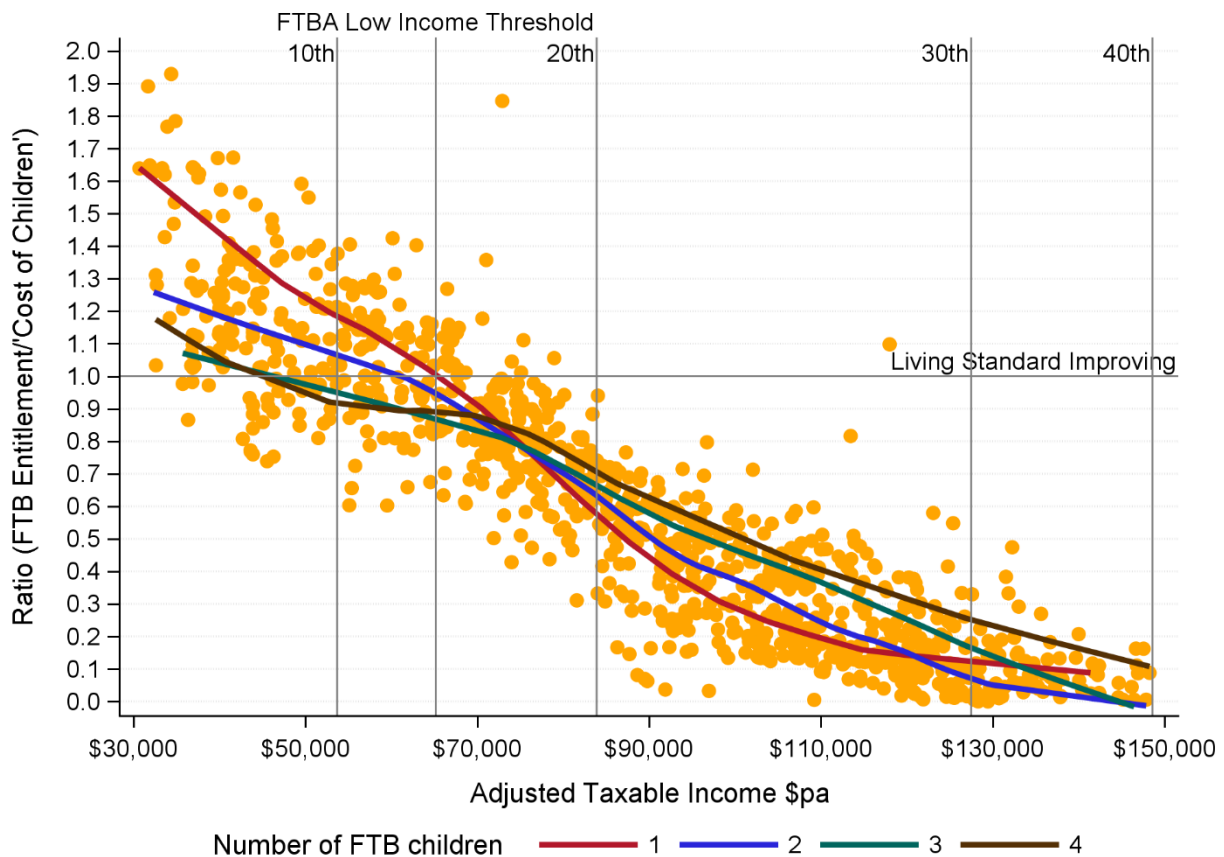
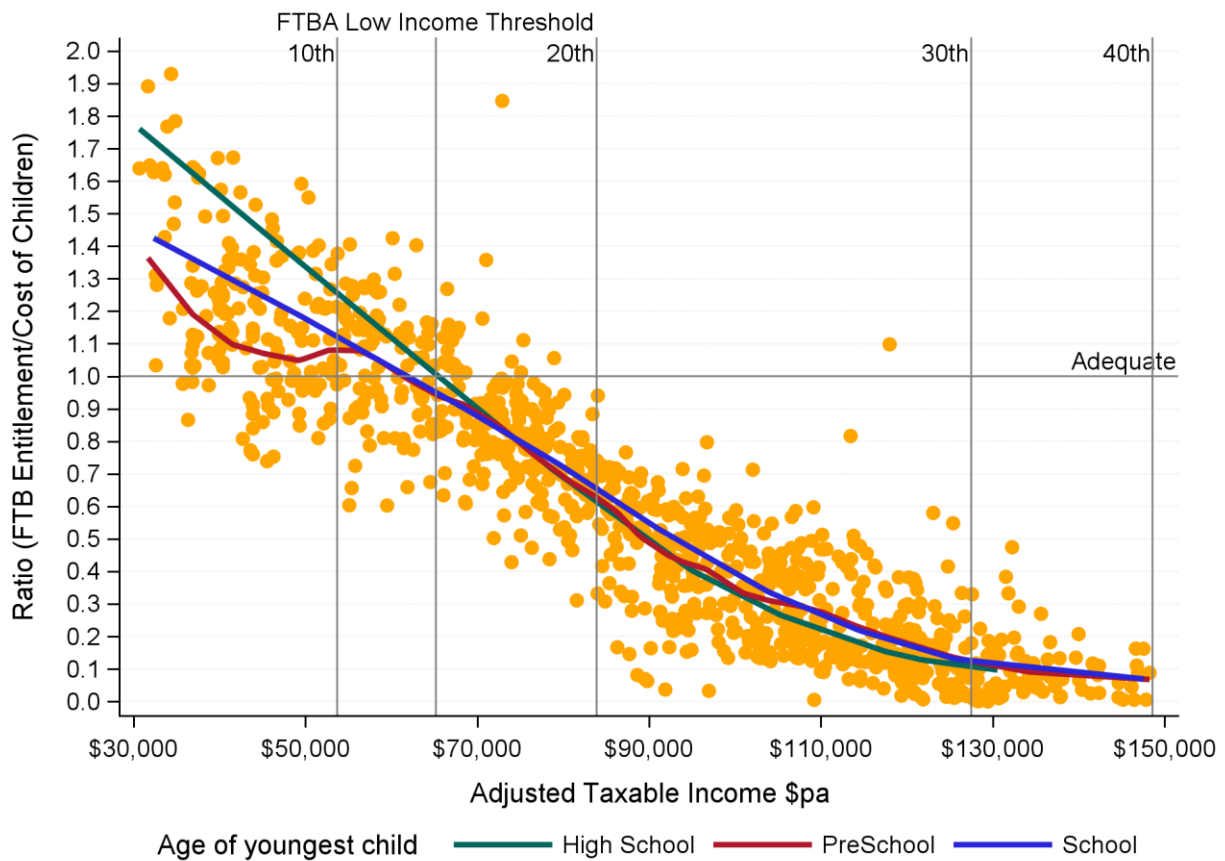


