The framing and econometrics of child support

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Abstract

The approach taken to child support in New Zealand has shaped perceptions and outcomes. Despite ongoing dissatisfaction, substantial changes to the legislation have yet to be made. The current Government is considering changes which address some of the major issues: costs of children; incomes of parties; and shared care. IRD analysis replicates an Australian approach to derive a proposed alternative formula. This paper focuses on the importance of framing for shaping perceptions and outcomes, and the way econometrics is playing a part in this process. The analysis may have a wider relevance for the use of economics research.

1. Introduction

Framing involves "selection, emphasis, exclusion, and elaboration" (Weaver, 2007, p. 143). How an issue is framed shapes what we see. Weaver refers not only to framing, but also to stage one and stage two agenda setting. Stage one is refers to *what* is on the political agenda, whereas stage two refers to *how* the issue is presented and viewed. Framing could be considered as equivalent to stage two agenda setting. These terms draw attention to a body of literature that considers the nature of policy debate, the choice of the issues that will be given attention, and how they will be viewed (Bosso, 1994; Cobb & Ross, 1997). These are important for economists in that they highlight important aspects of the processes of policy making, as discussed in Birks (2011b). A related assessment of the political environment and the treatment of policies can be found in Birks (2008). This paper takes the case of the Child Support Act 1991 as an example. It considers first the current legislation, followed by an assessment of the econometric analysis underpinning proposed changes to the legislation. The findings from these two sections then inform an assessment of broader framing issues

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associated with the legislation. This assessment suggests reasons for ongoing problems in this troubled policy area.

2. The legislation

The objectives of the Child Support Act 1991 are listed in section 4 of the Act. When the objects of the Act are compared with the formula, several inconsistencies can be observed, especially in terms of equitable treatment. Under the formula, neither the custodial parent's income nor the liable parent's time with the children are taken into account. Vertical equity cannot generally be achieved. If the formula assessment is correct for one level of custodial parent's income, then it is incorrect for others, and similarly for time with children. Moreover, if a custodial parent is on the DBP, child support payments go first to offset that payment. There are also problems with payments not being linked to expenditure on children, or recognising that both parents may be caregivers for some of the time.

To consider specific objects in the Act:

- Object (a) is *To affirm the right of children to be maintained by their parents*, but the Act does not ensure that payments are made by both parents, nor does it ensure that payments actually benefit the child(ren).
- Object (b) is *To affirm the obligation of parents to maintain their children*, but the Act focuses only on "liable parents".
- Object (c) is *To affirm the right of caregivers of children to receive financial support in respect of those children from non-custodial parents of the children*, but non-custodial parents could be the caregivers for up to 40 percent of nights with no effect on child support obligations.
- Object (d) is *To provide that the level of financial support to be provided by parents for their children is to be determined according to their capacity to provide financial support*, but only liable parents are required to provide, and the other parent's circumstances are generally not considered.
- Object (e) is *To ensure that parents with a like capacity to provide financial support for their children should provide like amounts of financial support*, but under the formula this only applies for comparisons between liable parents. The other parent's circumstances are generally ignored.

- Similarly, object (f), *To provide legislatively fixed standards in accordance with which the level of financial support to be provided by parents for their children should be determined,* refers to parents, but the formula only refers to payments by liable parents of money received by the state or by custodial parents.
- Object (h) is *To ensure that equity exists between custodial and non-custodial parents, in respect of the costs of supporting children*, and is commonly not met because only the circumstances of the liable parent are considered.
- Object (j) is *To ensure that the costs to the State of providing an adequate level of financial support for children and their custodians are offset by the collection of a fair contribution from non-custodial parents*, but can it be a "fair" contribution when there is no change in contribution as the liable parent's time with the children rises from 0 percent to 40 percent of nights?

In other words, the specifics of the law are inconsistent with its objectives. Nevertheless, in 2001 it was stated on the IRD Child Support web page that: "Child Support is governed by the objectives set out in the Child Support Act 1991" (Birks, 2001).

