Child Poverty across Industrialized Nations

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CONTENTS

Abstract

While child poverty is everywhere seen as an important social problem, there is considerable variation in both anti-poverty policies and poverty outcomes across the industrialized nations. In this paper we present new estimates of patterns of child income poverty in 25 nations using data from the Luxembourg Income Study. These estimates are presented using a range of alternative income poverty definitions and describe the correlations of outcomes with different demographic patterns and labour market and social transfer incomes.

The paper also tests the robustness of these results to different poverty definitions and to more comprehensive measurements of child living standards. Evidence on cross-national patterns of non-cash income receipt suggests that more comprehensive measures, which include non-cash benefits would be unlikely to change the overall pattern of poverty. We then examine the impact of household savings patterns (particularly via house purchase) on child consumption and conclude that this also does not change the picture provided by income measures alone.

The paper concludes with an analysis of the sources of the variation in child poverty across nations. Much of the previous literature has focused on the differences in welfare state institutions and social transfer outcomes. Our results, on the other hand, suggest that variations in the market incomes received by the families of disadvantaged children are more important.

1. Introduction

To speak of poverty implies more than just an observation of a low living standard; it also involves an ethical judgement of the undesirability of this condition. Such a judgement is perhaps most likely with respect to the poverty of children. Whether because of innate feelings of protection towards the young, because of moral assumptions of their blamelessness, or because of pragmatic questions about the impact of child poverty on future social conditions, questions of child poverty have particular ethical and political resonance. Despite a widespread concern with the living standards of children, however, the research of the last decade has confirmed that there remain wide variations in the extent of child poverty across countries at otherwise similar levels of development. In this paper, we review these patterns and assess their robustness and correlates across a wide range of industrialized countries using data from the Luxembourg Income Study (LIS).[1]

When making comparisons of the economic and social circumstances of different countries, two possible approaches can be adopted. One method is to

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[1] The Luxembourg Income Study comprises a database of household income survey information, adjusted to be as comparable as possible. For more information see http://lissy.ceps.lu/.

focus closely on the historical and institutional settings of a small number of countries. The other is to employ a necessarily shallower, but broader, focus over a wider range of countries. This paper falls into the latter class of studies. In particular, we exploit the fact that the database of the Luxembourg Income Study has now grown very large indeed, with household level information for some 25 countries, many of which have information on household living standards for several different years. We utilize almost all these data in the results presented here.

This wider focus has both disadvantages and advantages. On the one hand, it means that we cannot do justice to the specific circumstances associated with living standards and social policies in each of these countries. The counter-weight to this is that we are able to begin to talk about the general patterns of variation in child poverty across a wide range of countries. These include most of the OECD, several of the important non-OECD economies of Eastern Europe (including Russia) and one representative of the newly industrializing countries of East Asia (Taiwan).

From previous research on child poverty, a number of important themes emerge (Cornia and Danziger, 1997). While the reduction of poverty among the aged has been one of the great success stories of the post-war welfare state, in many countries the last two decades have seen a re-emergence of child poverty.

Though the labour market deterioration and family structure changes that have driven these changes have been felt in most countries, there are wide variations in child poverty rates between different countries at similar levels of development. In the largest industrialized country, the USA, child poverty rates remain especially high despite relatively high average incomes. Child poverty rates also tend to be higher than average in the other English-speaking countries, but much lower than average in the Nordic countries (Rainwater and Smeeding, 1995). In the former socialist countries, dramatic falls in incomes associated with the transition to capitalist economies have led to dramatic increases in child poverty.

Explanations for these child poverty patterns have focused on three broad areas: the labour market (increases in unemployment and reductions in low-end wages), family structure (particularly sole-parenthood), and the structure of welfare state institutions (particularly income transfer programmes). Although all of these are undoubtedly important, there remain many unresolved questions of the relative importance and interaction of these different factors.

Most of our recent information about the patterns of child poverty across nations comes from the database of the Luxembourg Income Study, a large database of household-level income data. As this database is constantly expanding, with new countries and years being added, one goal of this paper

is to survey the current state of information available from this database. In addition, however, we also examine in more detail the robustness of results derived from this and similar data sources and explore the relative importance of the different factors that lead to variations in child poverty patterns between countries.

In this paper we examine the following questions concerning the way in which child poverty varies across nations:

How should the poverty of children, in particular, be measured? Although the literature has established conventions for the measurement of poverty using household income data, these measurement methods lack a focus on child poverty. Section 2 reviews a number of questions relating to the best way to measure poverty among children. In addition to the conventional issues, two child-specific issues in particular are examined. First is the question of the appropriate reference group for relative measures of child poverty. Should the reference group be the living standards of all or just of children? Second is the intra-household allocation of resources. Although many questions associated with this cannot be answered with available data, this issue does have implications for the way in which information on household living standards should be used. We argue that household saving should not be included in the resource indicator when examining child well-being.

Section 3 then examines the pattern of child poverty levels and trends across the industrialized nations. Which groups of countries have been most and least successful in combating child poverty? In general, our conclusions based on data from the mid-1990s are in line with the conclusions of earlier research. The Nordic countries have the lowest rates of child poverty, followed by northern European ones. Southern European and English-speaking countries have much larger proportions of their children in poor households. The transition economies we include have very high rates of poverty when this is measured in constant international dollars, whereas their relative poverty rates vary widely. The broad grouping of non-transition countries is fairly similar across the relative and fixed real income poverty definitions.

Across the whole spectrum of countries, real (constant international price) poverty does tend to increase with national incomes. The USA, however, stands out as having a much higher level of child poverty than its national income level would suggest.

What are the social and economic correlates of child poverty? We examine the poverty risks of children living in different types of families and of the poverty risks of children relative to another traditionally vulnerable group, the elderly. How important are demographic factors such as sole parenthood in explaining cross-national diversity? Although, as is well known, children in

lone-mother households in almost all countries are more likely than other children to be poor, we find that the incidence of lone motherhood accounts for very little of the cross-country variation in child poverty. Comparing children and the elderly, a comparison subject to many qualifications, the latter group is more often than not less exposed to very low income than are children. The poverty rate of the elderly is in many countries lower than that of all persons, while that of children is mostly higher. Cross-national 'league tables' of child poverty change little when we use alternative poverty thresholds or equivalence scales.

In Section 4 we examine the robustness of these conclusions more broadly. The income data used in this paper and by other researchers to describe these child poverty patterns have several important deficiencies as indicators of child living standards. Would these conclusions be likely to change if better measurement instruments were available? We focus on three key issues: the source data, the potential impact of including non-cash as well as cash benefits received by households, and the impact of differential patterns of lifecycle saving.

Comparisons with alternative data sources in the EU countries find similar, but not identical, patterns of child poverty rankings. The LIS data may well be of better quality than these alternative sources, but these results serve to remind us that one should not place too much weight on small poverty differences between countries.

Non-cash benefits such as education and health care services are undoubtedly important to child well-being. The available evidence, however, suggests that if we were able to incorporate estimates of the non-cash benefits received by children, it would not make much difference to the cross-national patterns of the child poverty that we observe using income-based indicators. In part, this is because non-cash benefits tend to be more uniform both across and within countries and also because those countries with low levels of income poverty also have higher levels of non-cash benefits provided by the state. Possibly, however, this conclusion is also due to the relatively crude methods available to researchers for the measurement of non-cash benefits.

Patterns of lifecycle saving are generally held to be quite varied across industrialized countries. In some cases, saving is mainly through social insurance, while in other countries, private saving is more important. In the latter case, income-based measures may overestimate the current consumption of middle-income households – which could lead to an over-estimation of relative poverty. Some evidence in support of this hypothesis comes from housing tenure data, which show high child poverty countries having higher rates of home ownership. However, this would appear to be more an issue of the past than the present, as we find much less divergence in the housing tenure patterns of families with children.

In Section 5 we examine the relative contributions of market income and social transfers to the living standards of poor children. Though most of the previous literature has focused on variations in social policies, our results suggest that greater attention should be paid to the sources of market income variation. If we examine the living standards of the poorest one-fifth of children in each country we find that the most important source of variation in living standards across countries is market incomes rather than social transfers.

Moreover, many of the countries with high child poverty rates (in particular, most of the English-speaking countries) actually have quite high levels of transfers. The lower poverty rates found in many continental and Northern European countries are instead due mainly to the higher market incomes of the families of the most disadvantaged children. The more rigid labour markets of these countries appear to give a better deal to disadvantaged children.

2.   The Measurement of Child Poverty

▪ 2.1 *Money matters*

While the affection of a parent or parent-substitute is perhaps more central to child well-being, it is also true that 'money matters'. This is true even in rich nations where poverty is rarely so severe as to threaten survival itself. Consumption, whether in the form of goods and services purchased on the market, or via the direct provision of goods and services by the state or others, affects child well-being both directly and indirectly. Hence the concept of poverty that we seek to employ here is that of "a particularly low level of consumption". We restrict attention to goods that have a monetary metric, which can in principle be transferred between individuals for a price.

Poverty is not the same as social exclusion, but it is a major contributor to this latter phenomenon. The possibility of social exclusion and its associated social fragmentation is thus a major reason for our concern about poverty (though not the only reason). For children, the impact of poverty on their social integration is often via their parents. Parents with access to levels of material resources that are low for their society may be excluded from the mainstream of social activities, and this may in turn exclude their children.

Reduced consumption opportunities may also exclude children directly as they become older and seek to form social contacts outside the home. Roker and Coleman (1998) illustrate this in their research based on conversations with poor youth in the UK. The youth themselves feel the impact of poverty

through reduced recreation and sport, school excursions, textbooks and computers. As one 14 year old girl in a family reliant upon state benefits says:

"... for me it's about not being part of things, not having the money to live normally like other people. Everything I do or I want to do, even like really small things, is decided by money, or by not having it anyway." (Roker and Coleman, 1998, p.17)

▪ 2.2 *Income, consumption and saving*

Although the primary data that we, and others, utilise for the study of poverty are those on family *incomes*, for the study of child poverty in particular *consumption* is probably a more appropriate measurement concept. These two variables differ in their treatment of household saving and dissaving.

The existence of household dissaving provides one reason to prefer consumption to income. Households with wealth may be able to draw down their savings during periods of low income, while poorer households may be able to borrow from social networks of friends or relatives (or even commercial sources). In principle, using consumption as a welfare index will incorporate these dissaving opportunities. Some researchers, especially those studying living conditions in poor countries (Ravallion, van de Walle and Gautam, 1995) use this argument, inter alia, to support the use of expenditure rather than income data when measuring living standards.

The other side of this argument is also of particular relevance to child poverty in industrialized societies. It is often argued that income should be used as the welfare index since it represents the resource flow from which people can choose to either consume, or save. However, this argument is less valid when considering child poverty. If a family is saving, its current consumption will be reduced. To the extent to which a family has a choice about savings patterns (and these choices are often very limited), it is the parents who make the decision rather than the children. Moreover, it is the parents rather than the children that are most likely to be the direct beneficiaries of that saving in their old age.

Though the children in the family may eventually receive some benefit from their parents' saving, for example via inheritance and fewer responsibilities for parental care, it is less clear that these highly uncertain contingencies should be taken into account when we are examining child poverty. A concern for child poverty should most centrally be a concern for the living standards of children when they are children, together with the extent of their human capital investment (education).

These different concepts of resources are catalogued in Table 2.1. The first section of this table shows the different elements of household consumption,

while the next two sections show components of household saving or investment. The final column shows those components which, when summed together, are equal to household net cash income as commonly collected in income surveys. The letter Y denotes these elements. Household net cash income is, by definition, equal to expenditure on consumption items, expenditure on financial and physical assets (eg the increase in cash and bank holdings, plus purchases of consumer durables), expenditure on education services, plus expenditures required in order to earn income.

