# UNDERSTANDING THE RELATIVE GENEROSITY OF GOVERNMENT FINANCIAL SUPPORT TO FAMILIES WITH CHILDREN

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**Abstract**
*The principal of horizontal equity can be interpreted as requiring that households with the same pre-transfer incomes and the same consumption needs should receive the same post-transfer incomes. We argue the generosity of government financial support to families with children should be analysed with respect to such a baseline. Although not without problems, equivalence scales form an important part of such a procedure. The comparison of financial support to families with children with a corresponding equivalence scale, both over time and between countries, should give a more accurate picture of generosity than comparisons of cash values alone. We discuss potential advantages and drawbacks of such comparisons, illustrating with comparisons of the US and UK systems. The main drawback is that we can only evaluate the generosity of support for children relative to that for adults. With this restriction, horizontal equity is more likely to be achieved for couples with 1 child than for those with 2 children. For some groups, the US is more generous to children (relative to adults) than the UK, but this difference is partly generated by the US system being less generous to childless households than the UK.*

## I. INTRODUCTION

The provision of financial support to families with children has become an important area of applied welfare policy analysis as a result of increasing interest in a number of areas. These include concerns about child poverty, the effects on expenditures of differences in the allocation of household resources across household members, and an increasing understanding of potential labour market incentive effects for those with childcare responsibilities. As a result there has been an increasing focus of the comparison of various systems for provision of financial support for children, either across countries, across time, or across proposals for reform. This paper discusses methodological factors that arise when thinking about comparing the nature and generosity of government support for families with children.

The first step is to define what me mean by "government financial support for children". We are thinking of government financial support for children as the amount of financial support (we discuss later the difference between support delivered through tax cuts, cash payments or benefits-in-kind) that a family with children would not receive if it did not have any children. We abstract from the question of who in the family would actually receive the payments, and we accept that there may be no link between this support and the well-being of children. This concept might be explained more accurately as "government financial support to parents in respect of their children" but we choose to shorten this to "support for children" in what follows.

So, with these definitions, an initial comparison might compare social assistance or tax rules in different countries or in the same country over time. As these undoubtedly would vary by income, it would be natural to plot the value of child-related payments made to families with children as they vary with gross household income. [2] Such a comparison, for the US and UK (with monetary values adjusted using 2000 PPP rates) is presented in Figures 2 & 3, which show both the nature and amounts of support at different points in the income distribution (simplified, as these have necessarily been drawn for particular family types, but bringing out the main features). A different, but related comparison, is to look at budget constraints – the relationship between gross and net income – for families with children as gross income varies. This is presented in Figure 1. A number of recent studies have used such methods of comparison for the value of financial support for children (Battle and Mendelson, 2001, Brewer, 2001, and Brewer and Gregg, 2001). Such methods typically underlie claims that policy reforms are either more or less 'generous' to families with children.

Whilst interesting in their own right (and we present a short summary along these lines in what follows) such comparisons leave out three potentially important differences between systems, each of which might affect the conclusions of the comparison, depending on the particular aims of the comparative exercise itself. First, the costs of children may be different in the two regimes being compared, such that an equal financial transfer in each regime would lead to a differential change in welfare. Second, the distribution of income (and the joint distribution of income and children) may be different across the two regimes, such that unweighted comparisons across all income points would not necessarily reflect average outcomes. Finally, there may be other factors differentially associated with the presence of children in the two regimes (or differentially compensated-for in the two regimes) such that differences in payments earmarked as child-related may not fully reflect differences in total payments to families with children (although the way one should treat such co-varying payments is a non-negligible issue in itself for the comparative exercise). An example might be housing tenure. Of course, not all of these issues are always relevant, depending on the nature of the investigation

[2] We say this is a natural comparison, but it is only natural under the maintained assumption that the presence of children is an exogenous factor, which we discuss further later.

in question. International comparisons, or comparisons of the same country in two time periods that are separated by a number of years, would clearly be affected by all three. On the other hand, when discussing potential effects of alternative reforms in a particular country at a particular time, it is less clear that such issues matter, although an understanding of the joint distribution of income and children is certainly useful in focussing debate.

In this paper, we discuss ways of controlling for each of the above factors when comparing the generosity of financial support for households with children. Throughout, we take the comparison of the US and the UK tax and transfer systems in 2000-01 as an illustrative model through which to discuss the issues that arise. We key point is that the generosity of support for children should be understood with respect to a non-zero baseline transfer, thus allowing the researcher to control for payments to children made solely as part of the redistribution taking place within the system as a whole. That is, we aim to separate the components of transfers to children that arise because children are often in households that are poor from those transfers that arise simply because the household has children. By estimating the part of the transfer system that is designed to achieve horizontal equity and subtracting this from child-related payments one is left with a measure of how much support to children within any particular system goes further than – or falls short of – this horizontal equity benchmark.

Section II outlines the methodology for comparison in more detail. Put simply, our methodology is first to calculate, for all possible values of pre-transfer income, the difference in state support for households that are identical in all dimensions other than the number of children. We then compare these differences to equivalence scales which estimate the relative costs of children at similar levels of income. The particular choice of equivalence scale capturing the costs of children is clearly an important part of our analysis, and we discuss estimates of equivalence scales in the UK and the US, including a simple scale estimated on a comparable basis from comparable micro-data in each country. Since this is inevitably a problematic area (as we show), we also use the scales implicit in construction of government statistics on the income distribution or poverty line as a measure of official or semi-official stance on the relative needs of households with and without children.

It is important to stress that we are not directly comparing the generosity of the total level of support for a family with children in each country. Our hypothesis is that it is not always possible to directly compare absolute costs of

children, and how, if at all, it varied by family income, so we compare the additional support for children relative to the support given to adults to the costs of children relative to adults. Our results can be reversed throughout, of course, and presented as how support for adults relative to children compares to estimates of the costs of adults relative to children.

In Section III we provide background to our applied analysis by first outlining the transfer programmes for families with children in the US and UK, and then using the Institute for Fiscal Studies' micro-simulation model to calculate the extra financial support received by families in the UK across the income distribution. We do the same for a (simplified) version of the US tax and welfare system in 2000. We go on to discuss this financial support within the framework outlined in Section II. In Section IV we compare the various profiles of financial support for children with the appropriate equivalence scales for each country and deal with the issue of differences in the distribution of income (and covariates) across the two countries. We argue that these comparisons demonstrate the degree to which governments are moving away from, or towards, a pure horizontal equity principle when they are designing financial support for children. They can tell us whether particular groups of families with children are being relatively over- or under-compensated for the children. Because there are many equivalence scales that we could have chosen for this analysis, we explore the corollary by estimating what equivalence scales are implied by the different regimes of financial support for children. Finally, Section V concludes.

## II. THE RELATIVE GENEROSITY OF FINANCIAL SUPPORT FOR CHILDREN

An important guiding principle in social security design issues is the pursuit of horizontal equity: households that are the same in a particular set of dimensions of interest should be treated similarly (see Musgrave, 1959, or Atkinson, 1980, for more detailed discussion). For the purposes of this paper, our interpretation of this principle is that households with the same pre-transfer incomes and the same consumption needs should receive the same post-transfer incomes. Importantly, this is not a principle concerned with children in particular – it is about raising the incomes of all poor households having controlled for their consumption needs. Of course, households with children tend to do quite well

out of this guiding principle, as they often have lower incomes, other things being equal, than those without, presumably because of the limitations children place on labour supply (Brewer et al, 2001 and DWP, 2001 show the position of households with children in the UK's income distribution). That this principle is accepted by governments across the world is seen in the number of social security and tax systems that depend upon family and household characteristics as well the income of individual: we do not think of redistribution in terms of simply taking money from individuals with high incomes and giving it to those with low incomes – it involves a sense of "need" as well. The next section therefore discusses ways of understanding differences in consumption needs across households, and presents some important scales summarising relative needs in the US and UK, which will turn out to be important for the analysis of later sections.

**II.1 Equivalence scales and household needs**

To the extent that governments choose to redistribute towards households with children, then at least part of this redistribution will be on horizontal equity grounds – households with children have lower incomes and, more importantly, higher needs. There has been a formal recognition amongst economists of the differing needs of households with children for many years, dating back to the beginning of the century (Engel, 1895, and Rowntree, 1901). As a result, a number of techniques have been developed to facilitate the measurement of the economic costs of children. Such costs are traditionally summarised as an *equivalence scale*, defined as the cost to a household of achieving some particular standard of living, given its demographic composition, with this cost being expressed in comparison to the costs that a "reference household" would incur in achieving that same standard of living. The reference household is usually taken to be a married couple without children or a single childless adult. Such a scale could then be used to convert a household comprising a certain number of adults and children into a household of "equivalent adults", and the number of equivalent adults can then be used to deflate household incomes or expenditures for comparison with the rest of the population on a per-capita basis. More formally, an equivalence scale seeks to compare the difference between $c(h^l, U^r)$ and $c(h^r, U^r)$, where $U^r$ is some reference utility level, $h^r$ is a reference household and $h^l$ is a different household type, and $c(.)$ is the household cost function.

One issue becomes immediately clear, and this concerns whether such extra costs should be expressed as a constant ratio of, or a constant difference

between, the two cost functions. Comparing ratios of costs implies that one is using some constant proportion of household expenditure as a measure of the cost of a child, so that a child will cost a rich family more than it will cost a poor family. A specification that compared differences of costs would, however, imply that the cost of a child was fixed (in money terms), no matter what the income of the household. The most common approach is the ratio approach, and when considering the degree of horizontal inequity in pre-transfer incomes in a population it seems preferable. In this approach, the equivalence scale, *e(h),* for the reference household is normalised to 1, and, for other households, $e(h^1) = c(h^1, U^r) / c(h^r, U^r)$. If one simply intends to compensate households in poverty for the presence of children then the `minimum cost' of a child can be constructed by making a judgment regarding the minimum level of adult expenditure and then calculating the implied compensation from equivalence scale ratios estimated at this level of expenditure. Alternative measures of the minimum cost of children, such as Parker (1999), can be made by adding up the cost of the minimum requirements that are deemed necessary for supporting a child, but we do not deal with such estimates of the cost of children in the application here , although our methodology could be easily applied using such scales.

Of course, this analysis is traditionally concerned only with the *direct* (financial) costs of children – those that arise through the necessity of spending more in order to reach the same standard of living. The true costs of children may be higher or lower. Further costs arise from loss of earnings whilst adult household members are out of the labour market, but rather than consider this, the focus of what follows will be on relative living standards *given* a certain level of household primary income. In addition, there is little doubt that the majority of adults who have children will have made a conscious decision to have them and no doubt derive utility from their presence. The economist cannot measure this latter welfare gain and hence it is traditionally ignored in the computation of scales, although such omissions are important when focusing on the identification of equivalence scales, as pointed out by Pollak and Wales (1979). Ignoring the parents' welfare gain from having children is somewhat unsatisfactory, but we would argue that there is a sense in which this potential welfare gain is not the most important issue when thinking of financial support at the bottom of the income distribution which is where, in practical policy terms, equivalence scales are most relevant. We have also only considered household utility, and paternalistic governments may care about the

utility of a child independent from its parents; this provides a further justification for not focusing on the welfare gains accruing to the parents.