Figure 11 shows that for lower income families those families with older children are more highly compensated than younger families. This does line up with FTB A rates being lower for younger children than children aged over 13 years of age. The current maximum rate for a child under the age of 13 (including the annual supplement) is \$6,705 per year compared to children aged 13 to 19 (and attending high school) of \$8,446 per year. For ATI amounts beyond the low income FTB A threshold (\$65,189 per year) the ratio (adequacy of FTB payments) tends to converge between families with children of different ages.

Figure 11 Ratio of Family Payments to Cost of Children by age of youngest child, Couples with Children (FTB recipients), ANU PolicyMod, 2024-25

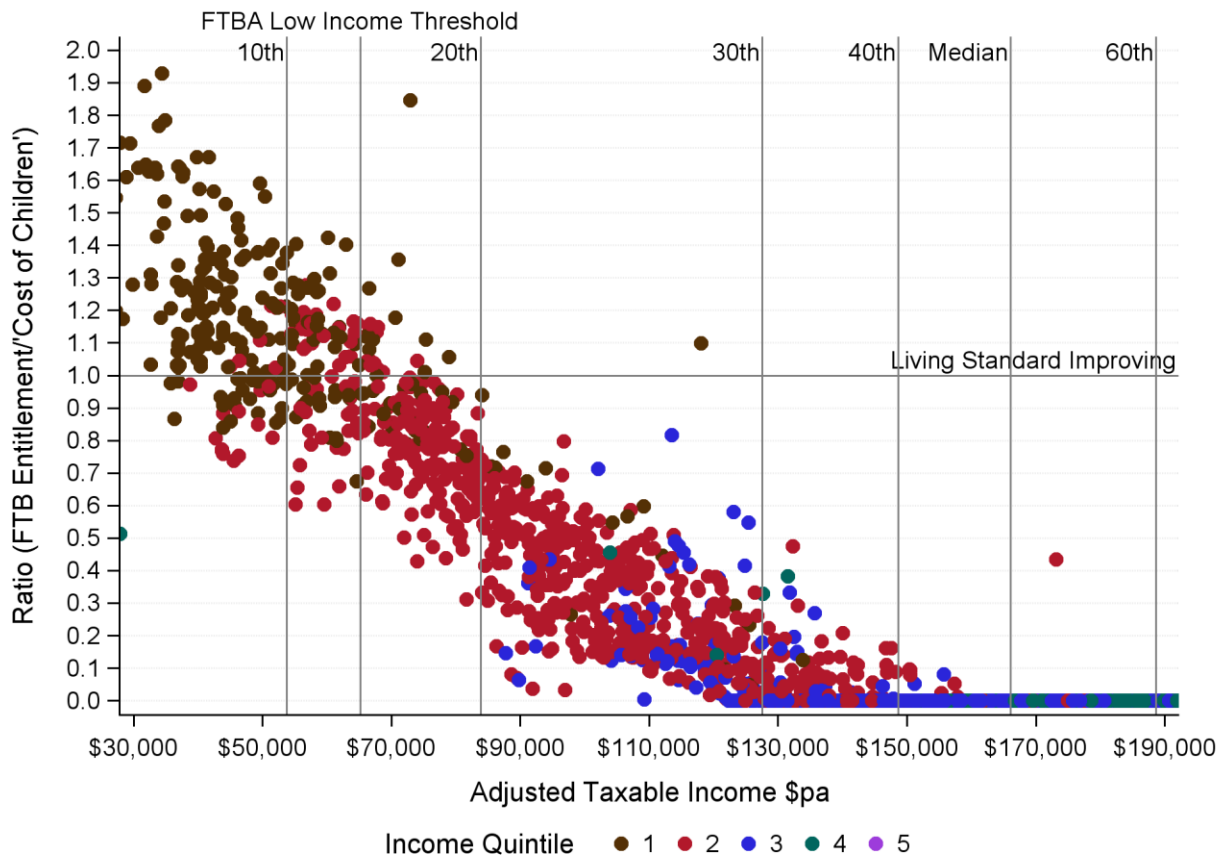


Couples with children often have dual incomes so it may be that their ATI is somewhat higher than other family types. Figure 13 considers where these same families sit in equalized disposable income distribution – a better measure of living standards or welfare than the raw ATI distribution which is a concept more closely related to taxable income and does not include FTB.

Figure 13 shows that family payments tend to improve the living standards of families with children in the bottom income quintile of household incomes but by the second income quintile family payments quickly taper away to 'adequacy' ratios below 1 and approach very low ratios as income increases within the second income quintile. This means that these low income

families receive an amount of FTB that does not come close to matching up with the cost of children (that would maintain the living standards of those families were they couple only families). By middle income levels family payments are so small that many families have a zero ratio and almost all have a ratio below 0.5. Beyond both median ATI and those families with a higher income quintile (household) FTB rates are generally 0 or near 0.

Figure 13 Ratio of Family Payments to Cost of Children by household income quintile (equivalized disposable income), Couples with Children (FTB recipients), ANU PolicyMod, 2024-25



Adequacy tapering away as income increases is the expected result with a means tested welfare system (lower FTB entitlement as income rises) and the cost of children increases as income increases (with the use of a fixed equivalence scale applied to disposable income representing the cost of children)¹⁶. Perhaps of concern is the extent of tapering of adequacy