Table 2.1: *The relationship between household net cash income and household consumption and saving*

Category	Allocated from household net cash income?
Current consumption of household members (parent and child)	
Expenditure on consumption items	**Y**
Depreciation (replacing used-up assets)	**Y**
Services from household assets	N
Government in-kind benefits to individuals (eg health care)	N
Collective government services (public goods)	N
Employer in-kind benefits (eg health insurance, other consumption benefits)	N
Net consumption of other goods and services provided from outside household (eg goods and services from other family members)	N
Consumption of home production (though home-grown food is sometimes added to cash income)	N
Inalienable personal consumption (eg leisure)	N
Financial and physical saving/investment (mainly parental)	
Net investment in financial and physical assets (investment less depreciation)	**Y**
Capital gains (increase in value of existing assets)	N
In-kind employer retirement fund contributions	N
Increase in rights to social insurance	N
Human capital investment (mainly child)	
Expenditure on human capital investment	**Y**
Government in-kind human capital investment (education services)	N
Costs of gaining household income	
Net work expenses	**Y**

This table shows three relationships. First, it illustrates the gap between the income measures collected in household surveys and more comprehensive measures. Second, the table shows how household full (and also cash) income is divided between consumption and saving/investment activities. The latter is by no means confined to the financial saving. Indeed, in rich nations, most household saving/investment takes place via home purchase, contributions to social security, or human capital investment. Home purchase is financed from

disposable income, but the latter two (predominantly) are not. We examine the impact of different saving arrangements in Section 4.3. Finally, the table shows the division of saving/investment activities into those most likely to provide direct benefits to parents in their retirement and those more likely to provide support directly to the children in the household (human capital investment).

To conclude that consumption is a more meaningful concept of living standard than income does not, however, resolve the question of the best empirical indicator to use. Although it is not uncommon to equate consumer expenditures with consumption, the two measures are in fact quite different. In wealthy countries, a large proportion of the household budget is spent on infrequently purchased items like consumer durables or stocks of perishables. This means that expenditure measured over the typical time periods used in expenditure surveys may be a less adequate indicator of consumption than is the cash income of the family.

For these and other more practical reasons to do with the cost of data collection, most poverty measurement in wealthy nations has used family income as the indicator of resources. There are exceptions (Hagenaars, de Vos and Zaidi, 1994), and with careful use expenditure data does have potential to fill in some of gaps in income survey data, particularly when cash income can be only poorly measured.

We continue the tradition of using household cash income as our primary indicator of living standards or family consumption, not least because comparable data on income, but not on expenditure, are available for many countries and time periods. Many of our comments below on the deficiencies of this measure apply equally to both consumption and income. In Section 4, we consider further the implications of both the components of income that are not included in 'cash income' and also the implications of varying patterns of household saving across nations.

▪ 2.3 *Intra-household allocation*

Even once it is accepted that poverty consists of having a 'particularly low level of consumption' and that household cash income (with some adjustments to be considered later) forms our key indicator of consumption, many important questions of definition remain.

The first is that of *whose* consumption. We are interested here in child poverty, but we typically cannot observe children separately from their family – a family moreover where other people make the decisions about the intra-family allocation of resources. Not only can we not observe the allocation within the family, but we also do not have any clear guidelines on the relative needs of the individuals within the household against which to assess that

distribution. Poverty research has therefore used total household (or family) consumption, adjusted for household size and composition, as an indicator of child consumption. This is not unreasonable on average, as parents generally care about their children. Normative values with respect to the relative needs of children are likely to be similar between the 'average' parent and the researchers and policy-makers interested in child poverty.

However, there are situations where considerations of intra-family allocation might make a difference to conclusions about child poverty. The differential impact of savings described above is one example (this is considered further in Section 4). Another springs from the literature on the impact of income sources on household allocation. Several studies in both poor and rich countries have found a positive correlation between the share of family income accruing to women and the relative consumption level of children (see the review by Alderman et al., 1995). In any event, an assumption that mothers will not be less likely to direct their income towards child consumption is a motivating factor behind the policy in many countries of paying family allowances to mothers rather than fathers.

In general, it might be possible to adjust family incomes so as to take account of the different average propensities for children to consume out of different income sources. However, there is also a case against this adjustment. If mothers tend to direct more of their income to children, it is reasonable to expect that mothers are more important to children generally. In particular, the loss of home production time associated with mother's employment may have a greater impact on child welfare than the loss of home production time associated with the father's employment. To the extent to which variations in mothers' income are due to variations in their labour supply (rather than their wage rate, state transfer income or capital income), then higher incomes of mothers may be associated with a *lower* consumption level for children - if we define consumption to include home production.

Even if we wished to restrict attention to commodity consumption, it would not be surprising to find that the within-household distributional results of studies such as Lundberg, Pollak and Wales (1997) varied across nations because of differing gender relationships and family financial arrangements (eg the prevalence of joint bank accounts). Applying a uniform distributional rule would then be inappropriate. Moreover, within each nation, different patterns of parental income receipt are likely to explain only a small part of the variation in the share of household resources allocated to children. When comparing nations, what matters most may be the differences between nations in the *variance* of this allocation pattern (rather than the mean share provided to children). At present, there is very little knowledge about this.

Therefore, although we might wish to use income measures which better reflect child rather than family consumption, our state of knowledge is

insufficient to do this. Nonetheless, this must remain a caveat to what follows. If, for example, families in a given country have a much higher average propensity to direct resources to children, then child poverty, as measured by the absolute approach at least, will be relatively lower in that country than family income data suggest. Similarly, if a particular country has a greater variance in the propensity to direct consumption to children, then child poverty may be relatively higher in that country.[2]

▪ 2.4 *The sharing unit and the equivalence scale*

Two major decisions that must be made in any poverty study concern the choice of sharing unit – how are resources pooled and shared (e.g. within nuclear families or within households) – and the equivalence scale – how should differences in needs between different types of sharing units be taken into account. There is a very large literature that addresses these issues (see e.g. Gottschalk and Smeeding, 1997). Our choices on these matters are fairly standard, limited in part by the structure of the Luxembourg Income Study and in part by space considerations.

For most countries, we assume that resources are shared within households and so define every person in the household to have the same poverty status. This sharing assumption may be too broad for large households of unrelated individuals or multi-generation households, as it implies that the children may have to rely on the benevolence of adults other than their custodians. On the other hand, it will often be too narrow, because households with children often receive support from friends or relatives living in other households. Indeed, households with children often provide financial support to other households themselves, particularly in countries with under-developed pension systems (this may be important in Taiwan). Nonetheless, this definition is the one that is most commonly available across our countries.

The exceptions to this definition are Sweden and Switzerland. In both these countries, limitations in the source data mean that it is necessary to use tax units, corresponding to nuclear families of parents and their dependent children. Adult children and sole parents living in the same household are treated as separate units. We consider the implications of the variations in unit definition in the LIS further in Section 4.

There is a little more scope for examining the consequences of choosing a particular equivalence scale to standardise for differences in the needs of different household types. The voluminous literature on equivalence scales

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[2] For example, consider the case where child income, C, is a proportion, k, of household income, Y. That is, $C = kY$. Assume k and Y vary independently across households. Consider the inequality index given by the variance of logs. Then $V(\log(C)) = V(\log(k)) + V(\log(Y))$. Increases in the variance of $\log(k)$ will thus increase the overall inequality of child income. If the mean income share of children is kept constant, we would expect this increase in inequality to lead also to an increase in the poverty rate.

provides such a large number of different scales that examining the robustness of conclusions drawn to all or most is impractical. As Jenkins and Lambert (1993) point out, choosing an equivalence scale can be thought of as consisting of three stages: (1) choosing the dimensions along which needs differ, (2) deciding on an ordering of family or household types along those dimensions and (3) assigning a cardinal measure, the number of equivalent units each household type consists of. There are ways of avoiding the third step, i.e. of checking if poverty orderings are robust to a particular choice of (3) after fixing (1) and (2) above. For the large number of countries we examine, this would result in too large a number of dominance checks to be practical. Instead, following Coulter, Cowell and Jenkins (1992) and Buhman et al. (1988), the use of a parametric equivalence scale allows for fairly simple checks of the robustness of the poverty ordering.

We again follow most of the inequality and poverty measurement literature in choosing two dimensions along which needs differ, namely the number of adults and the number of children in the household. (We use the LIS definition that children are people aged under 18 years.) There are two common classes of parametric scales that do this. The class to which the "OECD" scale belongs is $e = 1 + (adults - 1) \times a + children \times b$ (with $a = 0.7$ and $b = 0.5$). We opt, however, for another scale, namely one that distinguishes between size relativities and adult/child relativities: $e = (adults + children \times c)^a$. This scale has recently been used by Jenkins and Cowell (1994) and also recommended for use by the US National Science Foundation Poverty Commission (National Research Council, 1995). Using values of $c = 0.7$ and $d = 0.85$ as our base case yields a scale that is quite similar to the "OECD" scale. We examine the sensitivity of our results to this choice in section 3.6.

We also assume that the equivalence scale is the same for every country, a possibly inappropriate standard practice. In the former socialist countries, much poverty measurement is undertaken using per capita scales, which may be more accurate given the substantial subsidies for housing (though these are now disappearing). Section 4 also examines this issue of the relationship between non-cash benefits and equivalence scales.

▪ 2.5 *The poverty threshold and counting methods*

One could argue about whether the use of the term 'poverty' necessarily requires the use of a poverty 'line'. Nonetheless, such thresholds have come to be a fundamental feature of the statistical measurement of poverty. These can either be a single threshold, or a set of thresholds of differing degrees of severity. In either case, there remains the question of how to set thresholds that are comparable across nations and over time. The literature on poverty

measurement has typically used two types of poverty threshold: 'absolute' and 'relative' poverty lines.

'Absolute' (or real) poverty lines are thresholds which permit people living in specified family types to purchase the same bundle of goods and services in different countries or times. Families that fall below the common consumption threshold are therefore considered to be poor.

'Relative' poverty lines, on the other hand, are more closely related to concepts of social exclusion. These poverty lines are typically defined with reference to a measure of 'typical' consumption levels.

Arguably, a focus on child poverty also calls for a somewhat different relative poverty line. If children are excluded from social participation, the most important form of this may be exclusion from the lifestyle typically enjoyed by other children. Similarly if the exclusion of children arises via the exclusion of their parents, it will most often be other parents that they compare themselves with rather than, say, the elderly. This suggests the use of a poverty line defined with reference to the average living standard of children in the society.

Absolute poverty lines are most commonly used in studies of poorer countries - where survival itself is problematic. Most studies of child poverty in wealthier nations have, however, focused on relative poverty. The most common poverty line is simply 50 percent of current median equivalent income (though sometimes a function of the mean income is used).

The use of the median rather than the mean as anchor-point can be loosely justified in terms of a social exclusion, but has also a practical basis. In household surveys, because data collection errors are likely to be more frequent at the two extremes of the income distribution, the median is a more robust measure of central tendency than the mean.

Comparing absolute poverty lines across countries, while simple in principle, is very difficult in practice (see Appendix). However, although the comparison of real living standards across countries requires strong assumptions, many would argue that it is a more important concept than that of relative poverty. To focus only on the relative measures would be, for example, to discount entirely the poverty alleviation benefits of income increases, which were spread proportionately across the population.

For us, both relative and real provide important insights into the way the living conditions of the most disadvantaged children vary across countries. In this paper we therefore employ three types of poverty lines:

1. An *overall median* poverty line. This is the 'conventional' relative poverty line. For each individual in a country we calculate their household equivalent income. The poverty line is defined as 50 percent of the median of this variable across the entire population of the country.

2. A *child median* poverty line based on the family incomes of children. In this case the median of household equivalent income is calculated over children only.

3. The *US official* poverty line. This absolute poverty line is set equal to the US official poverty line for a couple plus two children in 1995 (US$ 15,299). National currencies are converted to US dollars by using OECD's Purchasing Power Parities (PPPs) for 1995 and national inflation rates to deflate incomes over time (see Appendix).