There are a number of equivalence scales traditionally used to adjust household incomes in applied social security policy or policy analysis. The most simple adjustment perhaps, proposed and used by the OECD, is simply to adjust the number of household members according to the raw number of adults and children, regardless of age. Thus one scale would count the first adult as 1, subsequent adults as 0.7 and children as 0.5, meaning that a household with two adults and two children would be deemed to need 2.7 times as much disposable income as a household with one adult only. Such scales typically pick up the majority of variation in needs and yet are not be sufficiently detailed for our purposes, which relate to the finer details of social security systems. More relevant to us are the scales which are most commonly used to analyse poverty and income inequality in the UK and US — referred to as the McClements and Orshansky scales respectively — which we present in Table 1 and Table 2 below. [3] As is clear, such scales allow the relative consumption 'needs' of children to depend on their age, and represent more detailed adjustments to household needs to those cited above. Indeed, both scales have been used as an explicit part of the transfer systems in each country at some stage. Several US programmes use the official poverty thresholds – and therefore the equivalence scale implicit in the Orshansky scale – to determine eligibility (see, for example, Tables 7.1 and 7.2 in Citro and Michael, 1995). In the UK, the McClements scale was originally used (in the late 1970s) to help structure safety-net benefits, but the UK has gradually moved away from this scale since then (see Figure 3 in Banks and Johnson, 1992 and Table 3.2 in Brewer et al, 2001) although the scales are still used for official inequality measures (such as DWP, 2001).

One further piece of analysis is worth documenting at this stage. To control for the fact that relative consumption needs may have changed over time, or may be picked up in differential ways by these two policy scales (which are, after all, estimated by different methodologies) one can estimate a simple set of equivalence scales from directly-comparable data using a directly-comparable methodology in both the US and the UK. Using survey data on

[3] The US poverty thresholds are based on work by Millie Orshansky in the 1960s, and the poverty thresholds vary by household composition. Although a formal equivalence scale does not underlie the variations in the thresholds, one is implied, and it is this that we refer to as the Orshansky scale (Citro and Michael, 1995, discuss this in more detail).

household budgets and household demographic variables, taken from the 1998 UK Family Expenditure Survey and the 1998 US Consumer Expenditure Survey, we estimate a simple set of Engel equivalence scales for each country allowing different relativities according to marital status and the number of children, but without allowing for differences across the ages of children.[4] This is in accordance with the social security systems we analyse in later sections, where age-related components are not typically an important feature. These scales are presented in Table 3. The main difference between the scales is that our Engel scales give a higher weight to children, particularly compared to the McClements scale in the UK. Our Engel scales also show evidence of economies of scale in household expenditure (the second child adds less to the estimated equivalence scale than the first), a feature which is not found in the McClements scale, and not found consistently in the Orshansky scale. Interestingly, on average the scales suggest higher costs of children in the US, particularly for couples with three or more children, and single adults with two or more children.

The discussion at the start of this section makes clear that an equivalence scale is designed to capture precisely the variation in household needs that is required in order to adjust post-transfer incomes of the population to ensure horizontal equity as we have defined it. Another way of thinking about this issue in an internationally-comparative context is as a way of adjusting for the fact that families with children do not consume the average bundle of goods, and hence do not consume the bundle of goods implicit in PPP comparisons. Furthermore, the effects possibly differ across countries depending on the structure of spending patterns and relative prices.The summary scales presented

[4] An Engel scale is predicated on the assumption that the proportion of a households expenditure allocated to food is a good proxy for their welfare. By estimating the statistical relationship between spending on food, total spending or income, and household demographic variables, one can evaluate the amount of income one would need to give to a household of a particular type in order to bring its food spending into line with the reference household. It is well known that an Engel scale overestimates the costs of children, due to within household budgeting reasons (see Deaton (1997), p. 254, for example). However, we choose to use it since this will mean that, if anything, our estimates of the relative generosity will be underestimates. Results from the estimation process in each country are available from the authors on request.

also show (small) differences between our two countries in the way in which such adjustments need to be made.

### II.2 Efficiency gains

In addition to redistribution there are other principles that might lead governments to direct money explicitly at families with children, as opposed to households that have low incomes relative to their needs. In recent years, the UK government has given more increasing attention to an efficiency argument — that society has an interest in the outcomes for (poor) children over and above the parents' own interest. This has come about in the light of strong evidence that children who grow up in low-income families are more likely than better-off children to be unemployed, to be low skilled, to be unhealthy, to commit crime and to be a teenage parent in adulthood (see Hobcraft, 1999, Gregg and Machin, 2000a&b, or Bradshaw, 2001, for the evidence, and HM Treasury, 1999 or 2001, for the UK's policy towards this). Most of these outcomes will impose costs for society in future years both in terms of tax revenue (through foregone growth) and in terms of extra spending on health, law and order, and social security. Similarly, governments may also wish to favour explicitly certain types of families with children over those without children (for example, the US supports married couples over cohabiting couples), or they may want to adopt explicit pro-natalist policies (see Milligan, 2000, for example). Finally, policy-makers may also care about possible work incentives when structuring financial support for families with children, particularly with regard to child-care related payments (see Blundell and Hoynes, 2001, and Brewer, 2001, who both compare financial work incentives for low-income families with children in the US and UK).

### II.3 Other issues

One problem that confronts all governments that want to help children is that governments cannot directly affect children's own incomes, nor can they even be sure that increasing incomes in families with children will help children's well-being. In fact, although there is a great deal of evidence that links deprivation as an adult to growing up in a low-income family (references cited above), there is little UK evidence yet on what impact increasing incomes through extra government transfers has upon children's well-being. Even if low incomes are linked with adverse outcomes, it need not be the case that increasing family income will improve these outcomes – there may be some hidden factor that is producing the apparent causation (for example, parental characteristics may lead both to higher parental incomes and better child outcomes). Or, if parents are altruistic and already spending the optimum amounts on their children, then extra resources will not benefit the children at all.

Two recent UK studies also show how the link between family incomes and child poverty, even just at the budgeting level, may be more complex than first thought. Middleton et al (1997) look at patterns of spending on over 1,000 children and show that children in low-income households have broadly similar amounts of money spent on them as children in (slightly) higher-income households, but parents in low-income families are much more likely to go without essentials – even regularly skipping meals in some cases – than parents in higher-income families. Gordon et al (2000) examine poverty defined in terms of a lack of necessities, and show that children in low-income households were less likely to go without essentials than adults in low-income households. Both of these results suggest that parents tend to protect their children from the effects of low incomes by making sacrifices themselves. If this is happening, then increasing the amount of money going to low-income families with children may help the parents more than the children. This discussion helps explain why governments provide a great deal of support and assistance for children through public services as well as through income transfers. It is beyond the scope of this paper, though, to attempt to identify the total value of government help for children. Hence, in subsequent sections, we will focus on the appropriate level of financial transfers through the tax and benefit system, taking the current provision of public services to families with children as given. But it is important to bear in mind that governments seek to achieve

horizontal equity goals through provision of benefits in kind or services, which might be skewed towards children or the poor.

## III. FINANCIAL SUPPORT FOR CHILDREN IN THE UK AND US

Both the UK and the US governments support families with children in a variety of ways. The financial costs of children are recognized in both countries: in the benefit system, though in-work refundable tax credits, and by non-refundable tax credits or extra tax deductions or allowances. However, the vagaries of perception and political economy mean that these support systems are often presented from very different perspectives, and in consequence can be difficult to compare.

Figure 1 compares the full budget constraint—the relationship between pre-transfer income and income after taxes and benefits and welfare payments—for families with children in the UK and US in 2000. The US system has been necessarily simplified: these figures do not include state taxes, state earned income tax credits (EITCs) or Medicaid; we include Food Stamps and we have assumed the TANF system operating in Florida, a relatively low-benefit state. [5] Housing support and help with childcare costs are ignored in both countries. The UK's system looks more generous than the US at lower incomes in that, for a given PPP-adjusted pre-transfer income level and family composition, PPP-adjusted incomes after transfers are higher in the UK.[6] The transfer system as a whole is also more redistributive among families with children in the UK, with higher net tax rates at higher PPP-adjusted incomes than the US. A striking feature of both countries' structures of support for children is their complexity, as different programmes with different rules apply to families at different incomes. [7]

[Figure 1 about here]

[5] TANF benefits vary by family type and by state – see Committee on Ways and Means, 2000, p. 384.
[6] The PPP rate used for conversion was the 2000 OECD rate of 0.665.
[7] This complexity is one of the reasons behind the UK Government's proposed move to an integrated child credit, discussed more in Appendix A.

*Identifying financial support for children*

Figure 1 showed the full budget constraint for families with children in the US and the UK, and Figures 2 & 3 show the financial support provided for children by plotting the cash difference in the budget constraints of a couple with no children and a couple with a child. This way of identifying support for children is used by Ellwood and Liebman (2000), who look at the tax treatment of US families with children, by Battle and Mendelson (2001), who compare systems of support in the UK, US, Australia and Canada, and by Brewer and Gregg (2001) who compare the UK with the US. The calculation assumes full take-up of all transfer programs (which requires the assumption that families comply with maximum resource limits or work requirements), and we further assume continual employment year-round to enable us to convert weekly systems (means-tested benefits and national insurance contributions in the UK) and monthly systems (Food Stamps and TANF in the US) into annual amounts. There is a implicit assumption, too, that that the distribution of gross income, the presence of children, and the structure of the transfer system are all exogenous to each other. For a summary description of the relevant programmes in each country see Appendix A; more detailed descriptions can be found in Battle and Mendelson (2001) and Brewer (2001), which survey both countries; or Ellwood and Liebman (2000), which looks at the US tax system; or Brewer, Myck and Reed (2001), and Brewer and Gregg (2001), which look at the UK.

[Figures 2 & 3 about here]

One might expect support for children to decline monotonically with pre-transfer family income: it does not. In the UK, there is a substantial increase in financial support for children at pre-transfer incomes of around £3,100, beyond which it falls as income rises.[8] The spike is due to the Working Families' Tax Credit: although it contains a basic credit and per child credits, only those with children (or a disability) can apply, so the basic credit is really just an extra payment for the first child for non-disabled adults. Support for the first child ranges from £40.85 a week for the poorest to £15 for the richest, but the WFTC

[8] Entitlement to the WFTC depends upon weekly hours worked, so we have had to assume a wage rate, and have chosen the minimum wage (£3.70 from October 2001), so that entitlement to the WFTC occurs as the lowest possible income level.

provides £89.40 a week at the maximum point. The US system does not continuously decrease with income either. First, complex interactions between TANF and Food Stamps, the different eligibility rules for people with and without children , and the phase-in of the EITC, give a range where support is broadly flat for those on the lowest incomes. Second, after the EITC has been phased out, the value of the child exemptions and the head of household filing status increase with income. A particularly striking feature of the US system is the trough after the EITC has been withdrawn and before the tax allowances and deductions increase in value (from around $50,000), discussed more in Ellwood and Liebman (2000).

