

Costs of children in Australian households



Picture: Rhonda Milner

New estimates from the ABS Household Expenditure Survey

A sign on a Melbourne shop says 'I can imagine a life without children but it wouldn't have as much laughter!'. This aptly summarises how most people feel about children. Indeed, children add an interesting and unique dimension in one's life – and most people would not exchange that for anything in the world!

However, raising a child is not simply a labour of love – it takes a lot of time, a lot of energy and, without doubt, a lot of money. And while parents say that it is impossible to quantify the joys and satisfaction of having a child, they will also be the first to admit that having a realistic idea of the costs involved in child-rearing can help them to plan better.

There are other important reasons for knowing the money cost of a child, particularly in the economic and social policy areas. For example, money costs of children are directly relevant in setting levels of child-support payments following divorce. Cost of children must also be taken into account in assessments of the distribution of income, the progressivity and effectiveness of tax and social security systems, and the impact of government policies on living standards. In particular, cost estimates for children are used to determine whether or not the government's package of benefits and services to assist parents in the important task of raising children is adequate.

Ma. Rebecca Valenzuela

MELBOURNE INSTITUTE OF APPLIED ECONOMIC AND SOCIAL RESEARCH

Measuring child costs

This article calculates estimates of the money costs of children based on actual expenditures incurred by families in the years 1984, 1988–89 and 1993–94. The costs of children are estimated by comparing the expenditure of families with children to those without children to determine the child's share of family expenditure. These money-cost estimates (also known as equivalence scales) are used to show how much income families with different numbers and ages of children would need to achieve comparable standards of living.

The procedure used here to estimate child costs falls under the 'large scale survey' (or 'demand based') approach to estimation. The label 'large scale survey' comes from the fact that such estimates are based on information gathered from asking thousands of householders how much they actually spend on specific commodity items and inferring child costs from this large set of quantitative information. This approach assumes that standard of living of a household is largely determined by the household's

consumption or expenditure (or demand) behaviour and its demographic characteristics. One specifies the sources of expenditure differences – income and other household characteristics – and posits the form of their statistical linkages in ‘demand equations’. The parameters of these demand equations are next estimated empirically using information from the household expenditure records, from which the costs of children are finally calculated.

The cost estimates in this article are based on the 1984, 1988-89 and 1993-94 Household Expenditure Surveys conducted by the Australian Bureau of Statistics (ABS). They provide answers to the question of ‘What is the cost of a child?’ as per the experience of Australian households. They indicate how much parents actually spend on their children, even though the amount spent might be considered inadequate or excessive by some other standards.

An alternative procedure for estimating costs of children is called the ‘budget standards (or ‘basket of goods’) approach. This approach is characterised by the creation of an ‘ideal’ basket of goods and services for certain model families – ideal according to some expert opinion. Nutritionists and other medical experts are among those who are relied on to provide some minimum diet requirements for particular family types. Other experts who may be involved in the process are educators, psychologists and similar social scientists. From the prescribed basket of

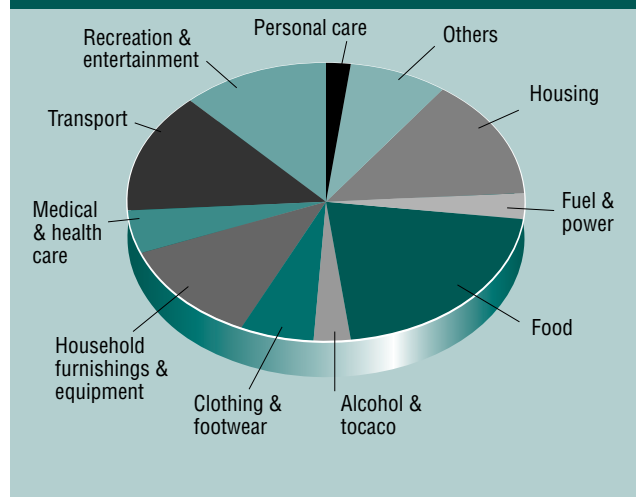
goods and services, the cost of a child is derived from that component of the budget that is attributable to children.