We focus on the proportion of poor children below the poverty line. In principle, this "head count ratio" is less than ideal as an indicator of poverty severity (see Foster and Sen, 1997). We think its use appropriate for our current purposes, however, for two main reasons. First, we suspect that the accuracy of the income variables in the LIS surveys is not at its best at the extreme low end. Using poverty indices that place extra weight on such incomes may lead to quite un-robust conclusions. Secondly, in Section 3.6 we examine the (relative) head count at three different income cut-offs, providing, in essence, a kind of 'restricted poverty dominance' ranking. While restricted poverty dominance does not provide rankings that would hold for particular classes of poverty indices over the whole range of poor income, it does yield some insight into the sensitivity of our conclusions.

In addition, in Section 5 we present alternative indicators of deprivation based on the mean incomes of the bottom quintile of children. This indicator is closely related to the poverty gap and in practice its value across nations is strongly correlated with the poverty head count.

3. Child Income Poverty across Nations

▪ 3.1 *The context*

Some key characteristics of the countries we consider in this paper are presented in Tables 3.1 and 3.2. The first of these describes the social and economic context of the countries in 1996 (GNP is for 1995). The second describes the economic situation in each country at the time of the most recent LIS survey.

In total, 220 million children live in these 25 countries, comprising 10 percent of the world's children (the 25 countries include about 15 percent of the world's total population). Just under one-third of the children in our study live in the US, and one-sixth live in Russia. With the inclusion of the former socialist countries, the LIS database now extends beyond the 'rich nations club' of the OECD. National incomes therefore vary considerably. The small country of Luxembourg stands out with a GNP of US$ 33,000 per capita.

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Table 3.1: *The social and economic context, 1996*

	Number of children under 18 (m)	Share (%)	Share of the world's children (%)	Real GNP per capita per annum (US$, 1995)	Under-5 mortality rate (per 1000 live births)	Teenage fertility rate (live births per 1000)
Australia	4.6	2.1	0.2	18,700	6	23
Austria	1.7	0.8	0.1	20,500	6	17
Belgium	2.2	1.0	0.1	20,900	7	11
Canada	7.2	3.3	0.3	20,500	7	25
Czech Republic	2.4	1.1	0.1	9,400	7	23
Denmark	1.1	0.5	0.1	20,600	6	9
Finland	1.2	0.5	0.1	17,100	4	10
France	13.5	6.1	0.6	19,800	6	7
Germany	15.8	7.2	0.8	20,400	6	10
Hungary	2.3	1.0	0.1	6,200	12	31
Ireland	1.0	0.5	0.0	14,300	7	15
Israel	2.0	0.9	0.1	15,000	9	17
Italy	10.5	4.8	0.5	19,300	7	7
Luxembourg	0.1	0.0	0.0	33,000	7	12
Netherlands	3.4	1.5	0.2	19,800	6	4
Norway	1.0	0.5	0.0	22,100	6	14
Poland	10.6	4.8	0.5	5,400	14	21
Russia	37.1	16.8	1.8	4,100	25	46
Slovakia	1.5	0.7	0.1	7,300	11	31
Spain	8.2	3.7	0.4	14,000	5	8
Sweden	2.0	0.9	0.1	17,800	4	8
Switzerland	1.5	0.7	0.1	24,900	5	4
Taiwan	6.2	2.8	0.3	15,100		17
United Kingdom	13.3	6.0	0.6	18,200	7	22
United States	70.4	31.9	3.3	26,400	8	56
Total	220.7	100.0	10.5			

Sources: Population and life expectancy, UNICEF State of the World's Children, 1998. Teenage fertility, US Bureau of the Census International Data Base version 971 (projections). GNP World Development Indicators 1997 (CDROM) series NY.GNP.MKTP.CN, Appendix and (for Taiwan) Asian Development Bank (http://internotes.asiandevbank.org/notes/tap1/28be.htm), and US Census database (with imputation).

The United States then leads the remaining group of rich nations with between US$ 26,000 and US$ 17,000 per capita, followed by Taiwan, Spain, Israel, and Ireland. There is then quite a gap to the richest transition country, the Czech Republic, with US$ 9,400 per capita. The transition countries also have higher infant mortality rates. Teenage fertility rates - a strong indicator of economic disadvantage for children - are very high in the US and Russia and lowest in Western, Northern and Southern Europe (excluding the UK).

The wide variation in population between these countries immediately prompts the question of whether the nation state is the appropriate unit of analysis. Many of the states of the United States are larger than many of the

countries we include here, the Western European states are slowly moving towards economic and social integration via the European Union, and there is substantial regional variation within countries. Indeed, a glance through the list of countries in this table points to the impermanence of the nation-state as an institution. Four of the states have either come into existence, or had major changes to their territory in the last decade (Czech Republic, Germany, Russia, Slovakia) and one (Taiwan) is not recognised as a separate country by the United Nations. Nonetheless, the nation-state remains the level at which the broad parameters of social and economic policy are set, and hence our analysis here is restricted to this level.

Table 3.2 describes the economic context of the most recent years for which we have LIS data. Across the 25 countries, trend rates of economic growth varied widely. Over the seven years prior to the LIS survey, the Taiwanese economy had been growing at an average rate of over 7 percent per annum. The former socialist countries, on the other hand, had all experienced downward trends in national incomes – over 10 percent per annum in the case of Russia.

Unemployment rates also varied considerably, though the cross-national correlation between unemployment and economic growth rates is only slight. In the LIS survey years, unemployment rates ranged from over 16 percent in Ireland and Spain to only 1.5 percent in Taiwan.

Inflation rates were below 10 percent for all countries other than the former socialist countries and Israel. Russia in particular was experiencing hyper-inflation in this period. Although the Russian LIS data have been adjusted by means of price indices specific to the month in which the data were collected, some caution is required in the interpretation of income data from this period. This is particularly the case for measures of real GNP and real income based poverty measures (i.e. the 'US Official' measure below).

The last two columns of the table provide indicators of the extent to which economic conditions during the LIS survey years were typical of longer-term conditions in these countries. The deviation from trend GNP index needs to be treated with caution, however, as it refers to the trend in GNP established only for the seven years prior to the LIS survey.

The unemployment rate deviation is probably the most useful indicator of the cyclical position and the impact of the economic cycle on household incomes (though this is not available for all countries). Two countries surveyed at the end of the 1980s boom (Finland and Spain) had unemployment rates more than one percentage point lower than the five year average. There were no countries where unemployment rates were more than half a percentage point higher than the average over the longer period.

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Table 3.2: The economic context: most recent wave of LIS data

	Year	Code	Trend growth rate of real GNP per capita (% pa)	Unemploy- ment rate (%)	Inflation rate (CPI, % pa)	Deviation from trend real GNP per capita (%)	Unemploy- ment rate minus 5 year average (%)
Australia	1994	AS94	1.1	9.8	1.9	2.5	0.0
Austria	1993	OS93	2.1	4.0	3.7	-2.4	n.a.
Belgium	1992	BE92	2.8	7.3	2.9	-1.1	-0.6
Canada	1994	CN94	-0.6	10.4	0.0	3.0	0.0
Czech Republic	1992	CZ92	-2.2	n.a.	11.1	-8.0	n.a.
Denmark	1992	DK92	0.8	9.2	2.9	0.0	0.5
Finland	1991	FI91	1.8	7.2	4.0	-7.1	-1.4
France	1989	FR89	2.3	9.3	3.4	1.4	-0.3
Germany	1989	GE89	n.a.	6.8	2.7	n.a.	0.0
Hungary	1995	HU95	-1.3	13.8	28.3	3.7	n.a.
Ireland	1987	IR87	0.7	16.6	3.1	3.0	0.4
Israel	1992	IS92	1.9	n.a.	11.8	0.2	n.a.
Italy	1995	IT95	0.9	11.9	5.8	1.4	n.a.
Luxembourg	1995	LX95	-2.0	2.9	1.8	0.0	-0.3
Netherlands	1991	NL91	2.4	5.8	3.0	0.3	-0.4
Norway	1991	NW91	0.7	5.6	3.0	0.6	0.0
Poland	1992	PL92	-2.6	13.5	45.2	0.9	n.a.
Russia	1995	RL95	-10.5	9.2	197.4	4.2	n.a.
Slovakia	1992	SV92	-3.6	n.a.	10.0	-8.5	n.a.
Spain	1990	SP90	4.2	16.2	6.7	0.3	-1.4
Sweden	1992	SW92	0.2	5.9	2.8	-3.0	-0.2
Switzerland	1982	CH82	n.a.	n.a.	5.6	n.a.	n.a.
Taiwan	1995	RC91	5.2	1.8	3.8	0.2	n.a.
United Kingdom	1995	UK95	0.9	8.8	3.5	2.2	0.0
United States	1994	US94	0.9	6.1	1.8	1.7	-0.2

Notes: Trend GNP growth rates are calculated over seven-year period ending in survey year. Unemployment five-year average is centred on survey year. Australian data in this table are calculated for 1994 (though the LIS data refer to 1993-94).

Sources: GNP see Table 3.1

Inflation: Most countries: World Development Indicators, 1997 (World Bank). Czech Republic, Slovakia, Russia, MONEE 2.0 Database, UNICEF. Taiwan, Asian Development Bank (http://internotes.asiandevbank.org/notes/tap1/29ea.htm).

Unemployment: Main source of data: Standardised Unemployment Rates of OECD Countries in OECD Quarterly Labour Force Statistics, 1997, No. 4. Exceptions are as follows. OECD 1997 rates are from http://www.oecd.org/news_and_events/new-numbers/sur/surmar98.pdf. Taiwan unemployment rates (national definition) are from http://internotes.asiandevbank.org/notes/tap1/288a.htm. Unemployment rates (ILO concept) for Czech Republic, Hungary, Poland, Russian and Slovakia from UNICEF Transmonee 2.0 database.

- ## 3.2 *Three measures of child poverty*

As implied by our discussion in Section 2, there is no consensus on the best way to compare poverty across countries. In the interest of reaching assessments that are robust with respect to a few central choices, we have chosen to apply three different approaches - two 'relative' and one 'real'. The relative approaches we have chosen consist of taking as the basis of a poverty line half of the adjusted median income in a country in the survey year. We examine poverty both with respect to the median among all persons and to the median among children. The latter could be thought of as being 'fully' relative, that is, a child is poor if her adjusted disposable income is much lower than that of the average child. Using the overall median as the basis of a relative line, on the other hand, relates the poverty status of children to that of the average person. In what follows, we mainly show the case of 50 percent of the relevant median. We do, however, also examine poverty evaluated at 40 and 60 percent of the current median in Table 3.8.

Our 'real' poverty line is based on the US official poverty line, which for a two-parent two-child family was US$ 15,299 in 1995.[3] National currencies are converted to US dollars by using OECD's Purchasing Power Parities for 1995 and national inflation rates to deflate incomes over time.[4]

We start by showing, in Table 3.3, the level of child poverty for the latest available LIS years using the three definitions mentioned above. In presenting the country tables, we have ranked countries by descending order of the child poverty rate relative to half the overall median. The first pair of columns in Table 3.3 show the poverty rate and ranking relative to the median of all persons, the second relative to all children and the third relative to the US official poverty line.

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[3] The US official poverty line has its own implied equivalence scale, which we do not use. Instead, we fix the four-person poverty line at US$ 15,299 and calculate the poverty line per equivalent adult for other family sizes using our own equivalence scales.