¹⁶ The equivalence scales used in this analysis apply 'low income' scales from Table 3 for families in the bottom tercile (bottom third) of the income distribution (equivalised disposable) for couple and couple only families within the scope of this paper (aged between 20 and 54).

(as shown by the ratio statistic in Figure 13) for many families in relatively low income households (income quintile 2).

Over the past 15 years there has been considerable policy change in family payments. The changes have largely been ad hoc with many small changes contributing to a quite considerable overall saving to the government today. The overall cumulative saving of \$7.2b per year mean that for the current year the government is spending around \$22b rather than \$29.2b per year on family payments¹⁷. The policy changes have tended to be directed at those families with higher incomes (of the FTB population) rather than lower incomes, however significant FTB cuts do impact across the income spectrum. Most important changes include:

- 1) Shifting the indexation of FTB A payments from wages growth to the typically lower consumer price index (CPI).
- 2) Freezing the FTB A and FTB B annual supplement payments for several years
- 3) Freezing the higher income threshold for the base rate of FTB A
- 4) Removing the per child increment to the higher income threshold for FTB A
- 5) Introducing and subsequently lowering the FTB B income threshold for the higher income earner
- 6) Removing the large family supplement
- 7) Means testing the FTB A annual supplement

Somewhat offsetting these changes was some increases to the payment to older children over the age of 15 attending high school.

Figure 14 shows the adequacy ratio for FTB families in the 2007-08 and 2019-20 ABS Survey of Income and Housing by income level. Fitted lines (Loess Regressions) are estimated separately for the two years. Both year's fitted lines again show the now familiar tapering of adequacy by ATI, however, for incomes just above the 10th percentile of ATI adequacy has diminished significantly between 2007 and 2019. The reduction in adequacy peaks for ATI's between about \$80,000 and \$100,000. An increase in adequacy is observed for those with ATI's in the bottom 10 per cent likely due to the increase in the payment to older students¹⁸.