The basket of goods approach indicates how much parents ought to spend on their child if the child was to enjoy the fruits of the basket specified by the ‘experts’. In this sense, it provides an ‘ideal’ or desirable costing. The estimates based on the basket of goods approach therefore provides answers to the question: ‘What should be the cost of a child?’.

Estimates of child costs from these two alternative methods are not comparable in that each one is intended to measure two different costs. The basket of goods approach clearly involves some normative judgement and is ideal for computing the minimum cost requirements for keeping children at acceptable standards of living. On the other hand, the demand system approach indicates what is actually spent on children by households and families according to the expenditure behaviour of families. Because of their very nature, it would therefore not be surprising to see that estimates from these two approaches are not necessarily the same. Studies reveal that costs from the demand system approach tend to be lower on average compared with those estimates coming from the basket of goods approach.

As a result of their basic differences, the cost estimates emanating from these two different approaches are used for different purposes. Budget standard estimates, for instance, would be more appropriate for the estimation of poverty lines while analysis of income distributions and related welfare issues can be more properly performed using demand system estimates.

FIGURE 1 Distribution expenses of typical 2-adult 2-children family: 1993-94 HES: average weekly income \$634.78

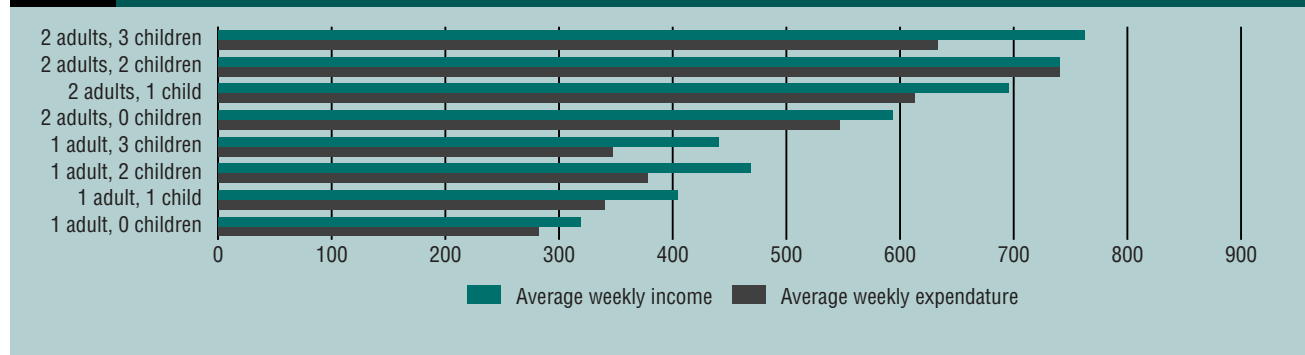


Spending patterns of families

Detailed expenditure information from the ABS household surveys reveal interesting spending patterns of Australian families. For the typical household composed of two adults and two children, about 50 per cent of the household budget is spent on Food, Housing, and Transport items. (See Figure 1: details on the classification of expenditures are in the accompanying boxed inset). The next 25 per cent of this household’s budget is devoted to items on Recreation and entertainment (including holidays and travel), and on Household goods. The remaining 25 per cent is distributed across the other commodity groups.

Some variations across household types are worth noting. The budget share of Housing for single-parent families is considerably higher than for two-parent families, reaching

FIGURE 2 Income and expenditure of different types of households: sample means, 1993-94 HES



as high as 23 per cent for single parents with one child (compared to 14 per cent for two-parent families). On the other hand, the budget share of Transport is only about 12 per cent for single-parent families compared to the 14 per cent share of Transport in two-parent families. The proportion of expenses devoted to Food is also slightly lower in single adult households, with or without children.

Reported levels of total expenditures were, on average, consistently higher than reported total income but the differences are not statistically significant.¹ Further, two-adult households have higher weekly household incomes than one-adult households (Figure 2). Among households with two children, for instance, two-adult households average about \$635 a week in income, compared to just \$378 for one-adult households. Households with children have higher incomes than those without, in part because many of the households with no children are 'empty nests' with one or both senior adults retired. That difference in life course stage is one of the reasons that we need the elaborate model used here²: it systematically adjusts for these and other differences in family composition, to enable us to discover the 'pure' or separate effect of children on expenditure patterns.