[4] The Appendix describes the methods used to estimate purchasing power parities. In using the LIS files one must also take account of the different currency units used. To derive annual incomes in national currency units, we multiply the LIS recorded incomes by the following factors, Belgium 100, Canada (in 1970s only) 12, Czech Republic 100, Germany (in 1970s only) 12, Israel (1992 only) 12, Italy 1000, Poland 1000, Russia (1995 only) 132.58, Slovak Republic 100. The adjustments for Canada and Germany in the 1970s are based on the authors' comparison with national accounts estimates. We believe these to be correct, but have been unable as yet to obtain the necessary documentation for these earlier surveys. In the LIS database, the Russian data for 1995 are recorded in terms of June 1992 roubles. We adjust this to average 1995 prices by multiplying by 132.58 = 165.93 x 0.799. The first factor converts to November 1995 roubles. The second factor is the average CPI for the whole year 1995 divided by the CPI for November. Despite this adjustment, the hyper-inflation of this period means that great caution must be attached to the real income levels for Russia (and, to a lesser extent, the other transition countries)

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Table 3.3: *Child poverty rates*

Country	Year	50% of the overall median		50% of the child median		US official poverty line	
		Rate	Rank	Rate	Rank	Rate	Rank
Russia	1995	26.6	(1)	25.4	(1)	98.0	(1)
United States	1994	26.3	(2)	18.6	(2)	18.5	(12)
United Kingdom	1995	21.3	(3)	11.0	(5)	28.6	(10)
Italy	1995	21.2	(4)	15.7	(3)	38.1	(9)
Australia	1994	17.1	(5)	11.0	(6)	20.7	(11)
Canada	1994	16.0	(6)	11.2	(4)	9.0	(16)
Ireland	1987	14.8	(7)	6.5	(13)	54.4	(6)
Israel	1992	14.7	(8)	10.3	(8)	45.3	(8)
Poland	1992	14.2	(9)	10.9	(7)	90.9	(3)
Spain	1990	13.1	(10)	9.7	(10)	47.3	(7)
Germany	1994	11.6	(11)	7.1	(11)	12.4	(14)
Hungary	1994	11.5	(12)	10.1	(9)	90.6	(4)
France	1989	9.8	(13)	6.8	(12)	17.3	(13)
Netherlands	1991	8.4	(14)	5.8	(14)	10.0	(15)
Switzerland	1982	6.3	(15)	3.9	(18)	1.6	(24)
Taiwan	1995	6.3	(16)	4.1	(17)	4.3	(20)
Luxembourg	1994	6.3	(17)	1.9	(23)	1.1	(25)
Belgium	1992	6.1	(18)	4.2	(16)	7.9	(17)
Denmark	1992	5.9	(19)	5.1	(15)	4.6	(19)
Austria	1987	5.6	(20)	3.3	(20)	5.4	(18)
Norway	1995	4.5	(21)	3.5	(19)	2.8	(22)
Sweden	1992	3.7	(22)	3.2	(21)	3.7	(21)
Finland	1991	3.4	(23)	2.5	(22)	2.6	(23)
Slovakia	1992	2.2	(24)	1.5	(25)	95.2	(2)
Czech Republic	1992	1.8	(25)	1.6	(24)	85.1	(5)
Rank corr				(0.951)		(0.454)	
					(0.480)		

Note: Children are poor if their households have an equivalent disposable income less than 50 percent of the overall or child median or less than the official US poverty line. Countries are sorted by the overall median rate. Rank correlations are placed equidistant between the two columns of ranks to which they refer.

Source: Authors' calculations from LIS.

There is large variation in measured rates of child poverty across countries. Taking first our base case, the poverty rate relative to the overall median, the likelihood that a randomly picked child will live in a poor family ranges from 1.8 percent in the Czech Republic to 26.6 percent in Russia. Northern European countries have fairly low poverty rates. The Nordic countries range between 3.4 (Finland) and 5.9 (Denmark) percent. Central European countries follow, with Austria, Belgium, Luxembourg, and the Netherlands having rates between 5.6 and 8.4 percent. Italy, Australia, Canada, Ireland, and the United Kingdom are all fairly high up in the poverty ranking, while Spain, France and Germany fall towards the middle of the 25 countries.

As noted above, the five former socialist countries in the LIS database have the lowest average incomes, and this is reflected in their 'US official' poverty rates. However, in terms of relative poverty, these data show wide diversity in the experience of transition from socialism. Of the 25 countries, Russia has the highest (overall median) child poverty rate, and the Czech Republic the lowest.

Though the process of industrialization is often associated with increased inequality, our single example of an East Asian economy, Taiwan, has a comparatively low child poverty rate – not that different from those found in Northern Europe.

For most countries, child poverty is about one-third lower when measured against the child rather than the adult median. This is because the equivalent family income of the median child is somewhat lower than the equivalent family income of the median person. These relativities between children and others are sensitive to the equivalence scale, and so this particular result is of limited interest. More interesting is that the overall ranking across countries on the two measures is very similar, and the particular countries that provide the exception to this rule.

There are three countries where the general tendency for child poverty to fall by about one-third does not apply. In Russia there is little difference in the poverty rate, while in both the UK and Ireland the drop in poverty is greater. This is because the median income of children compared to others is relatively high in Russia and relatively low in the UK and Ireland. It is this overall disadvantage which leads to the high poverty rate of children in the UK according to the conventional overall median definition. If, on the other hand, we are concerned with those children who have living standards much lower than those of the average child (ie the child median poverty concept) then child poverty in the UK is of a similar magnitude to that in Australia and Canada.

We now turn to our third definition of poverty, that based on the U.S. official poverty line. The poverty ranking using this 'real' standard of living definition is quite different from the ones obtained using relative definitions. In particular, the transition economies now all have very high poverty rates. For instance, in the Czech and Slovak Republics (which had the lowest poverty rates using both relative definitions) almost all children are now counted among the poor. Though there is no doubt that absolute poverty rates are very high in these countries, we would not like to ascribe too much importance to the precise estimates shown in the table, as it is very difficult to estimate accurate PPPs for countries with widely different income levels (see Appendix).

Figure 3.1: *National incomes and the proportion of children below the US poverty line*
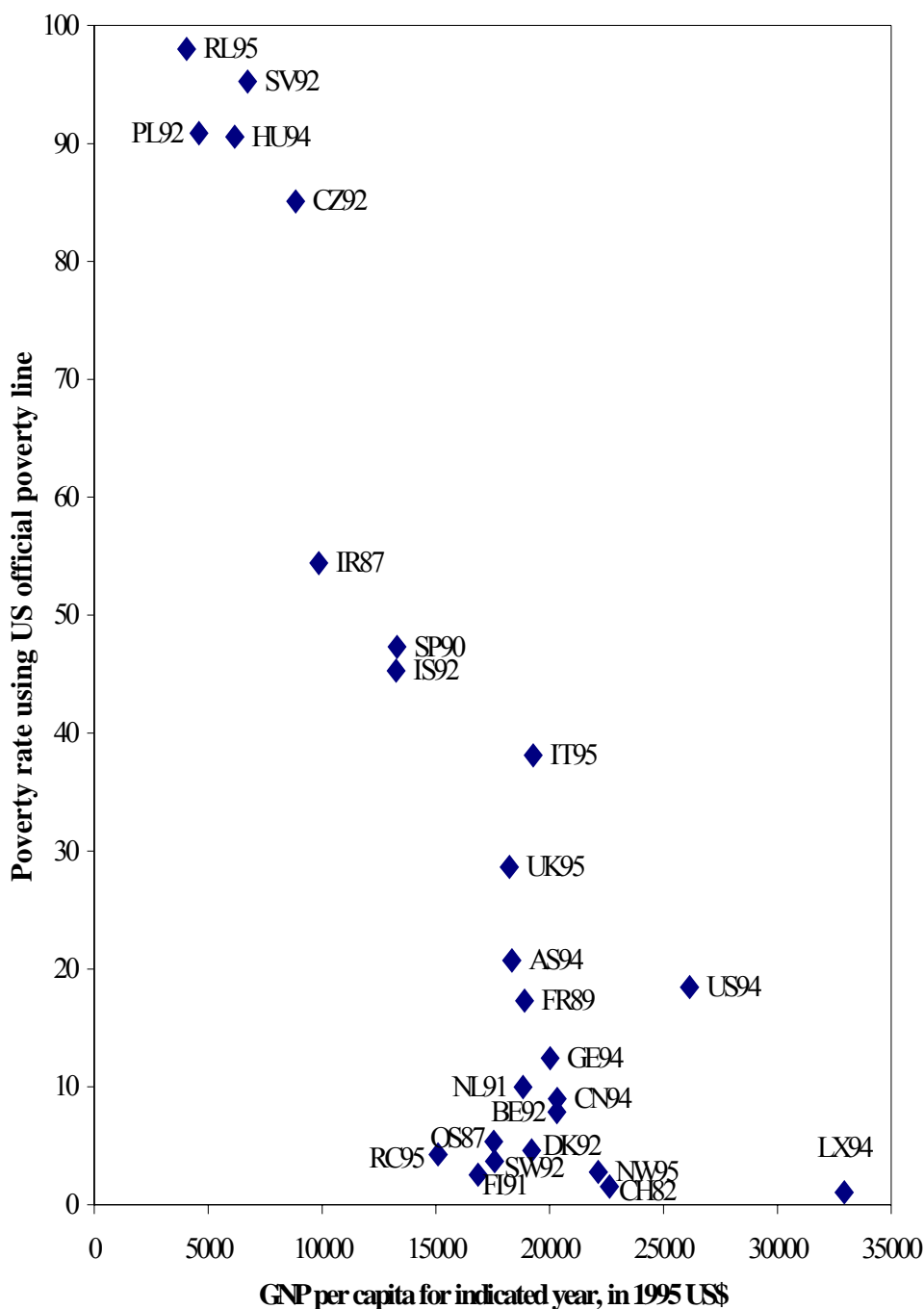
Sources**:** Poverty rates, Table 3.3. GNP per capita, as for Table 3.1 (though here for the same year as the poverty estimate). See Table 3.2 for country/year codes.

Turning to the wealthier countries where we can better measure differences in prices between countries, we find that a large proportion – almost one-fifth – of US children are poor, compared to the low of 1.1 percent in Luxembourg or 1.6 percent in Switzerland. The North European and Nordic countries with low levels of relative child poverty have also low levels

of 'US official' child poverty. For instance, in Sweden 3.7 and in Belgium 7.9 percent of all children are poor. Italy, Ireland and Spain all have very high levels of child poverty using this measure. In Australia and the United Kingdom, more than one-fifth of all children have a standard of living that is lower the US official poverty line.

In Figure 3.1, we compare these poverty estimates with the aggregate national incomes of each country (in the relevant years). As would be expected, countries with higher national income levels are able to ensure that fewer of their children live in families with incomes below the US poverty line.

The most important exception to this general relationship is the United States. Despite having the highest national income after the small country of Luxembourg, it has a real child poverty rate that is in the middle of these 25 countries, and in the top half of the OECD countries included here. The key exception in the opposite direction is Taiwan, which has a national income only slightly higher than Spain and Israel, but one of the lowest child poverty rates. Other countries with low poverty rates but with incomes only slightly higher than Taiwan are Finland, Sweden, Austria, and Denmark.

The remaining two outliers, Luxembourg and Italy, are perhaps of less substantive interest. In the first case the poverty rate is close to negligible. The results for Italy, on the other hand, may be a reflection of the large informal economy in this country. While estimates of the informal economy are incorporated into the national accounts measures of income, this is more difficult to do at the household level.

▪ 3.3 *Trends*

To summarise the changes in child poverty observed in the LIS, we estimated for each country and each of the three poverty definitions the slope coefficient in a regression of poverty rate against year. When only two years are available, this is the same as the annualised percentage point difference in poverty rates. In Figure 3.2 we show these estimates for the two relative poverty measures, while Figure 3.3 shows results for the "US official" poverty estimates.