The legislation is now 20 years old. Lawyers and judges have implemented the Act over this time, including many lawyers who have fulfilled the role of Child Support Review Officers. Major apparent inconsistencies do not seem to have caused them problems in the performance of their duties.

A first observation *to make is therefore that economists' understanding of the meaning of "equity" may not coincide with the interpretation in practice through the law.*

To generalise from this point, interventions that economists might suggest as a result of economic theory and analysis may result in quite different, probably unanticipated effects.

These points were raised over 10 years ago in the *New Zealand Law Journal* (Birks, 2000). In February 2006 concerns were again raised (Birks, 2006), including the following:

1. The failure of the formula to consider the income of the other parent (so how can contributions be equitable?).

2. Failure of the formula to consider direct costs incurred by a liable parent in relation to the children (in particular, in terms of the 40% of nights threshold and the distinction between costs of "enabling" and "enjoyment of" access).
3. Weaknesses in the use of gross income as a basis for child support, e.g in cases of student loans.
4. Lack of a clear, meaningful basis for the formula in terms of the true costs of children.
5. Lack of any specification of the purposes to which child support, received by a parent with care of a child, is to be put.
6. Lack of any accountability to the liable parent for the ways in which child support is used.
7. Lack of any clear indication that the legislation is to be guided by the "best interests of the child".
8. The need for child support reviews to be conducted by people with the relevant knowledge of possible income levels, costs and benefit entitlements.

These problems have been signalled directly over many years by those affected by the legislation. Late last year Peter Dunne released a consultation document in which he states, "I note that over a quarter of the letters I receive as Minister of Revenue are from people who are unhappy with some aspect of the child support scheme" (Dunne, 2010, Foreword). This is the first time that some of these concerns have been formally considered in the political process.

A second observation *is therefore that policies, once in place, may not be revisited for years or even decades.*

3. The econometrics

Dunne (2010) presents a proposal which considers the first, second and fourth of the eight points above. The document also includes much useful information, in conjunction with Claus, Leggett and Wang (2009), into the method used to estimate costs of children. This provides some insights into the fifth point, and assists in clarifying the intent and possible

implications of the legislation.[2] Their methodology follows an Australian approach (Percival & Harding, 2005), as outlined and discussed here.

3.1 The costs of a child – the method used

The analysis involves two pairs of equations, one pair that can be used for the one child case and another pair used more generally. As there are similarities between the two sets of equations, only the equations for the one child case will be discussed here. The equations are:

Equation 1, the household expenditure equation:

$$E_i = \alpha_1 Y_i + \alpha_2 (Y_i)^2 + \alpha_3 Ages(1)_i + ... + \alpha_6 Ages(4)_i + \varepsilon_i$$

Where E is expenditure and Y is income, both weekly, in thousands of dollars. Ages(1) to Ages(4) are the number of household members aged, respectively, 0-12, 13-18, 19-24 and 25 or over.

Equation 2, the living standard equation:

$$LS_i = \beta_1 \ln(E_i/F_i) + \beta_2 (\ln(E_i/F_i))^2 + \beta 3 \ln(Fi) + \beta_4 (Ages(1)_i/F_i) + ... + \beta_7 (Ages(4)_i/F_i) + \mu_i$$

Where LS stands for Living Standard and F represents family size.

The LS measure is central to the study. It is taken to be the percentage share of total expenditure comprised by a subset of categories (food at home, non-durable household supplies and services, communication equipment and services and personal care products and services), expressed as a natural log. Any two households with the same value for this measure are considered to have the same living standard, with lower values indicating higher living standards. The cost of a child is then determined by the following process:

1. Estimate expenditure for 2 adult 1 child household with given income (from Equation 1)
2. Use this result to calculate LS (from Equation 2)
3. Use this LS and Equation 2 to solve for E in a 2 adult household on the same living standard.

[2] Thanks are due to Iris Claus, Geoff Leggett and Graeme Morrison of IRD for providing additional information on their analysis.

The difference in E between the two households is then taken to be the estimated cost of a child (being the estimated extra sum that a two adult one child household would have to spend to be on the same living standard as a two adult household).