The figures have been drawn with PPP-comparable income levels, and an eyeball comparison shows that both countries are about equally-generous to children at low-incomes. At higher incomes than shown on the Figures, or for lone parents or families with more than 1 child, the US is more generous to children in higher-income families. We argue, however, that this provides a limited comparison of the generosity of financial support for children, as we have not controlled in any way for the costs of children, nor have we considered the distribution of income for families with children in each country (to evaluate our conclusions above more precisely, one would need to compare both absolute PPP-adjusted income levels and percentiles of the income distribution across countries, to match points in the income distributions).

To begin to address the issue of benchmarking the generosity of each system to the redistribution going on in the system more generally, Figure 4 shows the series graphed in Figures 1 & 2 expressed as a fraction of the post-transfer income received by an otherwise-identical family without children (we have shown a few cases: many other permutations could have been considered, particularly the UK in 1997 when the amount of means-tested support for children varied considerably with the age of the child). Figures 5 and 6 shows the extra payments for each child as a fraction of the payments for a family without that child. The interpretation is, for example, that at a pre-transfer income of zero, a couple with 1 child receives 55% more post-transfer income than a couple with no children, and we refer to this as the "implicit equivalence scale" in the transfer system. There are two striking features. The first is that the US appears to be more generous to children than the UK at very low incomes, providing over 2.5 times as much disposable income to families with children than to those without. We are, however, measuring support for children relative to the support provided to adults alone: as Figures 1-3 together show, at low incomes, the US provides about as much in cash terms for

children as the UK, but it provides far less to adults without children than the UK, so the correct conclusion is that the generosity of the US' support for children relative to adults is greater than the UK's (although, at this point, we have still not controlled for variation in the costs of children between the US and the UK). The second point is the dramatic spike in support for children in the UK at low incomes: a single person with a pre-transfer income between £3,000 and £5,000 would see their disposable income rise by over 150% if they had a child. This result looks extremely surprising, and is due to the fact that people without children cannot claim an in-work tax credit. Of course, very few families without children have such low pre-transfer incomes compared to families with children.

[Figures 4-6 about here]

Figures 1-6 have all been drawn for specific family-types, and are good representations of the structure of the transfer system. Using the Institute for Fiscal Studies' model of the tax and benefit system in the UK, we can calculate the increase in net income that each family received for its children compared to the net income that the family would have received without the children (excluding behavioural responses of course). These calculations are made for each household in the Family Resources Survey – a representative sample of UK households – and are then grossed up to the UK population. For this exercise we continue to assume full take-up of all programmes to calculate these ratios, and that pre-transfer incomes and housing costs are exogenous, but we are able to take into account covariates other than pre-transfer income and the number of children. In practice, net transfers to families with or without children may depend upon characteristics such as the ages of children and adults, the distribution of earnings within a family, childcare costs, tenure and housing costs, and disability, and accounting for all of these gives a more accurate picture than Figure 2 & 3. [9] Figures 7 & 8 show the empirical counterparts to Figures 2 and 4 in the UK. As we would expect, there is a strong – but not perfect – correspondence between the two.[10]

[9] Housing subsidies and support for childcare could both be very significant ways of directing support to children if, for example, having a child makes it more likely that one receives subsidised public housing or housing support, or if childcare support is particularly generous and at least some aspects of childcare are a consumption good rather than an unavoidable cost of working.

[10] The main reason for the differences is that the position of the spike in the implicit

[Figures 7 & 8 about here]

## IV. COMPARING THE GENEROSITY OF THE US AND UK SYSTEMS

The analysis in the previous section has set out how the US and UK systems differ in payments to children, expressed both in absolute terms and in respect to the payments given to an equivalent household without children. As discussed above, two remaining possibilities need to be controlled for: the costs of children may differ, or the distribution of incomes may differ such that the figures above are misleading. In this section we control for both factors. We consider three possible ways of incorporating the costs of children into our calculations — firstly by using the official scales in each country, second by using scales calculated using comparable (Engel) methodology in each country, and finally, to assess robustness to the first two, we also use exactly the same scale in both countries.

To begin with, we graphically compare the generosity of the transfer systems with our estimated Engel equivalence scale (since this does not have an age-related component and is thus directly comparable to our figures). Figure 9 superimposes our estimated equivalence scales onto the series shown in Figure 4. At lower incomes, implicit support exceeds the estimated Engel equivalence scales, and at higher incomes, implicit support is lower than the estimated equivalence scales (we call this "under-compensation" and discuss the interpretation in Section V): the lines cross at around £10,600 and £9,000 in

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equivalence scale line depends on the hourly wage of workers in the household, and hence the line itself is not in the same place for all households. Other differences are that our full tax and benefit model also takes into account the following: Housing Benefit, which reduces the absolute and relative support for children; support for childcare and free school meals, which increases the absolute and relative support for children; the age of adults and children, which can sometimes affect the absolute and relative support, and the hours rule in WFTC, which means that some families are not entitled to the WFTC at the incomes that we assumed because they do not meet the 16 hours rule, reducing the relative support for children. But the absolute level of child support in Figure 8 is £2.89/week less (average) than that implied by Figures 1 & 2, so the differences in Figure 7 are more likely to come from differences in the post-transfer income that does not vary with the presence of children.

the UK for couples with 1 or 2 children respectively ($13,000 or $9,500 in the US): in other words, the transfer system is achieving horizontal equity only for families with 2 children and pre-transfer incomes of less than £9,000.

[Figure 9 about here]

This comparison shows us the income levels at which the transfer systems either over- or under-compensate families for their children, but it does not show us how many families are receiving too much or too little for their children , or the average amount of under- or over-compensation. To do this, we need to integrate the series in Figure 9 across the pre-transfer income distribution for families with children. One attractive method would be to estimate the income distribution non-parametrically and then construct the weighted sum of implicit equivalence scales using the income densities as weights. In what follows here, however, we simply use the (weighted) empirical distribution from our survey and calculate summary statistics over that sample. Specifically, for each family in our dataset (families with 1 or 2 adults and 3 or fewer children), we assign them a calculated implicit equivalence scale, based on their pre-transfer income and the number of children.[11] These results are presented in Tables 4 and 5 for the UK, and 6 and 7 for the US. Tables 4 and 6 break the analysis down by the number of adults and children, and Tables 5 and 7 use income quartile and the number of adults. As we would prefer our computations to be unaffected by the relative weight of single adults and couple families, we have conditioned all of our equivalence scales on the number of adults (i.e. families with no children have a weight of 1). This means that the numbers for lone parents are not directly comparable to couples: we do this to avoid having to come to a view on the relative weight of single adults and two-adult families.

[11] We use the Family Resources Survey in the UK and the Consumer Expenditure Survey in the US to estimate the pre-transfer income distribution. Ideally, we need a definition of income that corresponds as closely as possible to that used by the transfer systems, but these income definitions vary between transfer programmes even within countries. For simplicity, we choose a definition in the US that includes earnings, investment income and pension income. In the UK, our definition includes all private income. In the UK, we assume all dependent children are under 16.

The results are in line with Figure 9: in both countries, and for both lone parents and couples, the implicit equivalence scales increase with the number of children and decrease markedly with income. One interesting point is the relative heterogeneity in the implicit equivalence scales amongst lone parents and couples with more than 2 children in the US, as shown by the difference between the mean and median implicit equivalence scale (for example, lone parents with 1 child have a mean implicit equivalence scale of 1.781 but the median is 1.243). This heterogeneity is due to the relatively high payments for children at low pre-transfer incomes. The distribution of implicit equivalence scales in the UK, though, shows more homogeneity.

The first 2 rows in Tables 4-7 (labelled "Implicit equivalences scales" ) use only information on pre-transfer income and family composition to calculate the implicit equivalence scale, but, as Figure 7 showed, support for children depends on other characteristics. A full tax and benefit model operating on a representative sample of families with children allows us to go further, and so, for the UK, we show a measure of the implicit equivalence scale that has been defined for each household in our sample using a tax and benefit model (as shown in Figure 7). The implicit equivalence scales are slightly lower, for reasons discussed in endnote 10.

We now compare these implicit equivalence scales to three equivalence scales: the official scales in each country, scales calculated using a comparable (Engel) methodology in each country, and the same scale in both countries as a baseline across the two countries, thus controlling for the possibility that it is observed differences in equivalence scales (about which we know there are measurement problems) that is generating these differences. For simplicity we take the scale recommended in Citro and Michael (1995), given by $E = (A + 0.7K)^{0.7}$ where A is the number of adults and K is the number of children, which allows a degree of economies of scale and a broad difference in the relative costs of children versus adults, but no age adjustment (referred to as the CM scale hereafter). The tables show the mean value of these three equivalence scales by the number of adults and the number of children, and the number of adults and income quartile (as none of these scales depend upon income, the slight variation by income quartile reflects the correlation between family size and pre-transfer income). For reasons discussed in endnote 4, our estimated Engel scale puts a higher weight on children relative to adults than both the official scales in each country and the CM scale.

In the UK, the mean implicit equivalence scale exceeds the McClements scale and CM scale for lone parents, but is less than all three comparison scales for couples. By income quartile, only the mean implicit equivalence scale for families in the bottom income quartile exceeds the three comparison equivalence scales. In the US, the mean implicit equivalence scale by number of children exceeds the Orshansky scale and CM scale for lone parents, but is either lower or marginally higher than all three scales for couple families. By income quartile, the result is the same as the UK: over-compensation only occurs in the bottom income quartile.

Comparing these results across countries a couple of patterns emerge. For couples, the US system appears more generous than the UK in the sense in which we are interested. This is true when considering either mean implicit equivalence scales, mean differences between implicit scales and equivalence scales (of whatever form) or the proportion of households who are being over-compensated. For lone parents, however, the picture is more complicated. It is certainly true that mean implicit equivalence scales are higher in the US than in the UK. But this reflects the fact, discussed in more detail below, that a number of US households have extremely high implicit scales, presumably as a result of having a low counterfactual income in the case where they did not have children. At the median, however, the UK appears more generous to single parents with children and this is reflected in the fact that the proportion of single parents who are overcompensated is higher in the UK for two of our three equivalence scale measures.

The percentage of families of each type who are over-compensated (i.e. who have an implicit equivalence scale in excess of the other scales) also helps to illustrate the heterogeneity of implicit equivalence scales within the two benefit systems. For example, in the UK and the US, the Engel scale is the highest of the three comparison scales, and so fewer families have an implicit scale higher than the Engel scale than the other two scales.