¹⁷ ANU PolicyMod estimate based on a comparison of 2009 family payment (FTB) policy applied to a 2024-25 world compared to today's (2024-25 actual policy settings).

¹⁸ The analysis based on the ABS survey data adjusts ATI to 2024 wages. ATI in the ABS survey data is an estimate only based on gross individual income adjusted to known differences between gross income and ATI between the survey data and ATI in ANU PolicyMod. A regression model was used to predict ATI in the survey data. The weights in the 2007-08 and 2019-20 ABS Survey of Income and Housing have been adjusted to fit government administration benchmarks for the number of FTB A and FTB B families by their adjusted taxable income level. ABS survey data for FTB incomes are based on ABS modelled estimates.

Figure 14 Ratio of Family Payments to Cost of Children for 2007 and 2019 (equivalized disposable income), Couples with Children (FTB recipients), ABS Survey of Income and Housing



Overall, across all couple families with children (under 18 years of age) the share of families that are 'adequately' covered by family payments (ie family payments improve their living standards relative to an otherwise similar couple family) was 11.1 per cent in 2007-08 which lowered to 10.3 per cent in 2019-20. The average adequacy ratio has fallen from 27.7 per cent in 2007-08 to 24.9 per cent in 2019-20. The latest estimate from PolicyMod for 2024-25 (not directly comparable with the ABS survey data) is 8.4 per cent¹⁹.

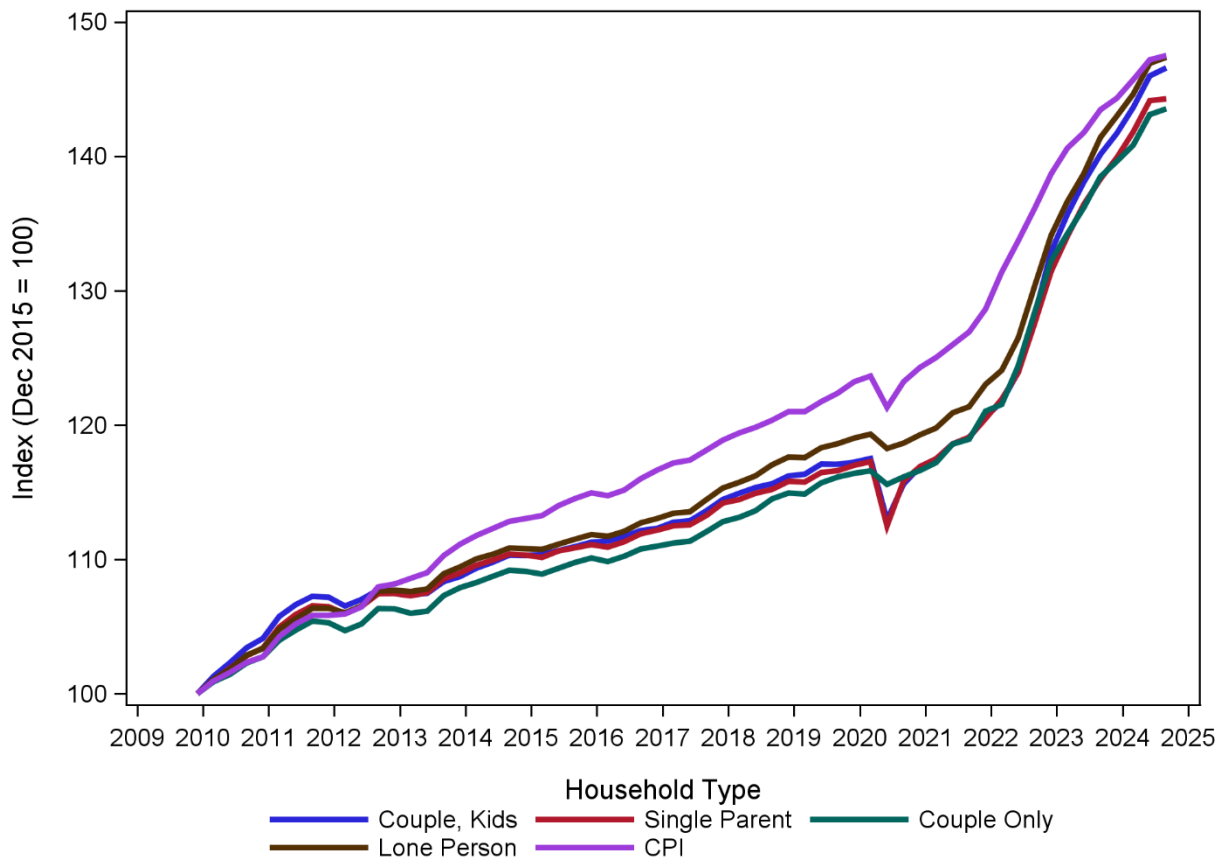
¹⁹ The analysis of whether family payments was 'adequate' and the average of the adequacy ratio excluded families with a ratio greater than 2 as a small number of families with very high 'ratios' distorts this statistic. As discussed earlier, families with very low incomes are predicted to have very low estimates for their cost of children (using equivalence scales) which are not likely to represent the actual costs of children for these families. Such low incomes are often not a true representation of typical incomes for many of these families.