3.2 Equation 1

Consider first the expenditure relationship in Equation 1. According to the Australian method, household expenditure is estimated in relation to household income and family composition. In the assumed relationship, the only impact of household size is a fixed increase in expenditure per person, with the actual sum depending on the age category of the individual. In particular, the impact is independent of household income, and there are no differences between the impact of the first and the tenth person in any age group. The first or any additional child under 13 is estimated each to increase household expenditure by $19 per week. This can be viewed in relation to an estimated total weekly expenditure of $958 for a couple and child household on $1365 income per week. A large amount of the expenditure depends solely on household composition ($360 per week for a household with a young child, and $405 with a child aged 13-18), such that spending out of extra income starts at 45 percent, falling to 39 percent at high income. A household where the two adults are both under 25 is estimated to spend $120 per week less at all income levels. If this is the wrong relationship, then resulting estimates will be misleading.

A third observation *is that economic as well as statistical considerations are important in assessing the suitability of a chosen functional form.*

So are the economics questions being asked?

3.3 Equation 2

The second equation relates a living standard measure to household expenditure per capita and household composition. Living standard is represented by the share of total expenditure comprised of expenditure on the four selected groups. It is assumed that the lower the share the higher the living standard. While this may be true for any individual household, it may be wrong to then assume that comparisons across households are equally meaningful, although this is the assumption that is made. There may be many other determinants of lifestyle that affect consumption patterns and have not been considered in this analysis. Some specific

potential distortions can be imagined. In particular, there may be systematic differences in lifestyle according to size and age composition of households which affect both the level and composition of household expenditure. For example, a two adult, no child household on two incomes may eat out more often than a household with children and only one income earner.

A fourth observation *is therefore that a plausible bivariate relationship (such as expenditure pattern and living standard), ceteris paribus, should not be taken as a universally meaningful relationship.*

This measure is then related to per capita expenditure and household composition. The choice of E/F, is puzzling. While it suggests that living standard is a function of per capita expenditure, an extensive literature on household equivalence measures suggests that there are economies of scale in households, and children cost less than adults. Hence, for example, the Jensen Equivalised Annual Household Income for a 2-adult-plus-child household on an income of $35000 would be equivalent to a 2-adult household on $29,400 (Statistics New Zealand, Undated). By this measure, a child increases required income by 19 percent. In contrast, a per capita measure, lacking economies of scale or differential adjustment for children, requires an expenditure increase of 50 percent.

The significance of this for estimating the costs of a child is indicated with a truncated version of Equation 2 considering only the E/F terms. To equalise LS, it is then only necessary to equalise the expenditure variables. (The result is therefore independent of the sample or the estimation method.) With per capita expenditure, a fall in couple plus child expenditure of 33 percent would give the required couple-only expenditure. With the Jensen measure, a fall of 0.19/1.19, or 16 percent would achieve the same result. In other words, for the truncated equation, this change halves the estimated cost of a child. This suggests that, by ignoring economies of scale and shared consumption, the approach may overstate the costs of children in the full model, perhaps by a large margin.

A fifth observation *is that the third observation is further reinforced, and that finer points of choice of variable and functional form may have a major effect on the results obtained.*

Other aspects of the living standard measure are problematic. For example, the treatment of housing costs in total expenditure can give misleading results. (1) Interest is included in the

expenditure measure, but capital repayments are not. Consider a household with a fixed expenditure pattern, including mortgage payments (interest plus capital). Over time, capital repayments increase and the interest component declines, so apparent total expenditure falls. Consequently, measured living standard would be declining although there is no change to the actual living standard and the household is becoming wealthier. (2) The failure to recognise implicit rent to owner occupiers is equally distorting. Consider one household that is a mortgage-free owner occupier, and another that is renting, with non-rent expenditures equal. The household that is renting would be considered to have a higher standard of living due to the higher total expenditure.

A sixth observation *is that the economic validity of a model or measure can sometimes be tested by considering how it functions under known circumstances.*

These concerns about the use of Equation 2 suggest that the relationship will not be strong. This is borne out by the R^2 of 0.1533 (Claus, et al., 2009, p. 20).