Commodity-specific and general scales

Table 1 presents the estimates of commodity-specific scales. Commodity specific scales are numbers that show the change in the budget requirements due to the presence of a child or children in a household, per commodity, to maintain the same standard of living as a predefined reference household. Here, the childless couple is set as the reference household.

A scale value of 1.38 for Housing was estimated for a family of two parents and one child (Table 1). This means that a family of three needs a housing budget 38 per cent higher than that required by the two-adult childless household for them to maintain a comparable standard of living. The variances indicate that the estimated scales for two-parent families with two and three children, respectively, are not significantly different from case of the two-adult, one-child family, that is, the housing cost required for the second or third child in the family is highly likely to be negligible.

This might reflect couples' practice of buying (or extending to create) a family home big enough for several children around the time of the birth of their first child, so that little or no additional housing is required when the rest of the children arrive (since the overwhelming ideal in Australia is for more than one child in the family). Alternatively, it may be that the option of shared bedrooms may reduce subsequent-sibling housing costs for some families.

For single-adult households meanwhile, the Housing scale value of 82 per cent empirically verifies that it is more expensive to maintain a household on one's own due to the diseconomies of scale of living alone. If not for such diseconomies, the figure would be just 50 per cent.

Some interesting patterns are observed. For all family types, one child will increase food requirements by 22 per cent, two children by 44 per cent, and three children by 50–60 per cent. Because children are 'food intensive', these results indicate that there is not much to be gained

in the way of economies of scale for food with the addition of more children in the family.

By contrast, besides the economies of scale in Housing noted above, economies of scales also seem to operate in the consumption of Fuel and power, Clothing and footwear, Household goods, and Transport items, for both single and two-parent families. Actual family experiences verify that with the arrival of the first child, significant adjustments in the consumption of particular commodity items are incurred. These include such items as extra heating cost for child's room, purchase of an extra bed, and also a tendency to trade in a small car for a larger, roomier vehicle to accommodate a growing family. With the advent of subsequent children, however, the cost adjustments required on these types of goods would not be as substantial – as children can share rooms, toys, pass on clothes – therefore the scale values diminish with the addition of the second or third child.

Interestingly, the magnitude of the scales for Alcohol and tobacco declines as the number of children in the household increases (more obvious in estimated scales from 1988–89 data). By contrast, the scales for Medical care, Recreation and entertainment, Personal care, and Others, commodity groups exhibit no defined trend. It may be possible that the presence of children in the household tends to influence expenses away from 'adult goods' under which alcohol, tobacco and other miscellaneous goods are classified. Perhaps the aspiration of setting a good example for one's children influences these expenditures.

The general scales are presented in Table 2. These scales are used to estimate the cost of a child in the overall sense. In 1993–94, a first child required a once-childless couple to increase their expenditure by about 18 per cent to maintain their pre-child standard of living (see Table 2). A second child will require a further increase in total expenditure by about 7 per cent, while a third child raises the requirements by a further 8 per cent. Consider, for example, a couple who spends about \$325 per week in rent, grocery shopping, clothing expenses, petrol and heating costs, and eating out treats once a week. The arrival of the first child will entail shifts between types of commodities consumed, but overall, the scales imply that their pre-child standard of living can be maintained if they increase their budget expense by about \$58 (that is, 18 per cent of \$325.00). In the same way, having two children will require them to increase their expenditure by \$81.25 (25 per cent of \$325.00) compared to when they were childless. Having three children would require them to increase their expenditure by \$107.25 (33 per cent of \$325.00) each week, to maintain the standard of living they experienced when they were childless.

For single-adult households the cost requirements associated with the addition of children tend to be larger than those for the two-parent household, according to the scales in Table 2. Suppose that the income of this single

Readers are reminded that after this issue of *Family Matters*, the Institute will discontinue publication of the Lovering and Lee *Costs of Children Update* column. Readers with an interest in the costs of children are referred to other, more recent research by the Social Policy Research Centre and by the Melbourne Institute of Applied Economic and Social Research, reported in these pages.

adult was also \$325 per week. Then having a first child will require the household budget to increase by about \$72 dollars (or 22 per cent) to avoid any deterioration in the standard of living. Having two or three children would require an income gain of about \$114 (or 35 per cent of total income), compared to the standard of living when this single adult was childless.