Figure 3.2: *Poverty trends using the half median poverty lines*
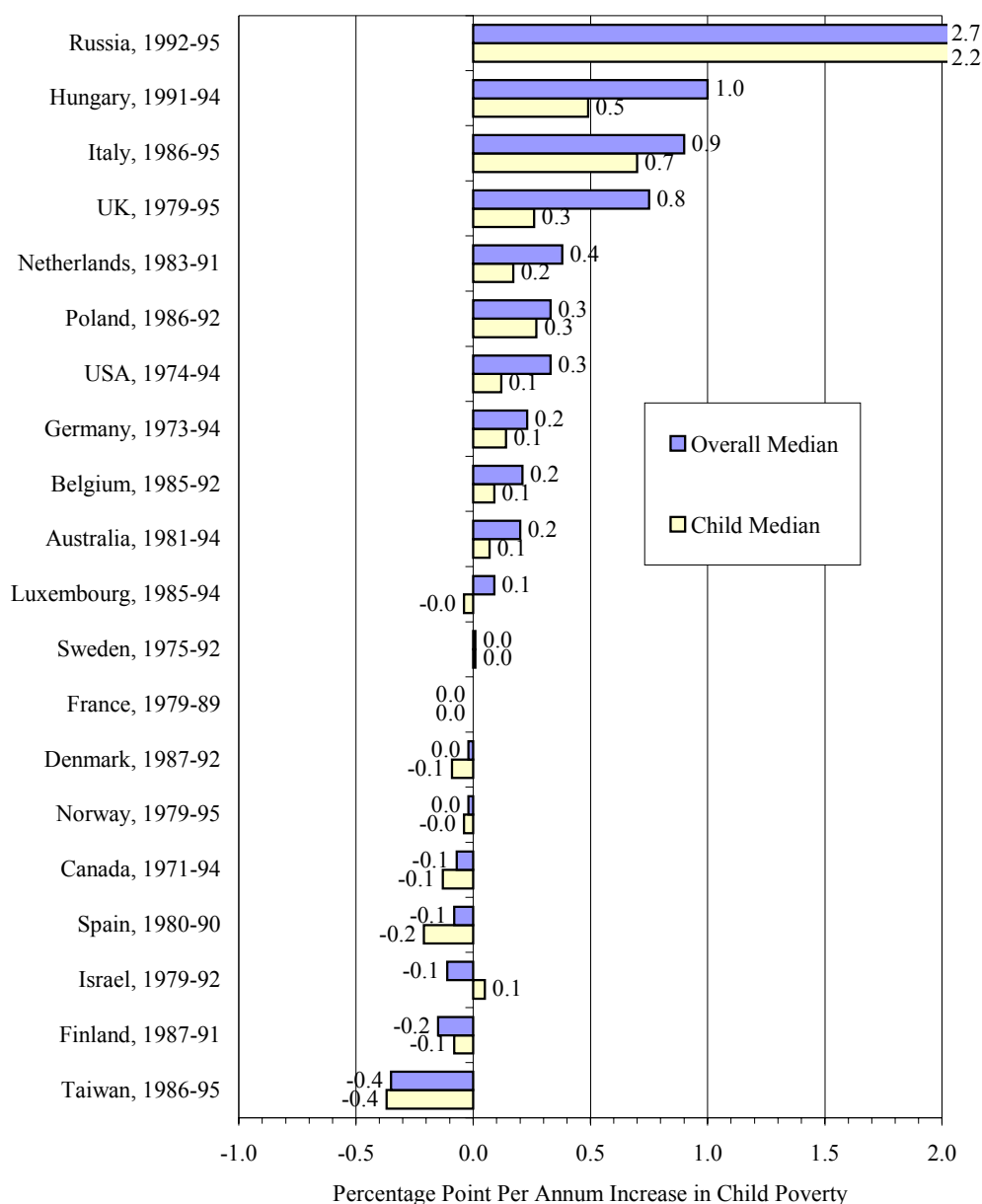
Russia, 1992-95   2.7 / 2.2
Hungary, 1991-94   1.0 / 0.5
Italy, 1986-95   0.9 / 0.7
UK, 1979-95   0.8 / 0.3
Netherlands, 1983-91   0.4 / 0.2
Poland, 1986-92   0.3 / 0.3
USA, 1974-94   0.3 / 0.1
Germany, 1973-94   0.2 / 0.1
Belgium, 1985-92   0.2 / 0.1
Australia, 1981-94   0.2 / 0.1
Luxembourg, 1985-94   0.1 / -0.0
Sweden, 1975-92   0.0 / 0.0
France, 1979-89   0.0 / 0.0
Denmark, 1987-92   0.0 / -0.1
Norway, 1979-95   0.0 / -0.0
Canada, 1971-94   -0.1 / -0.1
Spain, 1980-90   -0.1 / -0.2
Israel, 1979-92   -0.1 / 0.1
Finland, 1987-91   -0.2 / -0.1
Taiwan, 1986-95   -0.4 / -0.4

■ Overall Median
□ Child Median

Percentage Point Per Annum Increase in Child Poverty

Note: Numbers shown are the slope coefficient of a regression of the poverty rate against time using all available LIS data points for a country. Countries are sorted by the rate of increase in the overall median child poverty rate. Russian bars are truncated.

Source: Authors' calculations from LIS.

Across the 20 countries in Figure 3.2, the dominant trend is one of increasing relative child poverty, with the most dramatic increases in Russia, Hungary, Italy and the UK.[5] The Nordic countries figure strongly among those with decreases (or negligible increases) in child poverty, together with France, Canada, Spain, Israel and, most prominently, Taiwan. In general, poverty outcomes for the child median are more favourable than the overall

[5] We are aware of changes to the survey methodologies of the Russian, Italian, and Australian surveys over this period, but the direction of potential bias is not known.

median (particularly in the UK and Hungary). This implies that the median income of families with children has fallen relative to the overall median.

Figure 3.3: *Poverty trends using the US official poverty line*
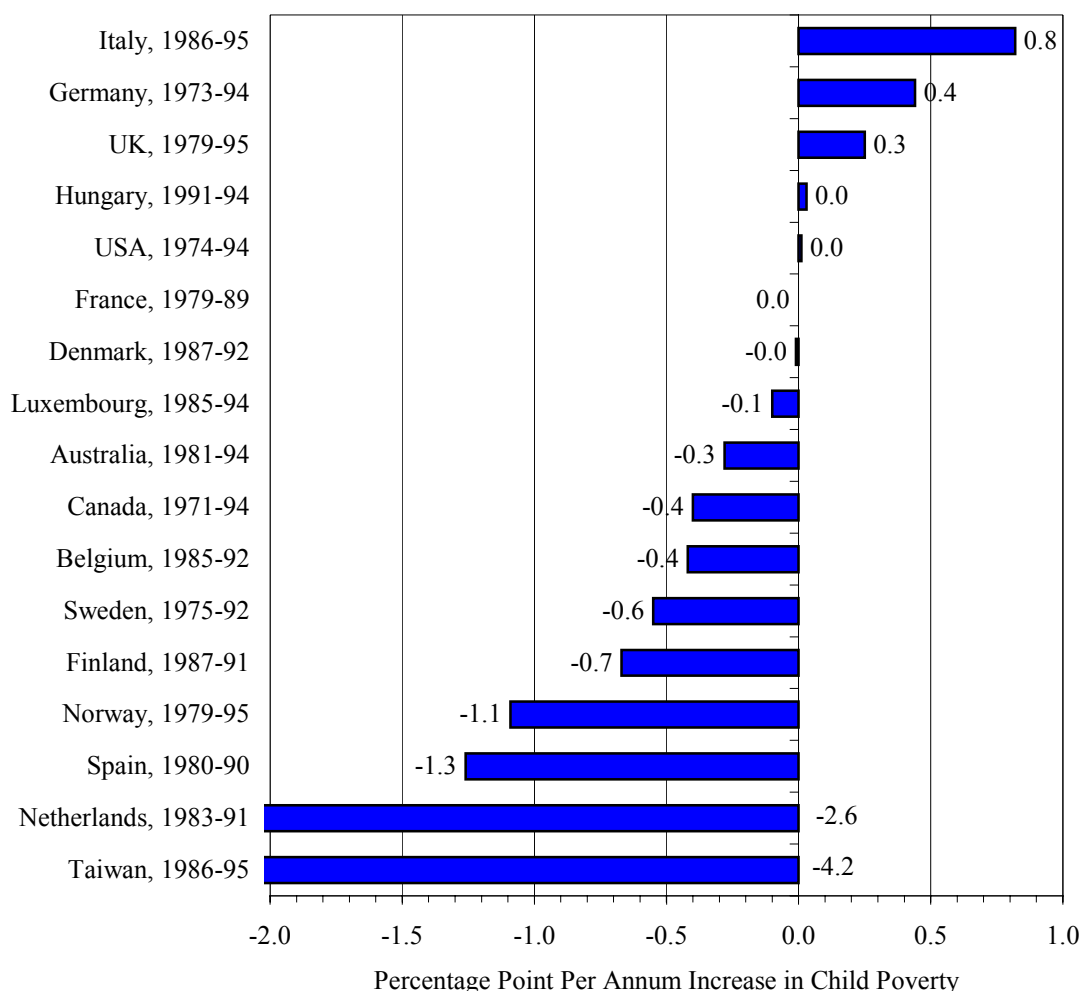
Note: Numbers shown are the slope coefficient of a regression of the poverty rate against time using all available LIS data points for a country. Countries are sorted by the rate of increase in the child poverty rate. Countries which have experienced hyper-inflation over the period are not included. Bars are truncated for the Netherlands and Taiwan.

Source: Authors' calculations from LIS.

In Figure 3.3 we show the corresponding poverty changes for poverty using the US official poverty line. Growing average real incomes mean a more favourable outcome in many cases. However it should be noted that we exclude from this figure those countries that experienced extremely high rates of inflation over the period (Russia, Poland and Israel) because of the difficulties in accurately measuring changes in purchasing value over time.[6]

Increases in real poverty occurred in Italy, Germany and the UK (though note that Germany expanded its borders to include East Germany over the

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[6] Other studies show absolute child poverty to have increased dramatically in Russia (see Klugman and Kolev, 1999).

period, and that the survey methodology in Italy changed. Falls in absolute poverty were found in countries with high rates of income growth such as Taiwan, The Netherlands, Spain and Norway.

For many countries, the direction of poverty change is uniform across all three poverty definitions. Child poverty *decreased* using all three definitions in Taiwan, Canada, Denmark, Finland, Norway, and Spain. Poverty *increased* in Germany, Hungary, Italy, the United Kingdom, and the United States. For the rest of the countries, the direction of change varied between the three definitions. The most common pattern, however, is that relative poverty increased - reflecting an increase in inequality - and poverty based on the US official line decreased - reflecting an increase in real disposable income. For instance, poverty in The Netherlands increased by 0.4 percentage points per annum by the overall median definition, but decreased by 2.6 percentage points per annum using the US poverty line definition.

It is possible, however, that the average change in poverty over time shown in Figures 3.2 and 3.3 could conceal as much as it reveals. For instance, a country with a U-shaped time series of poverty will be registered as having almost no change over time. For many of the LIS countries there are only one or two data points. We show for countries where LIS enables a longer time span, the actual data series for poverty calculated using half the overall median and the US official poverty line (Figures 3.4 and 3.5).

The general "flavour" of the summary measure of trends remains. Both relative and real poverty decline in Canada over time and increase in the United States, albeit moderately so in both cases. Relative poverty in Sweden is fairly flat, whereas it declines fairly sharply for the real definition. While the German poverty rate increases for both definitions (even prior to unification), poverty as measured by the US poverty line has a more variable pattern over time. Finally, poverty increased in the United Kingdom using both definitions, although the timing of the increase differs. Relative poverty accelerates in the late 1980s after a modest increase earlier, whereas real poverty increases steeply early on and then levels off.

The key conclusion to be drawn from the overall pattern of the levels and trends in child poverty is that there is wide diversity of outcomes for countries at similar states of development. This is, in itself, an important, although not entirely surprising finding.