But the difference between the scales is much more dramatic in the UK than the US. For example, 73% of lone parents with 1 child in the UK have an implicit equivalence scale that exceeds the McClements scale, but only 8% exceed our Engel equivalence scale. Amongst all lone parents in the bottom quartile, the corresponding percentages are 99% and 9%. In the US, the percentage of families whose implicit equivalence scale exceeds a comparison

scale varies much less by the choice of comparison scale, even though our Engel scales in the US are just as high (relative to the other two scales) as they are in the UK (for example, 46% of lone parents with 1 child in the US have an implicit equivalence scale that exceeds the Orshansky scale, and 30% exceed our Engel equivalence scale). The interpretation here is that the distribution of implicit equivalence scales is more compressed in the UK than it is in the US (at least around the values corresponding to our equivalence scales), and particularly so for lone parents.

The other striking feature of the bottom three rows in Tables 4 and 6 is the similarity between the results for the official equivalence scales and our benchmark scale. Despite differences in the mean values by family type, the percentage of families whose implicit equivalence scale exceeds these 2 comparison scales is remarkably similar. (For couples, there is little difference in the proportion of families who are over-compensated between all three scales, even though the Engel scale is substantially higher than the official and the CM scale).

What is clear is that, in both the US and the UK, single adults with children are more likely to be treated more generously than simple redistribution would imply, than are couple families. On the other hand, in the UK, couples with children receive slightly less than the official scales would imply, whereas in the US, payments are roughly in keeping with the relativities underlying the Orshansky scale. In both countries, families in the bottom quartile tend to be over-compensated, and better-off families are likely to be under-compensated, in line with what one would expect if for efficiency reasons we want to raise child-related payments to a minimum level but not necessarily beyond. On some comparisons, the US looks more generous than the UK, particularly for low-income lone parents, but this is in part because of the greater heterogeneity in implicit equivalence scales in the US compared to the UK.

### IV.1 An alternative comparison

Another way of approaching the problem is to see what sort of equivalence scale is suggested by the structure of support for children (this approach has been used by Banks and Johnson, 1994 and Coulter et al, 1992, as well as Betson and Michael, 1993, cited in Citro and Michael, 1995). Rather than apply the method to the parameters of the benefit system, we can apply the

method directly to the data generated from our tax-benefit modelling exercise. In particular, we specify a general equivalence scale as:

$$E = (A + \eta K)^{\theta}$$

where A is the number of adults and K is the number of children in the households as above. The two parameters $\theta$ and $\eta$ determine the economies of scale in the household and the weight given to children compared to adults respectively. Given data on A and K, as well as the implicit equivalence scale for each household, calculated as described above, we can find the values of $\eta$ and $\theta$ that most closely correspond to the implicit equivalence scale (based on sum of squared deviations). Table 8 contains the results of this procedure in the US and UK. Our results show that the two official equivalence scales correspond closely to the square root equivalence scale (where household income is divided by the square root of households size, children counting as adults). Neither our estimated Engel equivalence scales nor the implicit equivalence scales show any economies of scale, but they do give children a lower weight than adults. As would be expected given the earlier results, the implicit equivalence scales give children a lower weight than the estimated Engel equivalence scales, and the US appears more generous than the UK, at least at the means, although we do not pursue these further here.

## V. CONCLUSIONS

In this paper we have discussed ways of evaluating the generosity of financial support for families with children. Our starting point has been that there are two reasons to give support to such families, and that a separation of these two dimensions can enhance a comparative exercise, whether one is comparing two countries or the same country in two different periods. On the one hand, families with children are often poor, particularly relative to their needs, and hence will benefit from support purely on redistributive grounds. On the other hand, governments may want to give financial support to children purely because of the idea that the issue of children living in poor families is somehow more important to address than the issue of poor families alone. The separation of these two dimensions requires one to take a stance on how much of transfers capture pure redistribution (regardless of whether to a child or to an adult) and

we argue that this concept, although not without its problems, is best captured with an equivalence scale.

Throughout our analysis, we have demonstrated the issues by using a detailed comparison of the US and UK systems. Both have similar structures, using a combination of means-tested benefits and tax credits to give financial support to households with children. On the surface the two systems look similar in their generosity – in dollar terms, the benefits received by a family with children at a similar (PPP adjusted) income are comparable. When one compares the ratios of payments received by families with and without children, holding other factors constant, differences emerge. This is a result of the fact that, since the US gives less support to childless households than does the UK, the implied generosity of the US system for children relative to adults for some household types is greater. Broadly speaking, this result holds for households of different compositions and incomes, although the effects are strongest at the bottom of the income distribution and also for couples. Intuitively speaking, the US system redistributes less, and hence equal-sized dollar transfers to households with children are more "generous" when assessed against the stance of the system as a whole.

Although we feel that our analysis adds an important dimension to comparative exercise, it is not without its problems. For a start, the analysis relies on the policy analyst's knowledge of the equivalence scales that capture households' variation in needs. We have shown, however, that the broad conclusions of our comparison are unaffected by this issue, at least over the range of scales that we have employed here. When comparison regimes differ by less, however, this is less likely to be the case, and choice of equivalence scale will become an important issue.

More importantly perhaps, there are three ways in which our analysis is not the end of the story. Firstly, even conditional on the equivalence scale, our comparisons assume that the redistributive stance of the transfer system can be accurately picked up from payments to childless households, in the sense that such payments form the denominator of our implicit equivalence scale; we could equally well have presented an analysis of how support for adults relative to children compares to the cost of adults relative to children.[12] Secondly, our

[12] It could be argued, since both the US and the UK have stressed the need to reduce child poverty, and since both have reformed the structures and level of support for children in recent years, that payments to families with children would be an equally intuitive baseline.

methodology (or at least that part that considers summary statistics instead of graphical analysis) considers information from all households, whereas one may think it more reasonable to limit the analysis to those households some bottom fraction of the income distribution. Finally, as we pointed out earlier, there are ways of supporting children other than financial transfers in the form of benefit payments, and these are not accounted for in our comparisons. It is clear that whilst the above concerns are important to bear in mind, we argue that they do not invalidate the comparisons. Note also that their importance will depend on the nature of the comparison itself. If, for example, one was comparing two potential policy proposals for reform in the same country, these issues would be considerably less relevant.

On balance, we argue that there is more to generosity than mere dollar payments. While the magnitude of payments to families with children is surely an important issue (and particularly so at the bottom end of the income distribution) it seems that at least one dimension of generosity should be the payments to children that one would make over and above what one would make to an equally-poor adult. We have pointed out that there are a number of reasons why governments might want to make such payments, and have shown that there are a number of households who do indeed receive such payments and that such households are concentrated at the bottom of the income distribution. However, to assert that all child-related welfare payments fulfil this role is to neglect the fact that governments redistribute to poor individuals in general. Stripping out such redistributions does not result in an unambiguous comparison of welfare or benefit systems, but does enhance our understanding of the nature of government support for children, and in particular, does so in a dimension that more closely corresponds to much of the rhetoric relating to financial support for children.

**References**


Atkinson, A.B. (1980), "Horizontal Equity and the Distribution of the Tax Burden," in H. Aaron and M. Boskin, eds., *The Economics of Taxatio*n, Brookings Institution, Washington, 3-18.

Banks, J. and Johnson, P. (1993), *Children and Household Living Standards*, London: Institute for Fiscal Studies.

Banks, J. and Johnson, P. (1994), "Equivalence Scale Relativities Revisited", *Economic Journal*, 104, 883-890.

Bradshaw, J. (2001) "Poverty: The Outcomes for Children", London: Family Policy Studies Centre and National Children's Bureaux Books.

Battle, K. and Mendelson, M., (2001), *Benefits for Children: a Four Country Study*, Ottawa: Caledon Institute and York, UK: Joseph Rowntree Foundation.

Blank, R.M., Card, D.E., and Robins, P.K. (2000), "Financial Incentives for Increasing Work and Income Among Low-Income Families" in David Card and Rebecca M. Blank (eds), *Finding Jobs: Work and Welfare Reform* ,New York: Russell Sage Foundation.

Blundell, R, Duncan, A, McCrae, J and Meghir, C. (2000), "The Labour Market Impact of the Working Families' Tax Credit", *Fiscal Studies* 21(1).

Brewer, M., Clark, T. and Myck, M. (2001), *Credit Where It's Due? An Assessment of the New Tax Credits*, IFS Commentary 86, London: IFS.

Brewer, M, Myck, M and Reed, H. (2001), *Financial Support for Children: Options for the New Integrated Child Credit*, Commentary 82, London: IFS.

Brewer, M. (2001), "Comparing In-Work Benefits and the Reward to Work for Families with Children in the US and the UK", *Fiscal Studies*, 22(1), 41-77.

Brewer, M. and Gregg, P. (2001), "Eradicating Child Poverty in Britain: Welfare Reform and Children since 1997", Institute for Fiscal Studies WP 01/08, http://www.ifs.org.uk/workingpapers/wp0108.pdf.

Bureau of the Census, (2000) "Poverty Thresholds in 2000, by Size of Family and Number of Related Children Under 18 Years", http://www.census.gov/hhes/poverty/threshld/thresh00.html/.

Citro, C.F. and Michael, R.T. (eds) (1995) *Measuring Poverty: A New Approach*, Washington DC: National Academy Press.

Clark, R.L., King, R.B., Spiro, C. and Steurle, C.E. (2001), "Federal Expenditures on Children: 1960-1997", Occasional Paper 45, Washington DC: The Urban Institute, http://newfederalism.urban.org/pdf/occa45.pdf.

Committee on Ways and Means (various years), *The Green Book: Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means*, Washington DC: US House of Representatives Committee on Ways and Means.

Coulter, F., Cowell, F. and Jenkins, S. (1992), 'Equivalence scale relativities and the extent of inequality and poverty', *Economic Journal*, vol. 102, pp. 1067–82.

Department of Social Security (2000), *Households Below Average Income, 1994/5 – 1998/9*, London: Government Statistical Service.

Engel, E, (1895), "Die lebenskosten belgischer arbeiter-familien frueher und jetzt", *International Statistical Institute Bulletin*, 9:1-74.

Gallagher, L.J., Gallagher, M., Perese, K., Schreiber, S. and Watson, K. (1998) "One Year After Federal Welfare Reform: A Description of State TANF Decisions as of October 1997", Washington: The Urban Institute.

Gallagher, L.J., Uccello, C.E., Pierce, A.B. and Reidy, E.B (1999), "State General Assistance Programmes 1998", Washington: The Urban Institute.

Gordon, D., Adelman, L., Ashworth, K., Bradshaw, J., Levitas, R., Middleton, S., Pantazis, C., Patsios, D., Payne, S., Townsend, P. and Williams, J. (2000), *Poverty and Social Exclusion in Britain*, York: Joseph Rowntree Foundation.