What about changes over time? For the one-adult households with children, the estimated scales for Housing, Fuel and power, Food, Medical care, Transport, and Others have typically declined between 1984 and 1988–89 and then increased again between 1988–89 and 1993–94 (Table 1). In contrast, there have been some declines in the estimated scales for the two-adult households for these same commodities, although these declines are not statistically significant. An exception to this is the 1988 scales for Transport that registered significantly lower values than those for 1984. This may reflect some substitution effects in the later years, when family preferences began tending towards larger but cheaper-to-run family

cars that started to flood the market towards the end of the 80s decade. The Transport scales did not change significantly between 1988–89 and 1993–94.

Overall, the direction of the change in the size of the scales is the same for the two adult households with one child and those with two children, while the change in the scale values for those with three children families was in the other direction. Interestingly, the only consistent (direction of) change for all household types was observed for Alcohol and tobacco. For this commodity, scales in 1984 did not show any discernible pattern associated with the addition of children in the family. In the later data sets, however, the scales indicate a steady decrease in the consumption of these 'adult goods' with every additional child for both single-parent and two-parent families. It would seem from this that the presence of children has increasingly had a deterring effect on the consumption of Alcohol and tobacco items.

Changes over time in the estimates of the general scales can be seen from Table 2. For two-adult household, the

TABLE 1 Estimates of commodity-specific scales

Commodity type	Year	Household type (no. of adults, no. of children)							
		(1,0)	(1,1)	(1,2)	(1,3)	(2,0)	(2,1)	(2,2)	(2,3)
Housing	1984	0.73	1.18	1.23	1.17	1.00	1.56	1.58	1.60
	1988-89	0.82	1.03	1.15	1.28	1.00	1.49	1.52	1.65
	1993-94	0.82	1.28	1.19	1.30	1.00	1.38	1.31	1.27
Fuel & power	1984	0.62	1.06	1.08	1.28	1.00	1.31	1.42	1.59
	1988-89	0.67	0.92	1.06	1.11	1.00	1.21	1.34	1.44
	1993-94	0.68	0.94	1.12	1.28	1.00	1.23	1.34	1.36
Food	1984	0.51	0.75	0.95	1.15	1.00	1.23	1.45	1.65
	1988-89	0.53	0.73	0.94	1.06	1.00	1.24	1.42	1.58
	1993-94	0.52	0.74	0.96	0.99	1.00	1.22	1.44	1.62
Alcohol & tobacco	1984	0.50	0.67	0.79	0.67	1.00	1.23	1.18	1.28
	1988-89	0.57	0.46	0.39	0.34	1.00	0.95	0.86	0.76
	1993-94	0.56	0.56	0.48	0.58	1.00	0.97	0.82	0.82
Clothing & footwear	1984	0.44	0.87	1.26	1.21	1.00	1.28	1.43	1.71
	1988-89	0.53	0.91	0.92	1.40	1.00	1.28	1.40	1.64
	1993-94	0.47	0.79	1.14	1.11	1.00	1.11	1.56	1.62
Household goods	1984	0.53	0.85	0.99	1.04	1.00	1.26	1.35	1.45
	1988-89	0.55	0.66	0.77	0.81	1.00	1.45	1.15	1.32
	1993-94	0.48	0.79	0.88	0.86	1.00	1.23	1.25	1.15
Medical care	1984	0.49	0.45	0.57	0.65	1.00	1.30	1.38	1.49
	1988-89	0.54	0.47	0.68	0.51	1.00	1.26	1.28	1.31
	1993-94	0.50	0.52	0.66	0.51	1.00	1.10	1.27	1.23
Transport	1984	0.49	0.68	0.83	1.07	1.00	1.36	1.29	1.38
	1988-89	0.52	0.57	0.62	0.78	1.00	1.02	1.19	1.37
	1993-94	0.53	0.65	0.73	0.81	1.00	1.21	1.13	1.22
Recreation & entertainment	1984	0.53	0.70	0.79	0.80	1.00	1.08	1.28	1.36
	1988-89	0.54	0.58	0.51	0.82	1.00	1.03	1.28	1.37
	1993-94	0.51	0.58	0.74	0.66	1.00	0.95	1.02	1.23
Personal care	1984	0.58	0.72	1.12	1.08	1.00	1.20	1.24	1.31
	1988-89	0.54	0.78	0.97	0.73	1.00	1.19	1.29	1.17
	1993-94	0.51	0.71	0.73	0.54	1.00	0.96	1.15	1.19
Others	1984	0.58	0.82	0.91	1.17	1.00	1.76	1.83	2.01
	1988-89	0.57	1.02	0.89	0.81	1.00	1.39	1.79	2.08
	1993-94	0.55	0.76	1.51	0.90	1.00	1.30	1.55	1.92