Clearly there are factors other than the overall level of development (as measured by e.g. GNP per capita) that affect the prevalence of low income among children in different countries. One such factor is the different demographic compositions of the different countries, in particular, the extent to which children live in two-parent or lone-parent families. Do these demographic factors explain any of the variation in poverty rates across countries?

Figure 3.4: *Relative poverty trends for selected countries (Child Poverty Measured Using the Half the Overall Median)*
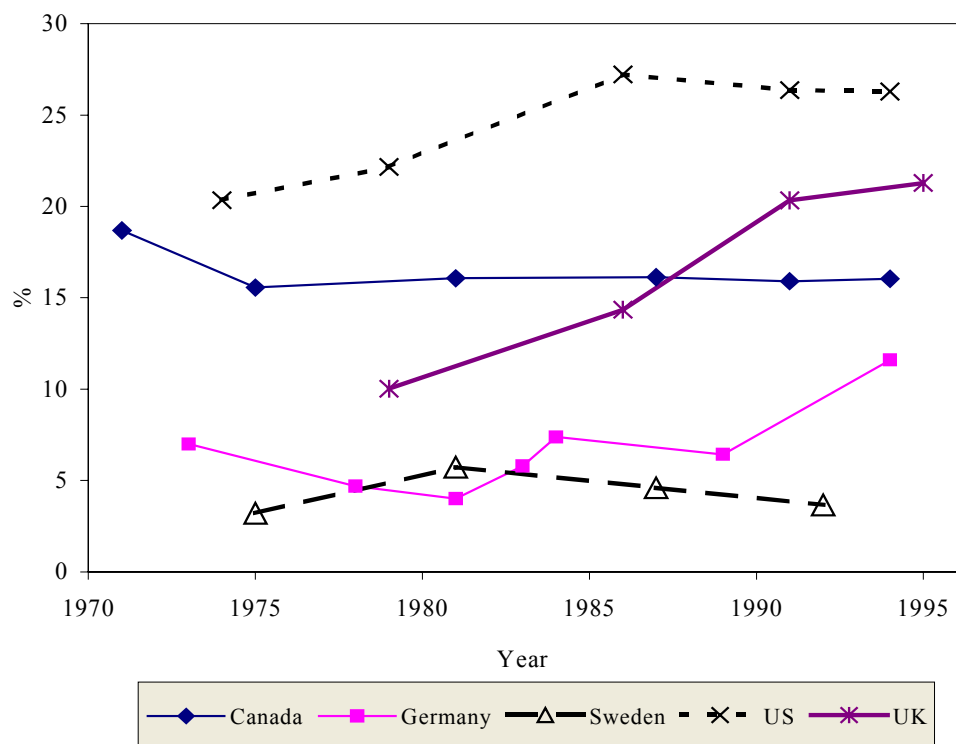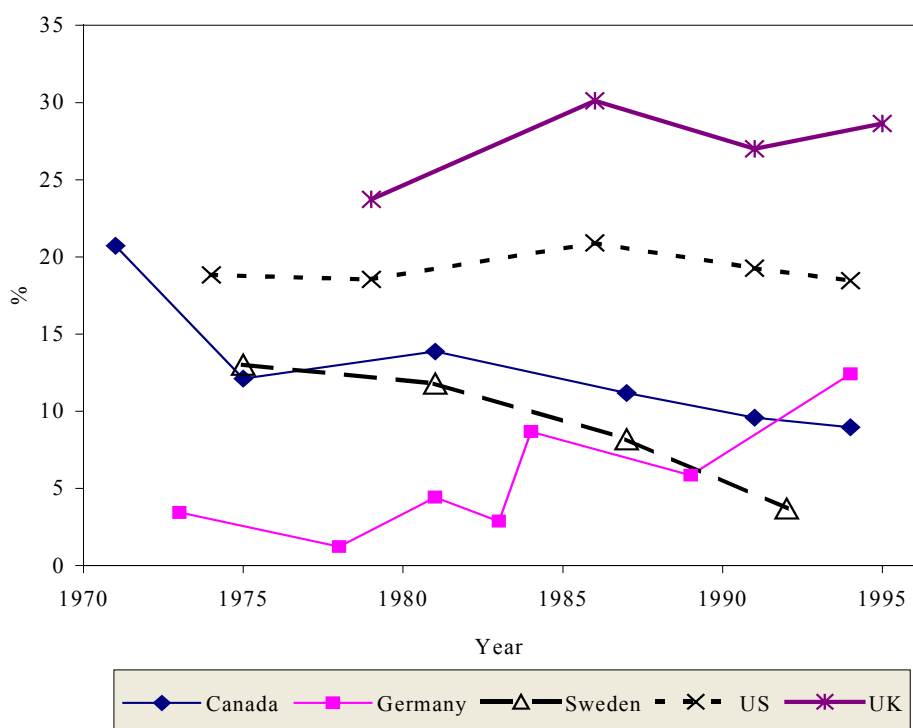

Figure 3.5: *"Real" poverty trends for selected countries (Child Poverty Measured Using the US Official Poverty Line)*

▪ 3.4 *Lone parenthood and child poverty*

Knowing which groups of children are poor or whether or not children face greater poverty risks than, say, the elderly, provides us with a richer picture of the nature of child poverty and the reasons for variation across nations.

In doing this, we should be clear on the limitations that our available data impose on us. An examination of the characteristics of poor children is not necessarily an excursion into the *causes* of child poverty. For instance, suppose we were to find that young children have greater poverty risks than older children. It is not the age of the child that accounts for her greater poverty risk. Rather, parents of young children are also young and are at higher poverty risks. Parents of young children also typically have lower rates of labour force participation. Thus, in order to examine the correlates of child poverty, it is most often the characteristics and circumstances of their parents that need to be examined.

We start by examining the poverty rates of children in lone-mother, two-parent and "other" households. A lone-mother household is defined here as a household with a female head with at least one child, but no other adults present (adults are persons aged 18 or over). Our two-parent households are restricted to two-adult families; that is, there must be both a head and a spouse, and there must be exactly two adults present. The category "other" thus includes some households where lone-mothers are living with other adults (who could be adult children, the lone-mother's parent(s) or unrelated adults), lone-father families and larger households of two-parent families and/or other adults.

For children in each of the three household types, we show in Table 3.4 the proportion of children and the poverty rate in each type using the base case definition of the poverty line (i.e. 50 percent of overall median disposable income using the quasi-OECD equivalence scale).

It should be noted that the LIS has not been able to create a fully comparable definition of 'household' across all countries. In Sweden and Switzerland, in particular, the 'household' is based on 'tax units', of which there may be more than one in each household. This means that there are few households of type 'other' in these countries. The implications of this for comparisons of child poverty are discussed further in Section 4.1.

Table 3.4: *Child poverty rates by family type*

Country		Population shares			Poverty rate (%)		
		Lone mother	Two parent	Other	Lone mother	Two parent	Other
Russia	1995	0.08	0.60	0.32	31.0	26.0	26.5
United States	1994	0.15	0.60	0.25	59.6	16.7	29.1
United Kingdom	1995	0.19	0.70	0.12	40.3	17.5	13.9
Italy	1995	0.02	0.73	0.25	20.2	20.9	22.3
Australia	1994	0.09	0.73	0.18	38.3	14.7	16.6
Canada	1994	0.11	0.69	0.20	45.3	12.3	13.4
Ireland	1987	0.03	0.73	0.24	29.8	16.7	7.1
Israel	1992	0.03	0.71	0.25	26.6	14.0	14.8
Poland	1992	0.05	0.72	0.24	4.9	13.7	17.5
Spain	1990	0.02	0.62	0.36	25.2	12.4	13.5
Germany	1994	0.09	0.77	0.14	43.3	8.5	7.3
Hungary	1994	0.06	0.66	0.28	12.0	10.9	12.9
France	1989	0.07	0.75	0.17	25.4	7.7	12.6
Netherlands	1991	0.08	0.82	0.10	29.6	6.8	4.2
Switzerland	1982	0.07	0.88	0.05	21.2	4.8	12.5
Taiwan	1995	0.02	0.57	0.41	15.2	5.1	7.5
Luxembourg	1994	0.06	0.76	0.19	30.1	4.4	6.8
Belgium	1992	0.07	0.78	0.14	11.8	6.1	3.0
Denmark	1992	0.13	0.76	0.10	10.5	5.5	2.8
Austria	1987	0.10	0.73	0.18	33.2	2.9	2.0
Norway	1995	0.14	0.73	0.14	10.4	3.4	4.4
Sweden	1992	0.15	0.82	0.03	4.5	3.6	2.6
Finland	1991	0.09	0.79	0.13	6.2	3.0	4.1
Slovakia	1992	0.05	0.73	0.22	7.6	2.1	1.4
Czech Republic	1992	0.07	0.75	0.19	8.9	1.3	1.4
Average (weighted by the number of children in 1996 (see Table 3.1)		0.10	0.66	0.24	37.9	15.5	19.8

Note: Sorted by the overall child poverty rate. Poverty measured with the half overall median poverty line.

Source: Authors' calculations from LIS.

At the other extreme, there are some countries where high proportions of children live in these larger households. This is particularly the case in Taiwan, Spain, Russia, and Hungary, where between 41 and 28 percent of children live in households other than the lone mother and two parent types identified above. In many cases these are households where lone mothers are living with their parents, though this category also includes many other common household types, such as where adult children remain at home. While the living standards of lone mothers living with others is an important

topic for further research, we restrict our attention here to lone mothers living in their own household.[7]

Across the 25 countries, the proportion of children living in lone-mother households varies widely. In many countries (eg Ireland, Italy, Israel, Spain, and Taiwan) the proportion of children in lone-mother households is negligible. The highest proportions are found in the UK (19%), the USA (15%), Sweden (15%), Norway (14%) and Denmark (13%). It is noteworthy that the first two of these are also the two countries, after Russia, which have the highest child poverty rates.

The right-hand panel of Table 3.4 provides more information on the relationship between child poverty and sole parenthood. In almost all countries, lone-mother children have greater poverty risks than children in two-parent households. The two exceptions are Italy (where only 2% of children are in lone-mother households) and Poland.[8]

The poverty rate of US lone-mother children is the highest. At 59.6 percent, it exceeds by more than 15 percentage points the next highest rate, Canada (45.3). In both countries, children in lone-mother households are around 3 1/2 times more likely to be below the poverty line than children in two-parent households. Australia, Germany and the United Kingdom have poverty rates for children in lone-mother families close to 40 percent. Sweden has the lowest (4.5), followed by Poland and Finland.

The association between lone motherhood and poverty is quite clear. Is this association responsible for any of the cross national variations in child poverty rates? More specifically, to what extent do the variations in lone motherhood rates account for the variation in overall child poverty rates that we observe across nations? Some of the evidence presented above would suggest that lone motherhood might play an important role. The US and the UK, in particular, have both high rates of lone motherhood and high child poverty.

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[7] Russia is one country where the family definition has a large impact on lone motherhood rates. If lone-mother households are defined in the LIS data to be simply those households with a non-married female head and dependent children (ie also including many households which have other adults), then 16.5% of Russian children live in lone-mother families. Using data from the 1994 microcensus, Motivans (1999) shows that 18.5% of Russian children live in lone mother families, though in almost half these cases there are also grandparents or non-relatives in the household.

[8] It should be noted that, in 1986, lone-mother households in Poland had a particularly high poverty rate. It is possible therefore that this result in 1992 represents sampling or data coding errors.