Gregg, P. and Machin, S. (2000a), "Childhood Disadvantage and Success in the Young Adult Labour Market" in D. Blanchflower and R. Freeman (eds) *Youth Employment and Joblessness in Advanced Countries*, University of Chicago Press.

Gregg, P. and Machin, S. (2000b), "Childhood Experiences. Educational attainment and adult labour market performance", in K. Vleminckx and T. Smeeding, T. *Child Well-Being, Child Poverty and Child Policy in Modern Nations: What do we know?*, Bristol: Policy Press.

Gruber, J. (2001), "Medicaid", forthcoming in R. Moffitt (ed), *Means-Tested Transfer Programs in the U.S.*, University of Chicago Press, http://www.nber.org/books/means-tested/index.html.

HM Treasury (1999), *Supporting Children Through the Tax and Benefit System*, The Modernisation of Britain's Tax and Benefit System 5. London: HM Treasury.

HM Treasury (2000), *Tackling Poverty and Making Work Pay: Tax Credits for the 21st Century*, The Modernisation of Britain's Tax and Benefit System 6. London: HM Treasury.

HM Treasury (2001), *Tackling Child Poverty: Giving every child the best possible start in life,* London: HM Treasury.

Hobcraft, J. (1999), "Intergenerational and Life-Course Transmission of Social Exclusion: Influences of Childhood Poverty, Family Disruption and Contact with the Police", CASEpaper 15, London: Centre for Analysis of Social Exclusion.

Inland Revenue (2000), "Working Families Tax Credit Quarterly Enquiry, February 2000", London: Government Statistical Service.

Johnson, N. (1999), "A Hand Up: How State Earned Income Tax Credits Help Working Families Escape Poverty, 1999 Edition", Washington: Center on Budget and Policy Priorities.

Johnson, N. (2000), "A Hand Up: How State Earned Income Tax Credits Help Working Families Escape Poverty in 2000: An Overview", Washington: Center on Budget and Policy Priorities.

McClements, L. (1977), "Equivalence Scales for Children", *Journal of Public Economics*, 8(2).

McClements, L. (1979), 'Muellbauer on equivalence scales', *Journal of Public Economics*, vol. 12, no. 2.

Meyer, B.D. and Rosenbaum, D.T. (2000), "Making Single Mothers Work: Recent Tax and Benefit Policy and Its Effects", NBER Working Paper 7491.

Middleton, S., Ashworth, K. and Braithwaite, I. (1997), *Small Fortunes: Spending on Children, Childhood Poverty and Parental Sacrifice*, York: Joseph Rowntree Foundation.

Milligan, K.S., (2000) "Subsidizing the Stork: New Evidence on Tax Incentives and Fertility," manuscript, University of Toronto, September 2000.

Muellbauer, J. (1979a), 'McClements on equivalence scales for children', *Journal of Public Economics*, vol. 12, no. 2.

Muellbauer, J. (1979b), 'Reply to McClements', *Journal of Public Economics*, vol. 12, no. 2.

Musgrave, R.A. (1959), *The Theory of Public Finance*, McGraw-Hill, New York.

Olsen, E.O. (2000), "Housing Programs for Low-Income Households", forthcoming in R. Moffitt (ed), *Means-Tested Transfer Programs in the U.S.*, University of Chicago Press, http://www.nber.org/books/means-tested/index.html.

Parker, H. (ed.) (1999), *Low Cost but Acceptable – A Minimum Income Standard for the UK: Families with Young Children*, Bristol: Policy Press.

Pollak, R.A. and Wales, T.J. (1979), 'Welfare comparisons and equivalence scales', *American Economic Review*, vol. 69, 216-21.

Rowntree, J. (1901), *Poverty: A Study of Town Life*, London: Longmans.

**Appendix A**
**Transfer programmes for families with children in the UK and the US**

Our aim here is to summarise the most important transfer programmes for families with children in the UK and the US, and where they differ from those available to families without children. More detailed descriptions can be found in: Battle and Mendelson (2001) and Brewer (2001), which survey both countries; Ellwood and Liebman (2000), which looks at the US tax system; Brewer, Myck and Reed (2001) and Brewer and Gregg (2001), which look at the UK. In-kind subsidies in the US such as childcare support, Medicaid and housing assistance in the US are reviewed in Blau (2000), Gruber (2001), and Olsen (2000). In neither country do we consider maternity benefits.

*The US*

Families with children in the US can potentially receive financial support from Food Stamps, Temporary Assistance for Needy Families (TANF), the Earned Income Tax Credit (EITC), and through the income tax system.

Temporary Assistance for Needy Families (TANF) is the main welfare programme in the US. It provides income support to low-income families with children in and out of work. States have discretion over welfare policy under the TANF block grant, but in return have to meet key targets on employment of welfare recipients, getting 40% into work by 2000, and 50% by 2002 (A full discussion of the history of TANF and AFDC can also be found in Meyer and Rosenbaum, 2000, Blank et al, 2000, and Committee on Ways and Means, 2000). They are also prohibited from using federal funds to pay TANF to families for more than 60 months. The flexibility makes it difficult to characterise the transfer system facing a typical low-income family in the US. But most states provide a maximum credit to low-income families with children depending on household composition, subject to resource limits, time limits and work or job-search requirements. The credit is then tapered away as income rises, perhaps after an initial disregard. People without children cannot claim TANF: some states run their own schemes providing emergency or temporary assistance to these people, which come under the name of General Assistance programmes.

Food Stamps are available to low-income families with or without children, in and out of work, subject to resource constraints and job-search or training or working conditions. They provide a monthly allowance depending

on household composition tapered away as incomes rise, after allowances for housing and caring costs. 47% of Food Stamps are now paid electronically (and all will be paid electronically by 2002) making them very similar to traditional income support programs. The Food Stamps program is widely seen as a pure financial benefit as there is consensus that the value of the programme to a family is less than their total food budget.

Low-income families with and without children can apply for the Earned Income Tax Credit (EITC). It is a refundable tax credit, so EITC awards in excess of income tax liability are paid direct to the taxpayer (a non-refundable tax credit, by contrast, merely reduces tax liabilities to some non-negative amount, and so is worth more to well-off families than those paying little tax). Eligibility depends upon earned income, unearned income and the number of qualifying children. Couples are assessed jointly. The only work condition is that the taxpayer (either taxpayer in a couple) had positive earned income. There are three regions in the credit schedule. In the phase-in region, the credit is equal to a percentage of income until the credit equals the maximum amount. There is then a flat region where the maximum credit is received. In the phase-out region, the credit is tapered away to zero.

Families may also have to pay federal income taxes and payroll taxes. The presence of children can have three effects on income tax liabilities. First, a parent can claim an extra allowance for each dependent, although this is gradually tapered away from very high income families. Second, families with any children can claim a $500 partially-refundable Child Tax Credit. Third, a single person or unmarried couple with children can choose to file as a Head of Household, which reduces tax liabilities at all incomes, bringing similar benefits to filing as a married couple.

*What do we not consider.* There are a number of transfer programmes that we do not consider. Families in the US may also have to pay state income taxes, and may be entitled to state Earned Income Credits (as of June 2000, 14 States did so, though neither Florida or California, with two of the three states with the highest federal EITC caseloads, have yet introduced a state EITC – see Johnson, 1999, and Johnson, 2000). There are a number of childcare programmes operating at the federal level in the US. The two most important are the Child Care and Development Fund, and the Dependent Care Tax Credit

(CCDF and DCTC). The Medicaid programme and federal housing support also provide important in-kind transfers; other smaller programmes provide assistance for low-income families including: school lunch programs, supplemental food program for women, infants and children, energy assistance, Head Start and various training programmes: these are not considered further in this paper. We also ignore support for education costs through the tax system.

*The UK*

From April 2001, families with children in the UK can potentially receive financial support from means-tested and non-means-tested benefits, and through the income tax system.

There are four key programmes. First, Child Benefit – a flat-rate, non-means-tested, non-taxable benefit for each child –provides the core of financial support for children.

Out-of-work families with or without children may be able to claim a means-tested benefit (either Income Support (IS) or income-related Jobseeker's Allowance (JSA(IB))). IS and JSA(IB) are worth the same for equivalent families, but JSA(IB) imposes job search requirements and must be claimed by able-bodied people without children and couples with children. Both depend on household composition with extra child allowances for each child and a family premium for a family with any children. They have an earnings disregard of £10 (£20) a week for two-parent families (lone parents) followed by a 100% withdrawal rate.

Low-income families with children or disabilities where one adult works 16 hours or more a week may claim an in-work benefit: either the Working Families' Tax Credit (WFTC) or the Disabled Person's Tax Credit. The WFTC is the third in the continual evolution to in-work support with families with children in the UK, replacing Family Credit in 1999, which itself replaced the Family Income Supplement in 1988. The amount of credit depends upon earnings, hours worked, and the number of qualifying children. Couples are assessed jointly. There are two regions in the credit schedule. The basic credit is worth £106 a week to a family with two children (April 2001 figure). Beyond an after-tax income of £92.90 a week, the credit is tapered away at 55%, with a small extra credit for families where someone works more than 30 hours a week. The credit is fully tapered away for a family with two children at a pre-transfer income of around £400 a week. From 2003, there will be a similar in-work benefit available to able-bodied working adults without

children.

The UK has an individual system of income tax. Credits and allowances appear in a person's tax schedule. Allowances are typically less generous than in the US, so people start paying income tax at lower annual incomes (see Gale, 1997, and Brewer, 2001, for more comparisons of the US and UK tax systems). The new Children's Tax Credit is a non-refundable tax credit worth up to £520 a year regardless of the number of children. It replaces two mutually-exclusive and equal-valued tax credits: the Married Couple's Allowance (MCA) and the Additional Person's Allowance (APA), both abolished in April 2000. The combined impact is that, since 1999, married couples without children have lost a tax break, and families with children, regardless of their marital status, have seen a tax break more than double in value. The MCA and APA were available to all taxpayers, but the Children's Tax Credit is withdrawn at 6.7 percent from people paying higher-rates of income tax (over £33,935 from April 2001), like the Child Tax Credit in the US. From 2002, the Children's Tax Credit will be worth up to £1040 in the first year of a child's life.

Table A.1. shows how many families may benefit from each strand of support. But these four systems overlap. For example, all families with children can receive child benefit alongside one or more of income support, WFTC and the children's tax credit. WFTC and income support are nearly mutually exclusive because of the conditions on the number of hours worked, but some families in transition from having some adults in work to having no adults in work could temporarily receive both income support and WFTC. Almost no family would receive income support and benefit from the children's tax credit at the same time. Families receiving WFTC will generally also benefit from the children's tax credit from April 2001.