6. Changes in Living Costs and Living Standards for Families with children

The cost of living in Australia has increased substantially in the last few years. The ABS CPI and the related ABS Selected Living Cost Indices show the overall rate of change in prices for households in Australian capital cities. The living cost index (LCI) is very similar to the CPI with the main exception being the inclusion of mortgage interest rather than the cost of constructing new homes. For the majority of families, particularly with recent interest rate increases, it is the LCI that is likely more reflective of their cost of living pressures.

A drawback with the ABS series is that the CPI is for all households while the LCI is only for selected households such as 'employees' or 'pensioner and other government beneficiaries'. The ANU has developed an index that closely mirrors the ABS LCI but provides results for a broader range of household types (Phillips 2018). Figure 15 shows the ANU LCI for different family types. Since December 2009 (about the time family payments budget cuts were legislated) the cost of living for couple families with children have tracked a little higher than most other family types, however the overall increase is little different to the ABS CPI. All CLI indexes have for most of the period between 2009 and 2024 increased to a level below that of the CPI and this is most likely related to the inclusion of interest rates in the LCI which for the most part have lowered through this period. Beyond 2021 interest rates increased and the LCI's are catching up to the overall ABS CPI.

Figure 15 ANU living cost index by household type, December 2009 = 100 (September 2024)



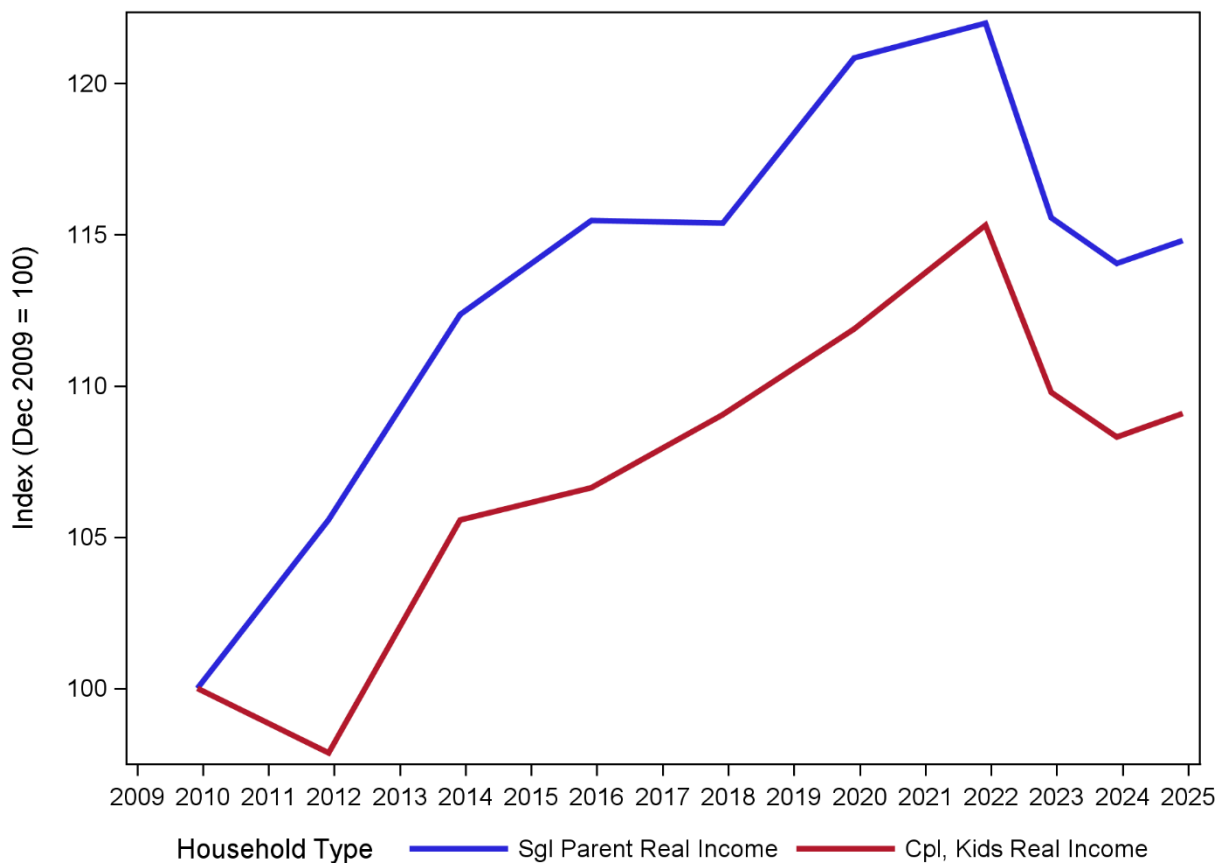
While Figure 15 shows a sharp increase in prices (living costs) for Australian households and families Figure 16 shows the arguably more important change in living standards. Living standards in Figure 16 compare income growth with the cost of living (ANU LCI). Income growth is based on changes in ABS income surveys since 2009-10 (on a 2-year basis up to 2019-20). Changes in income beyond 2019-20 are based on projections of income growth (on a similar conceptual basis to the ABS surveys) in the ANU PolicyMod model. PolicyMod is based on ABS surveys but updates that ABS survey data using a range of income inflation data such as the ABS national accounts, superannuation administration data, rental income, consumer prices, interest rates, employment and wage and income distribution data.