Source: Valenzuela (1999).

1993–94 scales are smaller than both the 1984 and 1988–89 scales, although the scale estimates from the later year data sets are closer to each other. It appears that for the 1984 Household Expenditure Survey, there is a strong evidence of economies of scale in the second child but adding the third child increases these households' needs considerably. However, this effect is diminished for the later data sets. The 1993–94 scales, in particular, suggest equal cost requirements for the second and third children.

The economic model which formed the basis of the estimation of these scales allowed for the possibility that consumption behaviour of families varies systematically by the income level of the household. As the figures show, however, the estimated cost ratios for families of different compositions appeared stable across the various income levels. This suggests that the overall cost requirements (in per cent), associated with the presence of children, is the same whether the household is rich or poor. However, these percentage rates imply significant differences in dollar value terms, which may further carry important implications for families in transition.

For example, we compare the pre- and post-divorce standard of living of two families – one, a couple with two children having an income of \$1250 a week, and the other, a couple with two children having an income of \$375 a week. If these couples divorce and one partner becomes a one-adult-and-two-children family, the high income single parent will need to have \$920 to maintain his/her pre-divorce standard of living, along with the two children. The lower income single parent, meanwhile, will need \$276 to do the same. This suggests that the child support requirements to assist single-parent families cannot be generalised into standard dollar figures for the average case. If such dollar amounts are fixed, a significant decline in the standard of living for many recently divorced single parents is bound to happen. In general, though, higher income households where both spouses are highly educated and in secure employment situations would have better coping mechanisms than their lower income counterparts.

Cost of children estimates

Table 3 presents estimates of the money costs of children as per the experience of Australian households. These cost estimates were derived from the cost ratios in Table 2 and

TABLE 3 Cost of children estimates for selected income groups: 1993-94 HES

Family type	Year	Gross weekly family income	Total weekly family expenditure attributable to...		
			1 child	2 children	3 children
Low income	1984	177	30	46	71
	1988-89	233	54	75	105
	1993-94	325	59	81	107
Medium income	1984	330	89	119	162
	1988-89	415	95	137	191
	1993-94	592	107	148	201
High income	1984	675	243	297	392
	1988-89	985	227	325	463
	1993-94	1400	252	350	476

were calculated based on specific gross family incomes in 1994 dollar terms. The table indicates the expected costs for low, medium and high income households and for certain numbers of children in the family. Disaggregation of the costs by the age of children or by specific commodity groups are not given here, although such estimates can be provided by the author upon request.

Conclusion

This paper presents estimates of the cost of raising children in Australia based on actual expenditures incurred by families as revealed in the 1984, 1988–89 and 1993–94 Household Expenditure Survey.

In general, the results show that to be able to maintain the living standards of the household before the arrival of children, the family budget would have to be increased by about 18 per cent for the first child for two-parent families, and by about 22 per cent for single-parent families. The additional budget requirements for the second and third children will still be positive but not as much as that of the first child. With the advent of children, there is more adjustment required of single-parent households compared to two-parent families.

The commodity specific scales show that the budget requirements vary across the various commodity groups.