**Table A.1. Families receiving financial support for children, 1999–2000**

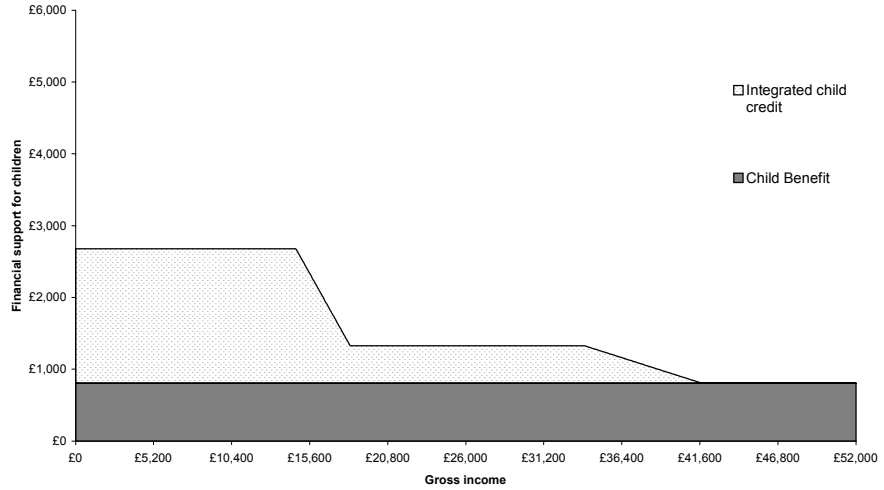
| | Number of families | Number of children |
|---|---|---|
| Child benefit | 7,025,000 | 12,700,000 |
| Income support | 1,230,000 | 2,400,000 |
| Jobseeker's allowance (income-related) | 136,000 | 286,000 |
| WFTC | 989,000 | 2,010,000 |
| Children's tax credit | about 5 million | about 8 million |

*Notes:* CB, IS and JSA estimates are for Great Britain, WFTC and CTC for the UK. JSA and WFTC estimates relate to February 2000.

*Sources:* Brewer, Myck and Reed (2001).

The relative complexity of these schemes is one of the reasons behind the UK Government's proposal to pull together all of the financial support for children that is currently paid through welfare payments, in-work benefits and tax credits into a single instrument, with the same rules and administration applying to all families (this is drawn from Brewer and Gregg, 2001; Brewer, Clark and Myck, 2001, contains a much longer discussion. Few concrete details of how it would work have been released at the time of writing, except its new name – the child tax credit).

**Figure A.1. How the UK's integrated child credit might work**




Source: Authors' calculations. Assumes one-earner couple and 1 child under 16. Ignores support for housing and childcare.

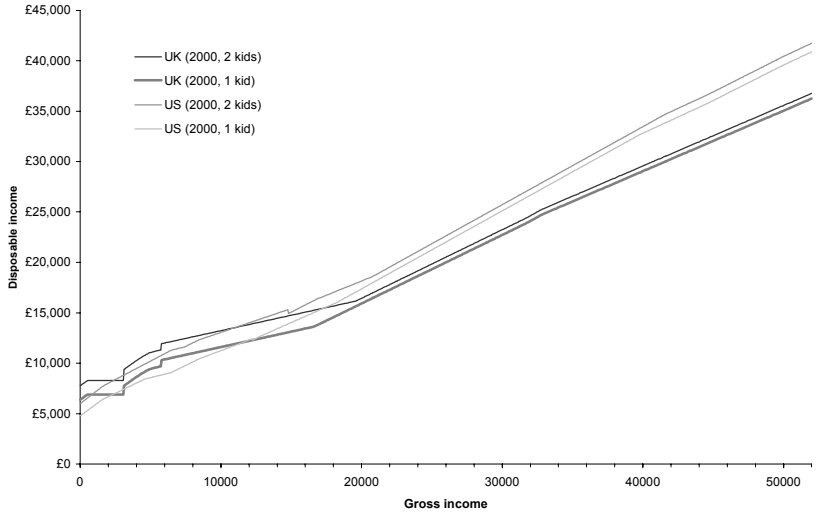
This integrated child credit will have a number of new features that give it many more similarities with the Canadian Child Tax Benefit than the US system.. First, all payments will be paid to the main care-giver (under the current system, this depends on which benefit is being paid and even how the payment is being paid). Second, income uncertainty at the time of transitions into and out of work will be reduced, as the integrated child credit will not depend on the family's work status, providing "a seamless payment across the welfare to work divide" (HM Treasury, 2000) rather than the uncertainly and possible delay of moving from out-of-work benefits to in-work benefits in the current system. Third, payments will be assessed against family income throughout, presumably on a constant definition of income. This represents the most significant step towards joint assessment for families with children since income tax became individualized in 1990. The way it responds to changes in income and circumstances—much of which remains undecided at the time of writing—will also be crucial. In terms of structure of payments, the combination of child benefit and the integrated child credit will preserve the substantial bias towards the first child in the UK's system, and mean that lower-income families will receive more for each child than better off families.

At the same time as the integrated child credit is introduced, support for low-income working families will be extended to the able-bodied working-age without children, through a general employment tax credit.

*What do we not consider*: Families with children on means-tested benefits are entitled to a lump-sum payment (the maternity grant) on the birth of a child. In recent years, this has increased dramatically in importance. In addition, low-income households with and without children can receive help with rental housing costs through Housing Benefit (HB), and help for the local tax in the UK (through Council Tax Benefit). Of less importance are the limited help with mortgage interest payments for families with and without children on out-of-work benefits, and in-kind health benefits (these are of considerably less value than Medicaid as most health-care is provided free to all) and free school meals to low-income and out-of-work families with children respectively. We also do not consider the Childcare Tax Credit.

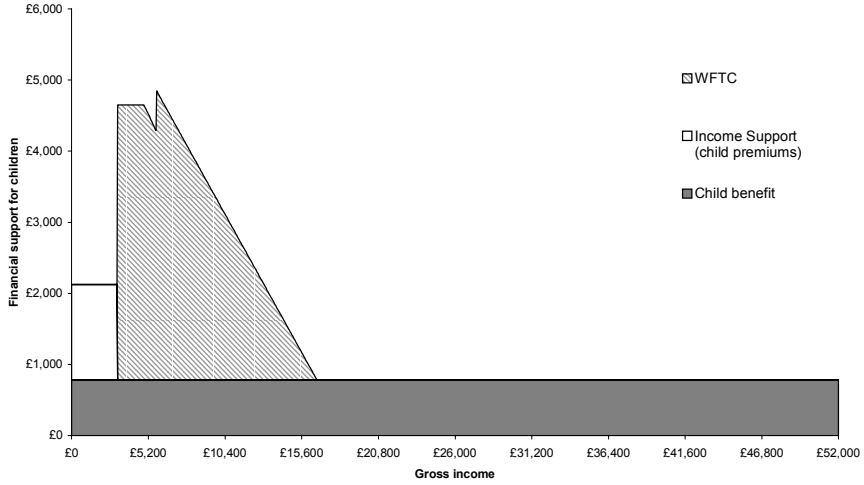
## Figures

### Figure 1. The budget constraint for a couple with children, 2000.



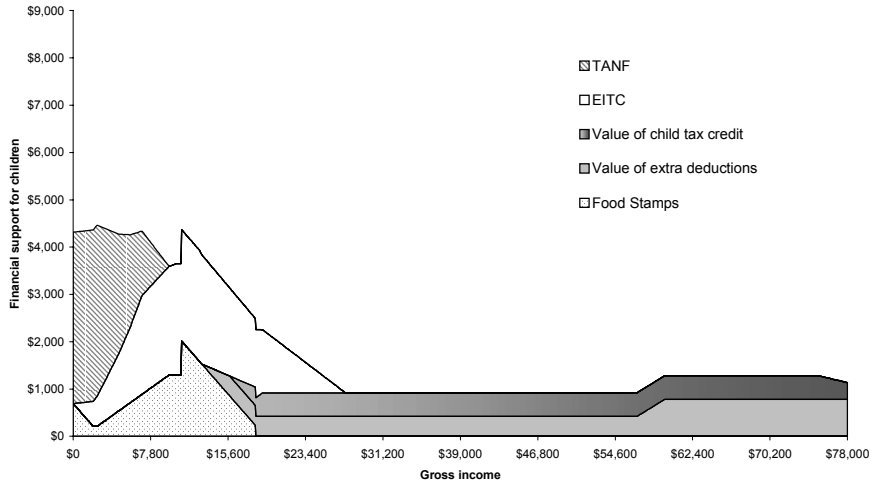

Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.

## Figure 2. Financial support for 1 child, UK, 2000



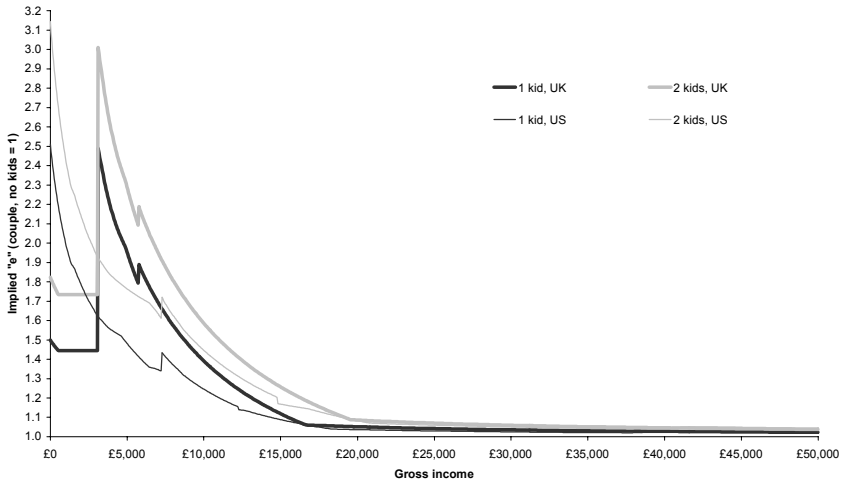

Source: Authors' calculations. Assumes one-earner couple and 1 child under 16. Ignores support for housing and childcare.

## Figure 3. Financial support for 1 child, US, 2000



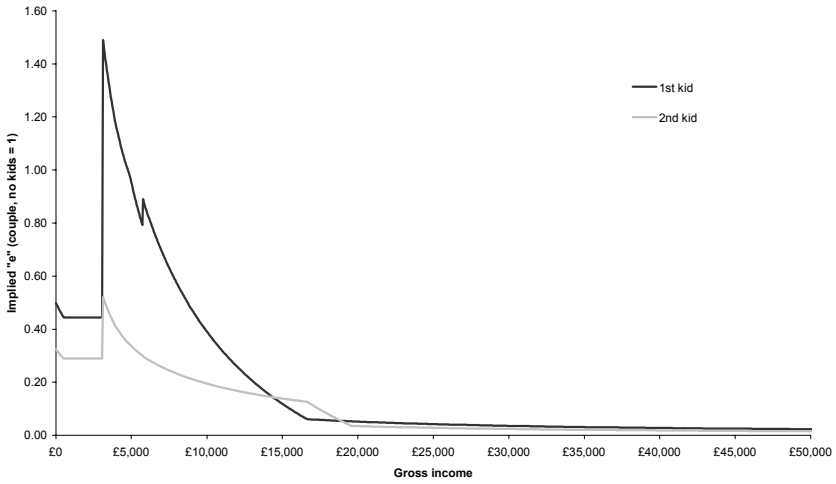

Source: Authors' calculations. Assumes one-earner couple and 1 child under 16. Ignores support for housing and childcare.