Figure 16 shows that living standards (a close proxy to real incomes) increased strongly between 2009 and 2022. The rate of growth was particularly strong for single parents with real growth in incomes just over 20 per cent between 2009 and 2022. Beyond 2022 income growth turned negative for both single and couple parents. Overall, real incomes increased for single parents by around 15 per cent while couple parents gained about 10 per cent.

The gains in income families with children is in spite of family payment reductions in real terms as outlined in the previous section. The gains are likely related to strong increases in

employment for females during this period which have likely particularly benefited single parents (who are mostly female). The result in Figure 16 is an overall average and family payments only make up a relatively small share of total income for families with children. The reduction in family payments is more likely to impact lower income families with children than middle or higher income families with children who typically receive little or no family payments. Any gains in income that have resulted from the reduction in family payments is difficult to determine but probably relatively small but directed more towards low and low to middle income families with children. Estimating such impacts are beyond the scope of this paper.

Figure 16 ANU living standard index by household type, December 2009 = 100 (December 2024)



7. Policy Change and Family Payments

Earlier sections make it clear that adequacy of family payments has lowered over recent decades as government derived budget savings from family payments. We also find that financial stress rates remain elevated for couple families with children and in particular single parent families. Child poverty remains a policy concern in Australia with around [1 in 6 children](#)

considered to be in income poverty (Davidson 2022). The cost of children equivalence scales in Table 4 find that younger children and older children cost roughly the same.

This section discusses briefly what are some of the possible areas for reform in the family payments (Family Tax Benefits) area that could assist families with children from the perspective of adequacy for lower income families.

From an adequacy perspective the findings do show that family payments (FTB) are tightly means tested. There are many families in the lowest two income quintiles (bottom 40 per cent) for whom their FTB entitlement is substantially lower than their cost of children. While FTB is not designed to cover the full cost of children for middle and higher income families consideration could be given to the appropriateness of the existing low income threshold point at which FTB part A begins to taper. Further to that, the existing taper rate is 20 cents in the dollar of additional income so changing that rate to lower effective marginal tax rates and improving adequacy for lower income families could also be considered.

Part of the reason for why adequacy has lowered over recent decades is that the rate of payment for FTB is linked to the consumer price index (CPI). Consideration could be given to linking FTB to the higher of the CPI and wages as per the age pension. Over time, as has been the case for some other payments, such as the JobSeeker payment, adequacy has dropped as living standards/incomes for the rest of the community have risen more quickly than FTB payments.