3.4 Sensitivity of results

The cost of a child is derived by equating the measured living standards for households with and without children and calculating the difference in expenditure. In fact, given the equations, large changes in expenditure and income are required to give small changes in estimated living standards. This can result in high estimates of costs of children. In fact, the model suggests that a four child household on an annual income of nearly $150,000 is on the same living standard as a couple on just over $25,000. Additional details are given in Birks (2011a), especially in Table 1 of that paper.[3] Results such as these, when presented in this way, are of limited credibility.

Other techniques can be used to test the model. Consider the model's classification of adult members of the household into two age groups. Table 1 shows the estimated cost of one child under 13 when both parents are in the same, older or younger, age group. For low income

[3] That paper also considers further concerns with the proposed formula, such as the living allowance which affects "child support income", or the income on which child support is assessed, and the cost implications of shared care.

couples, the cost per week of a child at $308 is twice as much for young parents as for older parents. However, this is also out of a weekly income of $704 and therefore hardly plausible.

Table 1: Weekly costs of 1 child under 13, by age of parents

	Low income household	Middle income household	High income household	Average income household
Adults 25+	$147	$243	$426	$268
Adults <25	$308	$356	$551	$381

Cost estimates put forward as a basis for the proposed child support formula are based on both parents being older, and the figures in those cases may, *a priori*, appear reasonable. However that is no reason for thinking that the analysis is valid, especially if other findings from the model are highly questionable.

So far, the estimated coefficients have been taken as accurate. It is also possible to consider the effects of slight changes in the values of these coefficients. Table 2 presents cost of child figures with adults over 24.

Table 2 Cost of child, adjusting the age coefficient in the LS equation

	Low income household	Middle income household	High income household	Average income household
Child <13				
Age(1) + 0.2SE	$246	$339	$533	$365
Age(1)	$147	$243	$426	$268
Age(1) - 0.2SE	$73	$169	$342	$193
Child 13+				
Age(2) + 0.2SE	$296	$388	$585	$414
Age(2)	$196	$291	$477	$316
Age(2) - 0.2SE	$90	$183	$355	$207

The coefficients for age of child in the living standards equation are changed by plus and minus 0.2 standard errors, relatively small adjustments. It can be seen that these also have a major effect on estimated costs of children. The +0.2SE cost of child figures are all more than a third of total household expenditure, suggesting diseconomies of scale.

In summary, the estimated costs of children are, in some instances at least, questionable. They are also imprecise and are highly sensitive to the assumptions and parameter values. Small changes in these can produce large changes in results.

A seventh observation *is that sensitivity and validity of results can be tested in a variety of ways. Economic aspects of the subject area can be useful in this process.*

4. Framing

The econometric component of the proposal is central to the analysis. It could be seen as convincingly legitimising the proposed levels of child support.[4] It has been used in Australia and is now being used in New Zealand. However, as has been shown in section 3, there are reasons for less than full confidence to be placed in the resulting figures. It could perhaps be asked how well other econometric studies would stand up to an investigation of this nature, but commonly reliance is placed primarily on standard diagnostics. This is part of the framing of econometric analysis, what is and is not considered, and what aspects are emphasised or on which there is elaboration.

The issue of framing is relevant for this topic for another reason. Research is not just a matter of answering research (or policy) questions. Research, or the framing of research, also involves the choice of questions. As is evident from the analysis, the child support proposals in Dunne (2010) (i) consider the costs of a child as if the parents were together and living on their combined income, and (ii) aim to cover the full costs of the child.

The first assumption is questionable for several reasons. Here are some:

a) The parents may not have lived together;
b) If they had, it may not have been at the current combined income;
c) It does not reflect the economic reality of having parents who live apart;

[4] Dunn (2004) might suggest that, of his listed means of persuasion or "modes of argumentation", this is using "method", the status of the technique being applied, or perhaps "authority", the status afforded to the people conveying the message.

d) It may not be possible to maintain one individual at one living standard when others in the same household are at another standard;
e) Even if it is possible, there is no requirement that this is done;
f) If the child's living standard is the desired objective, why is not care awarded to the higher earning parent (as suggested in Braver & O'Connell, 1998, p. 86)?