Table 3.5: *The cross-national impact of household type on child poverty rates*

		Actual poverty rate	Counterfactual poverty rates			
			Due to variations in household type (rank)		Due to variations in within-type poverty rates (rank)	
Russia	1995	26.6	18.7	(7)	26.6	(1)
United States	1994	26.3	20.0	(2)	24.0	(2)
United Kingdom	1995	21.3	20.1	(1)	19.0	(4)
Italy	1995	21.2	17.1	(25)	21.1	(3)
Australia	1994	17.1	18.2	(9)	17.6	(5)
Canada	1994	16.0	18.7	(6)	15.9	(6)
Ireland	1987	14.8	17.2	(23)	15.7	(7)
Israel	1992	14.7	17.3	(22)	15.5	(8)
Poland	1992	14.2	17.5	(19)	13.7	(10)
Spain	1990	13.1	17.5	(21)	14.0	(9)
Germany	1994	11.6	18.2	(10)	11.8	(11)
Hungary	1994	11.5	18.1	(11)	11.5	(12)
France	1989	9.8	17.8	(14)	10.7	(13)
Netherlands	1991	8.4	17.7	(17)	8.5	(14)
Switzerland	1982	6.3	17.2	(24)	8.3	(15)
Taiwan	1995	6.3	17.8	(15)	6.7	(17)
Luxembourg	1994	6.3	17.5	(20)	7.6	(16)
Belgium	1992	6.1	17.7	(16)	5.9	(18)
Denmark	1992	5.9	18.9	(5)	5.4	(20)
Austria	1987	5.6	18.4	(8)	5.8	(19)
Norway	1995	4.5	19.1	(3)	4.4	(21)
Sweden	1992	3.7	18.9	(4)	3.4	(23)
Finland	1991	3.4	17.9	(12)	3.6	(22)
Slovakia	1992	2.2	17.6	(18)	2.5	(24)
Czech Republic	1992	1.8	17.8	(13)	2.1	(25)

Notes: Poverty rates are calculated using the half overall median poverty line. The poverty rate "due to variations in household type" is calculated by using nation-specific household type distributions (see Table 3.4), but assuming that the poverty rates for each family type are the same in every country (equal to the average rate across all countries). The poverty rate "due to variations in within-type poverty rates" assumes that all countries have the same family type distribution, but that the within-family type poverty rates are the actual rates (as in Table 3.4). The average poverty rates and family type distributions used in these calculations are shown in Table 3.4.

Table 3.5 addresses this question using two counterfactual calculations of the overall poverty rate. The first column of the table shows the overall 'base case' child poverty rate in each of the countries (as in the first column of Table 3.3). For each country, this is a function both of the child poverty rate in each household type and the proportion of children in each of the household types.

The second column shows the child poverty rates that would exist if the only differences between countries were their different family type

distributions. That is, the poverty rate for children in lone-mother families is set equal to the average poverty rate in lone-mother families across all countries, and similarly for two-parent and 'other' families. These average poverty rates are then weighted by the actual family type distribution in each country to calculate a counterfactual poverty estimate. As we would expect on the basis of the discussion of Table 3.4, the UK and the US would have the highest child poverty rate if this counterfactual assumption were correct, while Italy would have the lowest. The range of poverty rates is quite small though: from 20.1 to 17.1 percent. This three percentage point gap can be compared with the actual gap between the highest and lowest child poverty nations of 24.8 percentage points.

The contribution of lone parenthood to cross-national variations in poverty looks even smaller when we consider the alternative counterfactual. The right-hand panel of the table addresses the question: What would be the child poverty rate in each country if they all had the same family type distribution, but each country retained its actual poverty rate within each family type? That is, each country keeps its own poverty rates for each family type, but it is assumed that the proportion of children in lone-mother, two-parent and other households is the same in every country (fixed at the (weighted) average rate across countries).

This does lead to some differences from the actual poverty rate. If UK and US children followed the international average and only 10 percent lived in lone-mother families, instead of the actual lone-motherhood rates of 19 and 15 percent respectively, overall child poverty would be 2.3 percentage points lower (in both cases). However, such changes would not change the cross-national ranking of child poverty rates to any significant extent. The correlation in poverty rates between this counterfactual and the actual poverty rate is 0.993, and the only ranking changes are relatively minor adjustments between countries with similar poverty rates.

These counterfactual calculations suggest that lone motherhood explains only a negligible component of the child poverty 'league table'. The reason for this conclusion can also be seen in Figure 3.6. This shows the relationship between overall child poverty rates and the proportion of children in lone-mother families. Although the US and UK are high on both indices, this relationship does not hold generally. Norway and Sweden, in particular, have high rates of lone motherhood, but low rates of child poverty. This is the case even though lone-mothers in Norway, in particular, are still significantly worse off than couples and larger households.

Figure 3.6: *Child poverty rates by prevalence of lone mother families*
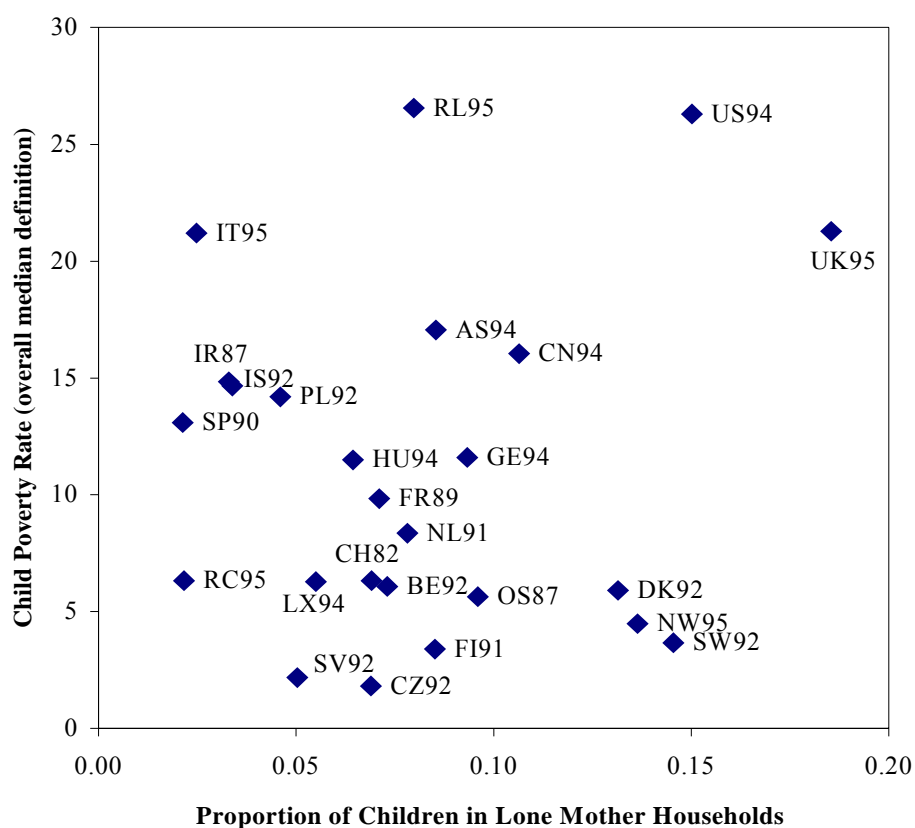
Sources: Tables 3.4 and 3.5. (Using the half overall median poverty line).

▪ **3.5 *Children compared to the elderly***

The comparison of child poverty to the poverty of other groups is particularly affected by the specification of child/adult equivalence scale relativities. The less the weight given to a child's needs relative to those of an adult, the fewer the children likely to be poor. While it is necessary to keep this caveat in mind, it is still instructive to compare the economic position of two groups that traditionally have been thought to be at high risk of poverty, namely, children and the elderly (Table 3.6).

We show for children and for the elderly their poverty rates (using "base case" definitions) in the first two columns of Table 3.6 and their risks relative to the overall poverty rate in the last two. Using our base case equivalence scale, we find that the elderly are, with a few exceptions, less likely to live in a poor family. In many cases, this difference is quite large. For example, the poverty rate of the Canadian elderly, 3 percent, is less than one-third the overall rate. The exceptions to this pattern are Austria, Belgium, Finland, France, and Taiwan where the elderly have a poverty risk that is higher than that of the average person.

Table 3.6: *Child and elderly poverty*

Country	Year	Poverty rate			Relative risk	
		Children	Elderly	All	Children	Elderly
Russia	1995	26.6	16.3	22.8	1.2	0.7
United States	1994	26.3	14.9	20.7	1.3	0.7
United Kingdom	1995	21.3	5.8	15.1	1.4	0.4
Italy	1995	21.2	8.4	15.6	1.4	0.5
Australia	1994	17.1	13.9	14.6	1.2	1.0
Canada	1994	16.0	3.1	11.4	1.4	0.3
Ireland	1987	14.8	n.a.	12.2	1.2	n.a.
Israel	1992	14.7	11.2	12.0	1.2	0.9
Poland	1992	14.2	9.5	11.6	1.2	0.8
Spain	1990	13.1	6.8	10.3	1.3	0.7
Germany	1994	11.6	5.1	8.5	1.4	0.6
Hungary	1994	11.5	6.6	9.9	1.2	0.7
France	1989	9.8	9.5	9.4	1.1	1.0
Netherlands	1991	8.4	3.3	6.5	1.3	0.5
Switzerland	1982	6.3	n.a.	5.5	1.2	n.a.
Taiwan	1995	6.3	11.3	6.6	1.0	1.7
Luxembourg	1994	6.3	1.8	4.4	1.4	0.4
Belgium	1992	6.1	7.0	5.7	1.1	1.2
Denmark	1992	5.9	4.6	4.9	1.2	0.9
Austria	1987	5.6	5.5	4.8	1.2	1.1
Norway	1995	4.5	1.2	3.1	1.4	0.4
Sweden	1992	3.7	1.8	2.9	1.3	0.6
Finland	1991	3.4	3.8	3.2	1.0	1.2
Slovakia	1992	2.2	0.5	1.7	1.3	0.3
Czech Republic	1992	1.8	0.5	1.3	1.4	0.4

Note: People are poor when the equivalent income of their household is less than 50 percent of the overall median. Countries are sorted by the child poverty rate. The elderly are not separately identified in the Irish and Swiss data files.

Source: Authors' calculations from LIS.

Children's relative risk of poverty is in all cases at least as high as that for the average person. In Finland and Taiwan, the poverty risk of a child is equal to that of the average person. This is part of the reason why these two countries have such a favourable child poverty performance relative to their national income (Figure 3.1). Across all the countries, the variation in children's relative poverty risk is fairly limited, ranging from 1 to 1.4 times that of the average person. Children have a lower risk of poverty than the elderly in only three of our 25 countries, namely in Belgium (6.1 vs. 7 percent for the elderly), Finland (3.4 vs. 3.8) and Taiwan (6.3 vs. 11.3).

The comparisons of children's poverty risks to those of the elderly are subject to many qualifications. Obviously, for instance, the equivalence scale relativity is very important. Conceivably, an equivalence scale which includes sufficiently low costs of children and/or high economies of scale could be

found that would lead to children always having lower poverty rates than the elderly (though we do not test the plausibility of any such scales here).

The difficulties, moreover, go beyond such 'technical' questions. How can one compare the living standards of people whose consumption patterns and socially ascribed needs are so different? The economic position of the elderly, after all, is at least in part a consequence of their actions as economically active individuals. Income from savings, public or private pensions and so on contribute to a living standard that we find is higher than that of children. It can be argued that the economic position of the elderly rests on desert, in the sense that the elderly have through past contributions earned an adequate livelihood in old age. The economic position of children is very much influenced by that of their parents. While the poverty of a child is ethically wrong, some might argue that help to poor children, such as income support, may subsidise the non-deserving parents and is thus itself unethical. (This, it must be emphasised, is not the view of the authors.)

The child/elderly comparisons, despite all practical and ethical caveats, do highlight at least one thing. In most countries, public policy has succeeded in reducing the poverty risk of a traditionally vulnerable group, the elderly (Jäntti, Kangas and Ritakallio, 1996; Korpi and Palme, 1997). In addition, in some, but not all countries the poverty risk of another vulnerable group, children, has also been reduced. Whether or not this is the consequence of public policy or not is addressed in Section 5.