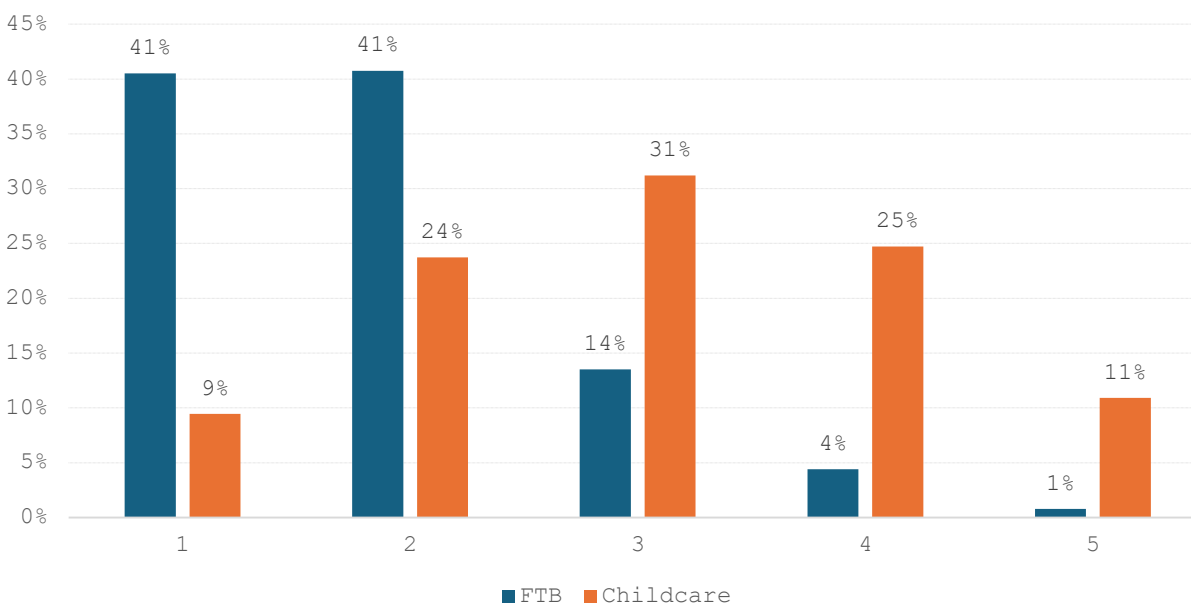
Research in this paper suggests that the costs of younger children may be similar to that of older children so consideration should be given to whether there is a need to alter family payments to reflect such findings.

In considering the possibility of family payment reform any future changes should also consider workforce incentives and the overall design and simplicity of what is a quite complex system. The current system does, for some income ranges, lead to excessively high effective tax rates where income increases, usually from wages. Such effective tax rates (often called EMTRs or effective marginal tax rates) can act as a disincentive to work, particularly for women with children in childcare, and single parents.

Modelling these areas of reform is beyond the scope of this paper but detailed consideration of the winners and possible losers from such changes, the impact on the distribution of income, workforce incentives and poverty rates would inform future debate and policy formation.

Alongside family payments it is also useful to consider childcare subsidies. While family payments have been cut in recent decades childcare subsidies have increased substantially. Childcare subsidies have increased partly due to childcare price increases but also policy changes that have made the subsidy more generous. While family payments have been reduced some of that impact has likely been ameliorated by more generous childcare subsidies. The distributional impacts of such an outcome would indicate such policy shift has substantially assisted middle income families relative to lower income families. Figure 17 shows that for 2024-25 family payments predominantly go to low income families with around 82 per cent of the payment going to households in the bottom 40 per cent of the income distribution. Childcare subsidies are more evenly spread across the income distribution.

Figure 17 Distribution of Family Payments and Childcare Subsidy by income quintiles, ANU PolicyMod 2024-25



8. Conclusions

Through analysis of financial stress, equivalence scales and the cost of children was estimated. We find that using a financial stress based approach can be used to calculate equivalence scales and from that cost of children estimates can be made.

The financial stress based measure has a number of advantages over other methods for calculating the cost of children in that data is available on an annual and consistent basis through the HILDA survey from 2001. We argue that the financial stress ‘iso-welfare’ measure is relatively easy to calculate and provides a flexible approach to calculating the cost of children for a range of different family types. Financial stress measures potentially overcomes some of the concerns of previously used expenditure share based approaches that may dilute the cost of children estimate with differences between couples and couples with children that don’t relate to living standards. Like other ‘iso-welfare’ approaches the financial stress measure does not directly measure a ‘needs’ based estimate of the cost of children which is a limitation for this study which necessitates the use of a budget standards type estimate.

We find that the cost of children is somewhat lower than would be estimated using the traditional OECD style equivalence scales. However, we also find that most family payment recipients are not fully compensated for the cost of children with only around 8.4 per cent of couple families with children fully compensated. This results for two main reasons, firstly, family payments are means tested and, secondly, as incomes increase the cost of children also

increases. It's not the intention of family payments to fully compensate higher income families for the cost of children particularly given that some of that expense is likely discretionary.

We do find that over time the adequacy of the family payments system diminishes. Family payments improves the living standards of the very lowest income families but may not be sufficient to be called 'adequate'. A budget standards or 'needs' based approach is more suited to such analyses.