TABLE 2 Estimates of general scales

Reference income	Year	Household type (no. of adults, no. of children)							
		(1,0)	(1,1)	(1,2)	(1,3)	(2,0)	(2,1)	(2,2)	(2,3)
Low (\$325pw)	1984	0.58	0.70	0.77	0.88	1.00	1.17	1.26	1.40
	1988-89	0.58	0.72	0.81	0.92	1.00	1.23	1.32	1.45
	1993-94	0.56	0.78	0.91	0.91	1.00	1.18	1.25	1.33
Medium (\$450pw)	1984	0.58	0.73	0.82	0.94	1.00	1.27	1.36	1.49
	1988-89	0.58	0.72	0.80	0.91	1.00	1.23	1.33	1.46
	1993-94	0.56	0.77	0.92	0.90	1.00	1.18	1.25	1.34
High (\$700pw)	1984	0.57	0.76	0.86	0.99	1.00	1.36	1.44	1.58
	1988-89	0.58	0.72	0.79	0.91	1.00	1.23	1.33	1.47
	1993-94	0.56	0.77	0.92	0.89	1.00	1.18	1.25	1.34

Source: Valenzuela (1999).



Picture: Rhonda Milner

Raising a child is not simply a labour of love – it takes a lot of time, a lot of energy and, without doubt, a lot of money.

Notes

- 1 The households covered in the 1984 and 1988–89 Household Expenditure Survey samples showed generally similar patterns to the 1993–94 sample, though income and expenditure levels were, of course, lower in these earlier years. In 1984, single-adult households with one child were younger and poorer than those in similar situations in the later years.
- 2 The economic model used here is the extended linear expenditure system of Lluch (1973) and Kakwani (1980). For details of the estimation procedure, see Valenzuela (1997, 1999).

References

- Australian Bureau of Statistics (1992), *Information Paper 1988-89 Household Expenditure Survey of Australia* (July 1992 Update), Canberra.
- Australian Bureau of Statistics (1996), *Detailed expenditure items: 1993-94 household expenditure survey, Australia*, Catalogue No. 6535.0, Canberra.
- Kakwani, N. (1980), *Income Inequality and Poverty: Methods of Estimation and Policy Applications*, World Bank, Oxford University Press.
- Lluch, C. (1973), 'The extended linear expenditure system', *European Economic Review*, vol. 4, pp. 21-23.
- Valenzuela, M.R. (1997), 'Alternative approaches to the estimation of household equivalence scales: an Australian application', Ph.D. dissertation, University of New England.
- Valenzuela, M.R. (1999), *Costs of Children and Living Standards in Australian Households*, Working Paper No. 8/99, Melbourne Institute of Applied Economic and Social Research, The University of Melbourne.

Dr Rebecca Valenzuela is a Research Fellow at the Melbourne Institute of Applied Economic and Social Research of the University of Melbourne where she is conducting research on such issues as consumer demand, costs of children, poverty and income distribution.

DETAILED DEFINITION OF COMMODITY CLASSIFICATION USED	
1.	Housing – rent, mortgage, property rates, house and contents insurance as well as housing repairs and maintenance.
2.	Fuel & power – electricity, gas and other fuels (excluding car petrol).
3.	Food – bakery products, flour and other cereals, meat and fish, dairy products, fruits and vegetables, miscellaneous food (jam, jellies, coffee, tea), non alcoholic beverages, meals out and take away food.
4.	Alcohol & tobacco – cigarettes and all types of alcoholic beverages.
5.	Clothing & footwear – clothing and footwear for men, women and children, clothing accessories (e.g. ties, gloves, handkerchiefs) as well as clothing and footwear services (e.g. drycleaning and shoe repairs).
6.	Household furnishings & equipment – furniture and floor coverings, blankets and rugs, household linen and furnishings, household appliances, glassware, tableware, household utensils and cleaning agents; gardening services, housekeeping, childcare, and the repair and maintenance of household durables.
7.	Medical & health care – accident and health insurance premiums, practitioner's fees, prescriptions, medicines, pharmaceutical products, hospital and other health charges.
8.	Transport – motor vehicles, petrol and fuels, vehicle registration and insurance, vehicle servicing and repairs, driver's licenses, driving lessons, subscriptions to motor organisations, vehicle hire, as well as public transport fees.
9.	Recreation & entertainment – television and other audiovisual equipment, books, newspapers and other printed materials, recreational equipment (cameras, musical instrument, toys), gambling, entertainment, recreational services, pets, holiday.
10.	Personal care – toiletries, cosmetics, hair dressing and beauty services.
11.	Others – miscellaneous goods (watches, jewellery, stationery), interest payments on selected credit services, education fees, life insurance and other miscellaneous services.