**Figure 4. The equivalence scale implicit for couples with children in the UK & US transfer systems, 2000**



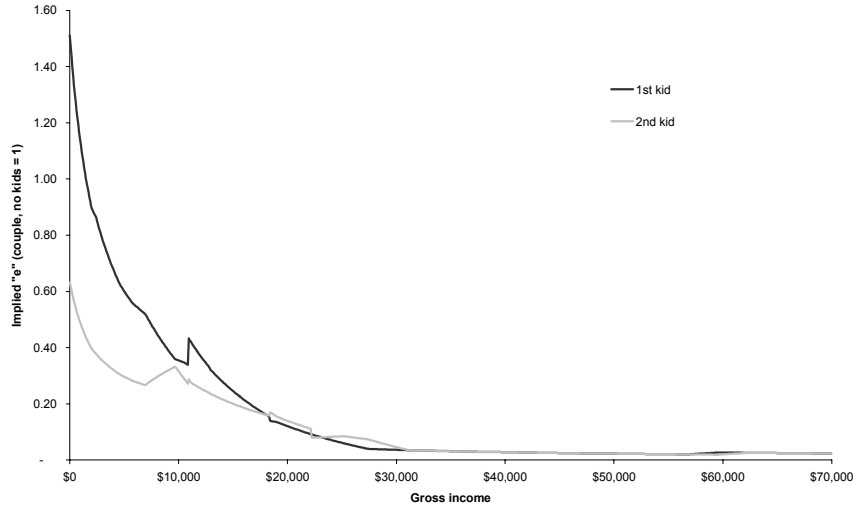

Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.

**Figure 5. The equivalence scale implicit for children in the UK transfer system.**



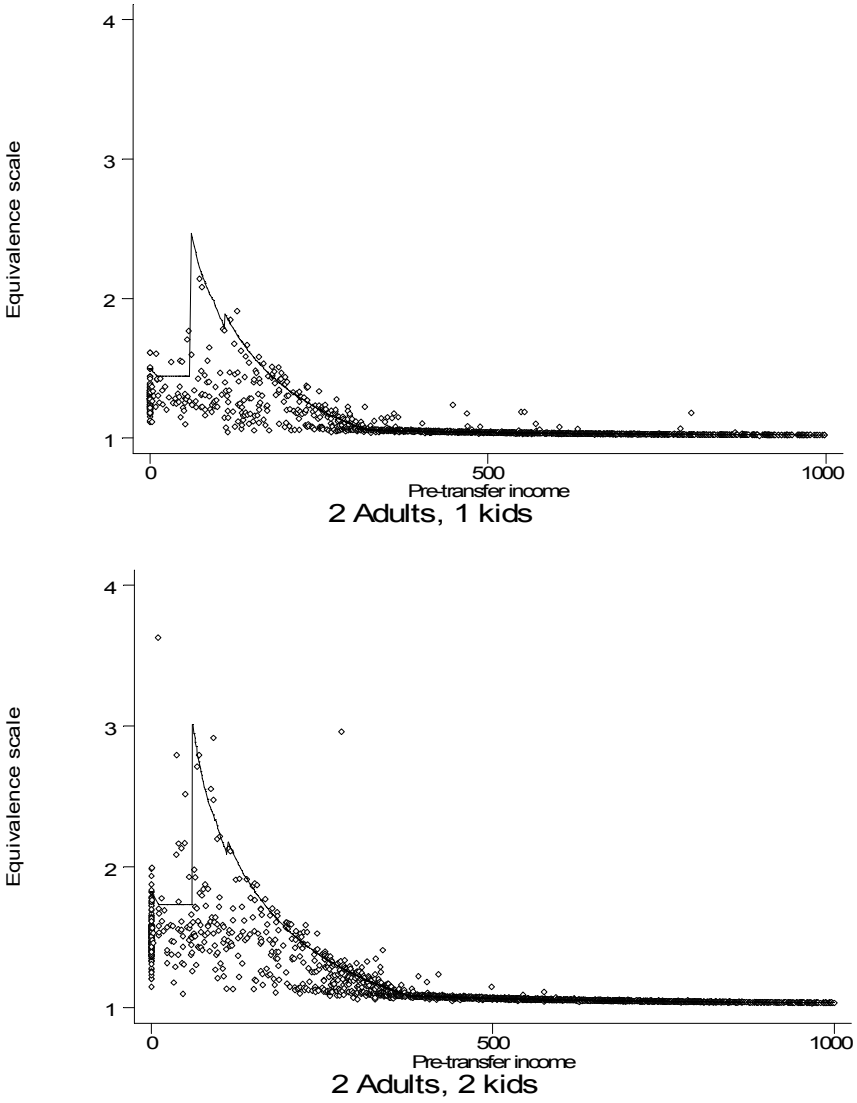

Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.

**Figure 6. The equivalence scale implicit for children in the US transfer system.**



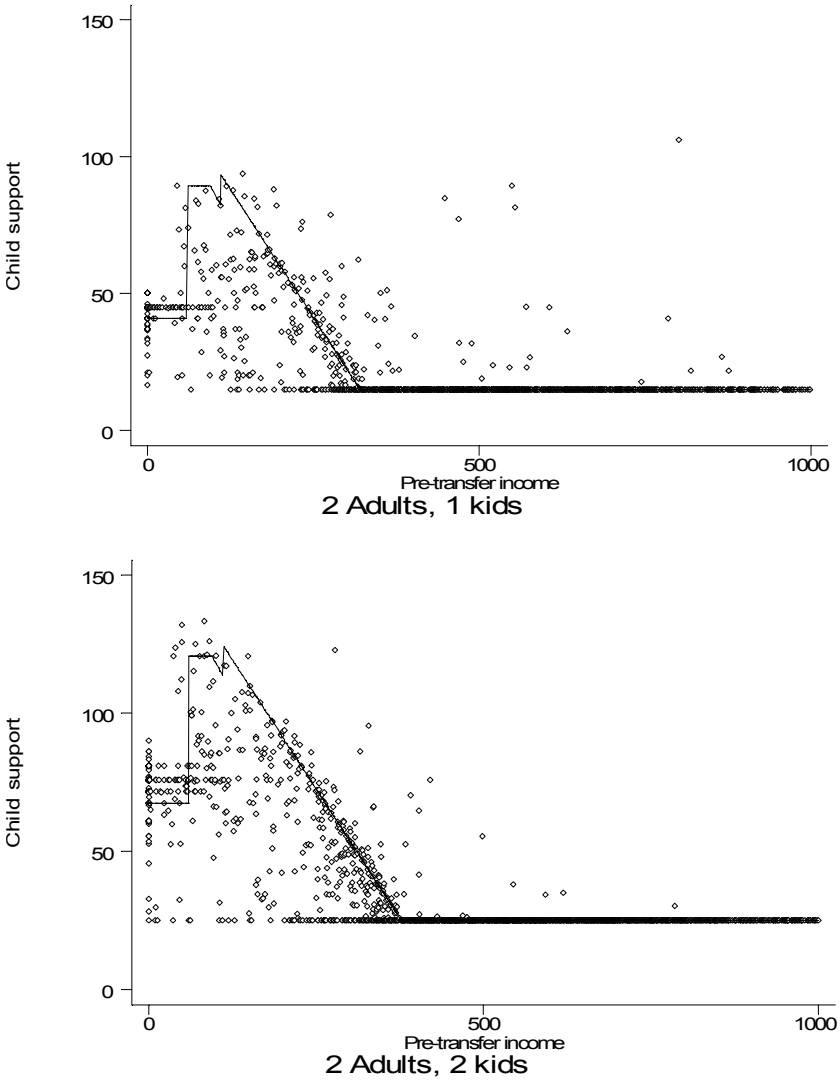

Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.

**Figure 7. The empirical implicit equivalence scale for couples with children in the UK transfer systems, 2000**



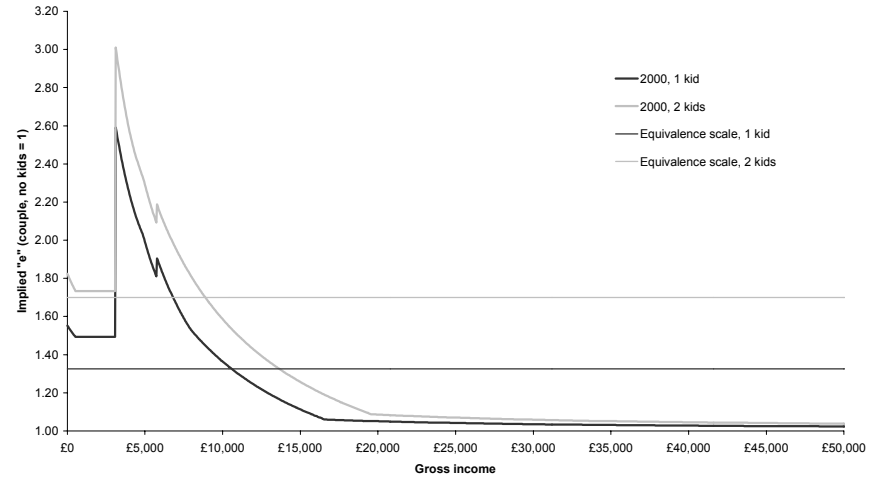

*Source*: Authors' calculations using TAXBEN based on data from the 1997-8 FRS (income measure is weekly £).

**Figure 8. Support for children implicit for couples with children in the UK transfer system, 2000**

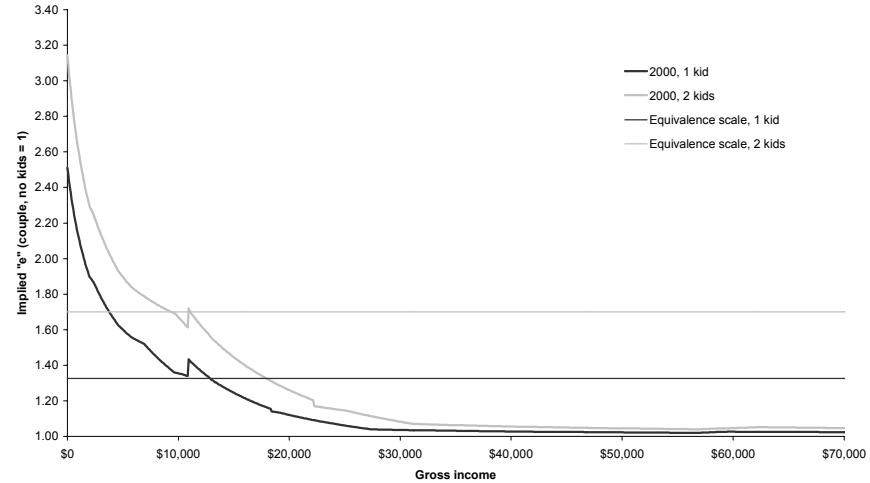



*Source*: Authors' calculations using TAXBEN based on data from the 1997-8 FRS. (income measure is weekly £)

**Figure 9. Estimated and implicit equivalence scales, couples, 2000, UK&US.**




Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.