The approach to estimating the cost of children used here (iso-welfare) can be used to determine adequacy of the cost of children but doing so requires a benchmark of adequacy for a couple without children as a starting point. The method is useful for understanding adequacy relativities rather than absolutes. The method is very flexible and works well for developing equivalence scales for a broad range of couple families with children. The method, at this point does not work well for single parents. Comparisons with budget standards suggest similar results except for the low income case where the budget standards approach makes some strong assumptions around transport costs that are arguably not realistic.

There are likely many ways that family payments could be reformed but the purpose of this paper is not to develop such reforms but rather to focus on the cost of children and the general adequacy of the existing system.

Areas for potential reform of FTB could include indexation, taper rates and taper thresholds, general level of adequacy to lower child poverty rates and levels of payment for families with different aged children. The evidence presented also shows economies of scale are present which opens up the possibility of less generous payments for second and subsequent children. Any policy change recommendations would require careful consideration of the distributional consequences, costs and impacts on complexity and workforce participation.

We have some concerns around some of the data used on previous research on the topic and find that the HILDA survey with its annual waves offers researchers a more robust basis for calculating equivalence scales due to the ability to pool waves (annual samples) and lower standard errors substantially.

Despite the lower adequacy of family payments we do find evidence that, in aggregate, both single parents and couple family parent's living standards have increased since family payment cuts began in 2009. We also find that financial stress has lowered since 2001 but little change since 2009. Overall, a relatively strong economy and strong employment and low unemployment rates assisted these families in improving their living standards. The extent that lower family payments has assisted in driving or incentivizing employment growth is not known and is not estimated here.

The reduction in family payments has been most heavily felt by middle income families. Considering 'living standard' quintiles rather than income quintiles that impact drifts more towards lower living standard households. Recent policy changes in the childcare subsidy have led to greater support to families mostly with younger children. These changes however tend to be more heavily weighted towards middle and higher income families than low income families who are less likely to use childcare.

A question for policy makers will be how to balance the trade-off between higher family payments (lower poverty) and any related employment reductions that may flow from those

changes. Regardless of these trade-offs from the perspective of a social safety net family payments have become less generous and provide a weaker safety net for families with children than was the case during the 2000s and this should be a concern for social policy in Australia particularly for families where employment opportunities are limited, such as single parents of younger children.

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1. Appendix

Table A1 Gross Income Approach - Equivalence scale financial stress estimates for couple parent families by number and age of children and gross household income category, pooled estimates 2013 to 2021

	Low-income (\$200-\$2,380 pw)	Middle-income (\$2,380-\$3,605 pw)	All Households
Equivalence scales			
Children 0 to 17 years			
1 child	1.23	1.09	1.15
2 children	1.41	1.16	1.25
3 children	1.58	1.24	1.36
4 children	1.76	1.33	1.47
5 children	1.99	1.41	1.60
Children 0-5 years			
1 child	1.26	1.08	1.16
2 children	1.44	1.13	1.26
3 children	1.58	1.16	1.34
Children 6 to 12 years			
1 child	1.19	1.08	1.10
2 children	1.32	1.12	1.16
3 children	1.42	1.16	1.21
Children 13 to 17 years			
1 child	1.11	1.15	1.16
2 children	1.18	1.25	1.26
3 children	1.24	1.32	1.33

2. Notes: The income measure used in the underlying regression model is gross household income. Household are categorised as being low- or middle-income based on gross household income. Underlying regression models are unweighted.
3. Source: HILDA, Wave 13 (2013) to Wave 21 (2021).

Table A2 Gross Income Approach - Equivalence scale financial stress estimates for couple parent families by number and age of children and household income category (disposable household income), 2013 to 2021

	Low-income (\$200-\$1,939 pw)	Middle-income (\$1,939-\$2,779 pw)	All Households
Equivalence scales			
Children 0 to 17 years			
1 child	1.23	1.08	1.13
2 children	1.42	1.15	1.23
3 children	1.61	1.23	1.33
4 children	1.81	1.32	1.44
5 children	2.08	1.39	1.56
Children 0-5 years			
1 child	1.24	1.07	1.14
2 children	1.41	1.11	1.23
3 children	1.55	1.14	1.30
Children 6 to 12 years			
1 child	1.20	1.09	1.10
2 children	1.34	1.15	1.16
3 children	1.44	1.19	1.21
Children 13 to 17 years			
1 child	1.17	1.12	1.15
2 children	1.28	1.20	1.25
3 children	1.36	1.27	1.33

Notes: The income measure used in the underlying regression model is disposable household income. Households are categorised as being low and middle income based on disposable household income. Unweighted data is used.

Source: HILDA, Wave 13 (2013) to Wave 21 (2021).