More fundamentally, the living standard assumption becomes irrelevant as an objective when a recipient parent is on the DPB. In this situation, there is no possibility that the child support is intended to maintain a child's pre-separation living standard. It is merely recouping all or some of the costs incurred by the government, possibly as a result of a decision made unilaterally by that parent. The liable parent is then required to support the caregiver parent as well as the child(ren), while having no say in that decision. Funds otherwise intended for the child are diverted to the caregiver and the child's living standard is lowered. The liable parent then has depleted funds from which to actually support the child.

The second assumption, covering the full costs of the child, indicates a possibly crucial flaw in both the existing and the proposed child support formula, namely the one-sided nature of the intervention. It is clear from Dunne (2010) that the existing formula requires a liable parent to pay a sum equal to or in excess of the total estimated net cost of the children [5], even if that parent incurs direct care costs for up to 145 nights. The proposed formula makes a partial adjustment for a lesser share of nights, but does not recognise the allocation of tax credits generally to one parent only.

The liable parent's child support contribution comes under the legislation, with associated collection, enforcement and penalty mechanisms. Conversely, the recipient parent has complete freedom in the use of the money received, both as child support and from the state, in addition to choice on direct contributions (even though these contributions are assumed in the proposed formula). There is no accountability for the use of these funds.

[5] The formula considers costs of children to be covered from tax credits and contributions, direct or in child support, by both parents. As noted by Dunne (2010, p. 26), Working For Families Tax Credits exceed the "estimated expenditure for raising children" for many on low income, especially if they qualify for the in-work tax credit, in which case net costs are negative up to an annual income of about $35,000. Nevertheless, liable parents are still required to pay child support.

This is puzzling, given the unconventional spending pattern assumed by the legislation. The funds are based on estimated costs required to give a child a living standard attainable in a household on the combined incomes of both parents. This is likely to be much higher than that experienced in the recipient household. However, there is no reason to expect the child to be living at a standard other than that of the rest of the household, even if this were possible.

Moreover, if the liable parent wants money to be spent in some way for the benefit of a child and the recipient parent disagrees, then, despite having earned and paid the child support, the liable parent has to find additional money for this. Little changes under the proposed formula, although the analysis does make one thing clear. While Dunne (2010) states that there will be little change in financial transfers arising from the change in formula, it is clear that not only the child support, but also the tax benefits and the caregiving parent's financial contribution are intended for the benefit of the child. Once again, a paying parent has no say over the use of any of this money.

An alternative framing might present this as a power and control imbalance in favour of the recipient parent. From that perspective, it could be seen as having a significant effect on relations between the parents, on children's relationships with their parents, and on the children's wellbeing. However, the child support debate in New Zealand and elsewhere does not take this perspective. Consequently, it is not a factor to be addressed when considering legislative changes or enforcement.

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An eighth observation *is that research questions contain their own framing. This includes questions to which economics and econometrics may be applied.*

5. Conclusions

We see in the child support legislation a case of a law being passed and implemented for nearly twenty years while having significant problems. It is only now that some of the issues are receiving attention. In this instance at least, until now neither the political process nor the legal system has managed to effectively address the issues. This is in part because of what has been given attention (agenda setting) and how it has been presented (framing). The current econometric analysis provides information on the assumptions and intention of the

legislation, such as the extent to which child support is to cover costs of children, and what those costs might be. Previously this was not clear. Given this information, it is possible to critically assess the costs suggested, and to investigate the econometric approach.

As might be expected in a policy area with international similarities, overseas methodology has been adopted for use in the New Zealand case. This paper indicates that results are highly sensitive to the specific form of equations and the underlying economic assumptions. It also suggests that the form and assumptions may not be the most suitable for the situation.

Eight observations are made through the paper. These cover methodological points in the application of economics research to policy. Collectively they indicate the desirability of a broad and flexible approach to research, including the use of outside information and going beyond formal statistical tests for determining the value of a model and model results.

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