Source: Authors' calculations. Assumes one-earner couple and children under 16. Ignores support for housing and childcare.

**Tables in main text**

**Table 1. The McClements equivalence scale**

| | Single adult | | Couple family | |
|---|---|---|---|---|
| | Relative to couple, no children | Relative to single person | Relative to couple, no children | Relative to single person |
| No children | 0.610 | 1.000 | 1.000 | 1.640 |
| Child aged 0–1 | 0.090 | 0.148 | 0.090 | 0.148 |
| Child aged 2–4 | 0.180 | 0.295 | 0.180 | 0.295 |
| Child aged 5–7 | 0.210 | 0.344 | 0.210 | 0.344 |
| Child aged 8–10 | 0.230 | 0.377 | 0.230 | 0.377 |
| Child aged 11–12 | 0.250 | 0.410 | 0.250 | 0.410 |
| Child aged 13–15 | 0.270 | 0.443 | 0.270 | 0.443 |
| Child aged 16 or over | 0.360 | 0.590 | 0.360 | 0.590 |
| Spouse | 0.390 | 0.640 | 0.420 | 0.640 |
| Other adults | 0.360 | 0.590 | 0.360 | 0.590 |

*Source:* Authors' calculations from the Before Housing Costs scale in DSS, 2000, Appendix 4.

**Table 2. The equivalence scales implicit in the Orshanky poverty measure**

| | Single adult | | Couple family | |
|---|---|---|---|---|
| | Relative to couple, no children | Relative to single person | Relative to couple, no children | Relative to single person |
| No children | 0.777 | 1.000 | 1.000 | 1.287 |
| First child | 0.252 | 0.325 | 0.202 | 0.259 |
| Second child | 0.174 | 0.224 | 0.312 | 0.402 |
| Third child | 0.317 | 0.407 | 0.268 | 0.524 |
| Fourth child | 0.235 | 0.303 | 0.213 | 0.674 |

*Source:* Authors' calculations from Bureau of the Census, 2000.

**Table 3. Estimated Engel equivalence scales**

| | UK | US |
|---|---|---|
| Lone parents | | |
| *1 child* | 1.881 | 1.733 |
| *2 children* | 2.434 | 3.330 |
| *3 children* | 3.362 | 3.468 |
| Couples | | |
| *1 child* | 1.326 | 1.390 |
| *2 children* | 1.700 | 1.795 |
| *3 children* | 1.893 | 2.202 |

*Notes*: see text for details. Full regression results available from the authors. Both scales are estimated under the assumption that a family with no children has a weight of 1.

**Table 4. Comparisons of implicit and other equivalence scales by family type, UK.**

| | 1 adult | | | | 2 adults | | | |
|---|---|---|---|---|---|---|---|---|
| Children | 1 | 2 | 3 | mean | 1 | 2 | 3 | mean |
| Implicit equivalence scale | | | | | | | | |
| *mean* | 1.603 | 2.026 | 2.527 | 1.894 | 1.159 | 1.239 | 1.434 | 1.234 |
| *median* | 1.783 | 2.292 | 2.802 | 1.783 | 1.044 | 1.070 | 1.122 | 1.068 |
| Implicit equivalence scale using TAXBEN | | | | | | | | |
| *mean* | 1.342 | 1.590 | 1.879 | 1.510 | 1.090 | 1.456 | 1.278 | 1.153 |
| *median* | 1.363 | 1.627 | 1.933 | 1.462 | 1.034 | 1.064 | 1.100 | 1.059 |
| McClements equivalence scale | 1.353 | 1.682 | 2.087 | 1.580 | 1.207 | 1.440 | 1.668 | 1.393 |
| Engel equivalence scale | 1.881 | 2.432 | 3.362 | 2.295 | 1.326 | 1.700 | 1.893 | 1.599 |
| $E = (A + 0.7K)^{0.7}$ | 1.450 | 1.846 | 2.208 | 1.705 | 1.234 | 1.450 | 1.653 | 1.407 |
| % with positive difference between implicit equivalence scale | | | | | | | | |
| McClements | 73 | 78 | 85 | 77 | 23 | 20 | 26 | 22 |
| Engel | 8 | 5 | 1 | 6 | 20 | 16 | 23 | 18 |
| $E = (A + 0.7K)^{0.7}$ | 71 | 77 | 84 | 75 | 22 | 19 | 27 | 21 |

**Table 5. Comparisons of implicit and other equivalence scales by family type and income quartile, UK.**

| Quartiles | 1st | | 2nd | | 3rd | | 4th | |
|---|---|---|---|---|---|---|---|---|
| Adults | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Implicit equivalence scale | | | | | | | | |
| *mean* | 2.140 | 1.798 | 1.440 | 1.257 | 1.054 | 1.054 | 1.035 | 1.034 |
| *median* | 2.176 | 1.823 | 1.336 | 1.148 | 1.045 | 1.054 | 1.030 | 1.040 |
| Implicit equivalence scale using TAXBEN | | | | | | | | |
| *mean* | 1.629 | 1.572 | 1.317 | 1.211 | 1.060 | 1.060 | 1.030 | 1.034 |
| *median* | 1.561 | 1.480 | 1.231 | 1.128 | 1.047 | 1.059 | 1.029 | 1.032 |
| McClements | 1.572 | 1.416 | 1.574 | 1.374 | 1.664 | 1.392 | 1.631 | 1.405 |
| Engel equivalence scale | 2.335 | 1.625 | 2.194 | 1.589 | 2.245 | 1.597 | 2.187 | 1.601 |
| $E = (A + 0.7K)^{0.7}$ | 1.726 | 1.428 | 1.654 | 1.401 | 1.672 | 1.404 | 1.624 | 1.405 |
| % with positive difference between implicit equivalence scale | | | | | | | | |
| McClements | 99 | 100 | 35 | 27 | 1 | 0 | 0 | 0 |
| Engel | 9 | 100 | 0 | 15 | 0 | 0 | 0 | 0 |
| $E = (A + 0.7K)^{0.7}$ | 99 | 100 | 28 | 24 | 0 | 0 | 0 | 0 |

*Notes to both tables*: Authors' calculations based on FRS 1997-8. Families with children with incomes over £1,000 a week have been assumed to have incomes of £1,000. Quartiles are of gross income distribution for families with children with less than 4 children. See text for further details.

**Table 6. Comparisons of implicit and other equivalence scales by family type, US.**

| | 1 adult | | | | 2 adults | | | |
|---|---|---|---|---|---|---|---|---|
| Children | 1 | 2 | 3 | mean | 1 | 2 | 3 | mean |
| Implicit equivalence scale | | | | | | | | |
| *mean* | 1.781 | 2.226 | 3.305 | 2.179 | 1.370 | 1.503 | 1.746 | 1.495 |
| *median* | 1.243 | 1.568 | 2.473 | 1.473 | 1.031 | 1.056 | 1.100 | 1.061 |
| Implicit equivalence scale using TAXBEN | | | | | | | | |
| *mean* | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| *median* | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Orshansky equivalence scale | 1.324 | 1.549 | 1.956 | 1.500 | 1.201 | 1.514 | 1.782 | 1.439 |
| Engel equivalence scale | 1.733 | 3.330 | 3.468 | 2.593 | 1.390 | 1.800 | 2.202 | 1.708 |
| $E = (A + 0.7K)^{0.7}$ | 1.450 | 1.846 | 2.208 | 1.710 | 1.234 | 1.450 | 1.653 | 1.401 |
| % with positive difference between implicit equivalence scale | | | | | | | | |
| Orshansky | 46 | 50 | 63 | 50 | 31 | 25 | 27 | 28 |
| Engel | 30 | 25 | 41 | 30 | 25 | 21 | 23 | 23 |
| $E = (A + 0.7K)^{0.7}$ | 38 | 41 | 55 | 41 | 30 | 25 | 28 | 28 |

**Table 7. Comparisons of implicit and other equivalence scales by family type and income quartile, US.**

| Quartiles | 1st | | 2nd | | 3rd | | 4th | |
|---|---|---|---|---|---|---|---|---|
| Adults | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 |
| Implicit equivalence scale | | | | | | | | |
| *mean* | 3.640 | 2.908 | 1.339 | 1.288 | 1.083 | 1.048 | 1.075 | 1.031 |
| *median* | 3.438 | 3.144 | 1.275 | 1.230 | 1.082 | 1.044 | 1.070 | 1.025 |
| Implicit equivalence scale using TAXBEN | | | | | | | | |
| *mean* | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| *median* | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Orshansky equivalence scale | 1.538 | 1.439 | 1.478 | 1.436 | 1.454 | 1.448 | 1.540 | 1.433 |
| Engel equivalence scale | 2.702 | 1.709 | 2.504 | 1.705 | 2.548 | 1.721 | 2.664 | 1.700 |
| $E = (A + 0.7K)^{0.7}$ | 1.756 | 1.401 | 1.679 | 1.400 | 1.664 | 1.408 | 1.752 | 1.396 |
| % with positive difference between implicit equivalence scale | | | | | | | | |
| Orshansky | 100 | 100 | 27 | 30 | 0 | 0 | 0 | 0 |
| Engel | 77 | 100 | 0 | 5 | 0 | 0 | 0 | 0 |
| $E = (A + 0.7K)^{0.7}$ | 100 | 100 | 6 | 30 | 0.0 | 0.0 | 0.0 | 0.0 |

*Notes to both tables*: Authors' calculations based on CEX 1998-9. Families with children with incomes over $2000 a week have been assumed to have incomes of $2000. See text for further details. Quartiles are of gross income distribution for families with children with less than 4 children.

**Table 8.**

| Regimes | $\eta$ | $\theta$ |
|---|---|---|
| Implicit equivalence scale, UK | 0.24 | 1 |
| Implicit equivalence scale, US | 0.61 | 1 |
| | | |
| Estimated equivalence scale, UK | 0.72 | 1 |
| Estimated equivalence scale, US | 0.88 | 1 |
| | | |
| McClements equivalence scale (UK) | 1 | 0.49 |
| Orshansky equivalence scale (US) | 1 | 0.53 |

*Notes*: parameters estimated to minimise sum of squared deviations of stated regime and estimated equivalence scale or $E = (A + \eta K)^{\theta}$ . Uses FRS 1997-8 or CEX 1998. Sample is families with 1 or 2 adults and 1, 2 or 3 children. See text for details.