▪ 3.6 *The impact of measurement assumptions: equivalence scales and poverty thresholds*

Before we move to considering other potential explanations for the observed differences in the incidence of poverty among children, we must address the robustness of the above findings. Are different methods of poverty measurement likely to change these poverty orderings? We begin by considering the sensitivity of the above results to some of the 'technical' assumptions used in the measurement of poverty. Broader questions of the nature of the data used to measure poverty and the appropriate concept of living standard to be employed are discussed in Section 4.

In the above analysis, we have chosen to utilise three common and reasonable ways of defining poverty. It is, of course, important to examine the sensitivity of our conclusions to those choices. Given that many choices must be made from a wide range of plausible options, the number of all combinations of choices is very large. We concentrate here on two aspects, the choice of equivalence scale and the poverty line. We show how variations in these affect our "base case", namely poverty relative to 50 percent of the overall median using an equivalence scale that lies close to the OECD scale.

Table 3.7 shows how the choice of another equivalence scale, taking the square root of family size, affects the country ranking relative to our base case. In addition to the poverty household, we show, as we do in the previous section, the relative child poverty risk.

Table 3.7: *Level of child poverty in LIS for different equivalence scales*

Country	Year	Base case (Quasi-OECD scale)			Square root scale		
		Rate	Rank	Risk	Rate	Rank	Risk
Russia	1995	26.6	(1)	1.2	25.5	(1)	1.2
United States	1994	26.3	(2)	1.3	24.5	(2)	1.3
United Kingdom	1995	21.3	(3)	1.4	19.8	(4)	1.2
Italy	1995	21.2	(4)	1.4	20.5	(3)	1.4
Australia	1994	17.1	(5)	1.2	16.0	(5)	1.0
Canada	1994	16.0	(6)	1.4	15.5	(6)	1.4
Ireland	1987	14.8	(7)	1.2	13.8	(7)	1.1
Israel	1992	14.7	(8)	1.2	11.6	(10)	1.0
Poland	1992	14.2	(9)	1.2	12.4	(8)	1.2
Spain	1990	13.1	(10)	1.3	12.3	(9)	1.3
Germany	1994	11.6	(11)	1.4	10.7	(11)	1.3
Hungary	1994	11.5	(12)	1.2	10.3	(12)	1.1
France	1989	9.8	(13)	1.1	8.4	(13)	0.8
Netherlands	1991	8.4	(14)	1.3	8.3	(14)	1.2
Switzerland	1982	6.3	(15)	1.2	4.3	(20)	1.1
Taiwan	1995	6.3	(16)	1.0	6.2	(15)	0.7
Luxembourg	1994	6.3	(17)	1.4	4.5	(18)	1.5
Belgium	1992	6.1	(18)	1.1	4.4	(19)	0.8
Denmark	1992	5.9	(19)	1.2	5.1	(16)	0.9
Austria	1987	5.6	(20)	1.2	4.8	(17)	0.8
Norway	1995	4.5	(21)	1.4	3.9	(21)	1.4
Sweden	1992	3.7	(22)	1.3	3.0	(22)	1.0
Finland	1991	3.4	(23)	1.0	2.7	(23)	0.7
Slovakia	1992	2.2	(24)	1.3	2.0	(25)	1.1
Czech Republic	1992	1.8	(25)	1.4	2.2	(24)	1.4
Rank corr		0.979					

Note: Children are poor when the equivalent income of their household is less than 50 percent of the overall median. The 'base case' uses the quasi-OECD equivalence scale (see Section 2.4), while the square root scale is simply the square root of the number of people in the household.

Source: Authors' calculations from LIS.

The poverty ranking and the relative child poverty risk in our base case are very similar to those found when we take the square root of household size to equivalise income. Some countries do move a rank or two, but the rank correlation between poverty rates under the two definitions is 0.98.

Children's relative risk of poverty does shift somewhat. This is to be expected as children generally live in households larger than average, and it is the equivalence scale that determines the relative living standards of large and small households. In six countries - Austria, Belgium, Denmark, Finland,

France, and Taiwan - an excess or unit risk of child poverty in our base case becomes a lower risk of child poverty using the square root scale. However, the ordering of countries by the relative risk (not shown here) remains by and large unchanged. The correlation between the relative risks using the two scales is 0.9.

We next examine poverty rates at 40, 50 and 60 percent of the current overall median using our base case equivalence scale (Table 3.8). Poverty is, of course, increasing in the poverty line. The comparison of poverty at different poverty lines is interesting not only as a 'simple' robustness check. It can also be thought of as the study of restricted (relative) poverty dominance.

Table 3.8: *Level of child poverty in LIS using different fractions of current overall adjusted median as the poverty line.*

Country	Year	Fraction of current median					
		40%		50%		60%	
		Rate	Rank	Rate	Rank	Rate	Rank
Russia	1995	21.1	(1)	26.6	(1)	32.2	(2)
United States	1994	18.4	(2)	26.3	(2)	34.4	(1)
United Kingdom	1995	10.2	(4)	21.3	(3)	31.3	(3)
Italy	1995	15.7	(3)	21.2	(4)	30.5	(4)
Australia	1994	9.3	(5)	17.1	(5)	25.4	(6)
Canada	1994	8.6	(6)	16.0	(6)	23.8	(8)
Ireland	1987	5.3	(12)	14.8	(7)	25.8	(5)
Israel	1992	6.4	(10)	14.7	(8)	24.4	(7)
Poland	1992	7.9	(7)	14.2	(9)	22.6	(9)
Spain	1990	7.1	(8)	13.1	(10)	21.1	(10)
Germany	1994	6.3	(11)	11.6	(11)	20.0	(11)
Hungary	1994	6.8	(9)	11.5	(12)	18.1	(13)
France	1989	4.8	(14)	9.8	(13)	18.9	(12)
Netherlands	1991	5.1	(13)	8.4	(14)	14.4	(16)
Switzerland	1982	2.4	(16)	6.3	(15)	15.2	(15)
Taiwan	1995	1.7	(22)	6.3	(16)	14.1	(17)
Luxembourg	1994	1.8	(21)	6.3	(17)	16.2	(14)
Belgium	1992	2.1	(18)	6.1	(18)	11.6	(19)
Denmark	1992	2.8	(15)	5.9	(19)	11.1	(20)
Austria	1987	2.2	(17)	5.6	(20)	12.3	(18)
Norway	1995	2.1	(19)	4.5	(21)	10.6	(21)
Sweden	1992	2.0	(20)	3.7	(22)	8.6	(22)
Finland	1991	1.6	(23)	3.4	(23)	8.2	(23)
Slovakia	1992	0.5	(25)	2.2	(24)	6.0	(24)
Czech Republic	1992	0.9	(24)	1.8	(25)	5.1	(25)
Rank corr				(0.949)		(0.920)	
					(0.987)		

Note: Children are poor when the equivalent income of their household is less than 40, 50 or 60 percent of the overall median. Countries are sorted by the child poverty rate based on the 50 percent threshold.

Source: Authors' calculations from LIS.

Take Russia and the United States, for instance. At 40 percent of the median, 21.1 percent of Russian and 18.4 of American children are poor. At 60 percent of the median, 34.4 percent of US children and 32.2 of Russian children are poor. Thus, the ranking of the countries changes between these two lines and we do not have restricted poverty dominance between the two. Italy, on the other hand, is ranked 3rd or 4th in each case and thus 'restricted poverty dominates' Russia and the United States.

The ordering of countries is, again, fairly similar for the three levels of poverty lines the rank correlations are all higher than 0.9. The large number of small rank changes suggests that very few countries that are within a few ranks from each other poverty dominate each other. Because the typical rank change between columns is quite small, however, large differences in estimated poverty rates often imply poverty dominance irrespective of where the poverty line is drawn.

4.   Does Measurement Matter?

Are the 'league table' results of the previous section robust? Would the overall conclusions change if other alternative measurement assumptions were used? In the previous section we consider the robustness of the results to some of the more technical assumptions used in defining the poverty line. In this section we consider a wider range of factors influencing the measurement of poverty and living standards.

It is widely recognised that cash disposable income as used in the LIS database (and other research on income distribution) is a long distance from what we might consider an 'ideal' measure of living standards. This ideal, however, is just that, ideal and unattainable in practice. What matters most is not that the income measure is incomplete, but whether there are reasons to think that more complete measures would change any substantive conclusions. As Smeeding and Weinberg, 1998, pp 1-2 so 'fruitfully' put it

the typical current measure, cash DPI [disposable personal income], presents an apples-to-apples comparison. Cash DPI, however, excludes other sources of personal income which would allow us to include pears, bananas, and other types of income to present comparable types of "fruit salads" across countries. To continue the metaphor, cash to cash - or apples to apples - comparisons may be inadequate because national "fruit salads" may contain different mixes of apples, pears and bananas, so that apples alone may therefore be an inadequate index of true economic well-being.

Do the omitted components of household consumption vary between countries so as to offset the conclusions reached from an examination of cash

income alone? The answer may differ depending upon the questions being examined. Here we focus on those differences that are likely to change the comparative child poverty rates of different countries.

We examine three issues.

- The Luxembourg Income Study includes data assembled from disparate sources. Are these differences likely to have much impact on the measurement of child poverty? Are the conclusions from the LIS comparable to those obtained from other data sources?

- The income measure available in the LIS (as in other studies) does not cover all sources of consumption. Non-cash benefits, in particular, are not included, but are important for the living standards of the most disadvantaged. Do variations in in-kind benefits offset variations in cash incomes?

- As discussed in Section 1, patterns of household saving mean that incomes might not be an accurate indicator of living standards, particularly for the median household against whose living standard the poverty line is anchored. It is conceivable that the greater emphasis on private saving in the English-speaking countries may be responsible for their higher poverty rate. Are variations in saving rates likely to have a significant impact on children's living standards?

There are also other important issues which we are unable to examine here:

- Some income sources are more easily measured than others. The measurement of self-employment income is generally difficult because there do not exist separate entities between which payments pass. While the measurement of self-employment income generally, and grey-market incomes more specifically, is a problem in all surveys, this problem might be more acute in those countries where the formal labour market is less established. In particular, in the transition economies and those of Southern Europe we would expect to see more cases where incomes are not accurately reported. This would increase the absolute poverty rate, whereas relative poverty rates could change in either direction, depending upon whether incomes were under-recorded at the bottom or middle of the income distribution.

- Home production is an important issue where there is both little evidence and much difficulty interpreting the evidence we have. Families with both parents employed may need to purchase additional services such as childcare, pre-prepared foods, etc. How should we thus interpret the large variations in employment (particularly mother's employment) between countries? Should this be taken into account in measuring child poverty?

- The timing of income streams. For reasons outlined in the introduction, our interest is on current consumption rather than income flows over longer time periods. Nonetheless, the possession of consumer durables (and hence the current consumption service that derives from these) is likely to be related to income flows over a longer time period than typically measured in household income surveys. In countries where individual's income is very volatile over time, current income will be a less adequate indicator of current consumption. In such countries, income surveys may overstate the extent of consumption poverty (compared to countries with stable income flows). Is there any evidence of differences between countries in the extent of income volatility? This consumption smoothing effect is only one of the reasons why there is increasing interest in poverty dynamics.

▪ 4.1 *The LIS surveys*

The database of the Luxembourg Income Study, upon which most of the results in this paper are based, has been constructed from pre-existing data sources from each of the represented countries. While the objective of the study has been to structure these data in as comparable a fashion as possible, it is inevitable that methodological differences will remain. Are the differences in the source data likely to be responsible for any of the poverty patterns observed above?

The source and quality of data
While most data sets are based on household surveys, in several cases (Sweden and Finland) income data are derived directly from administrative sources. This probably means better quality data in these countries. In addition, survey response rates vary quite significantly across the countries, in part because of the different type of surveys used (eg household budget surveys and longitudinal surveys impose more respondent burden and hence may lead to lower response rates). Better quality data could produce higher poverty rates (because response rates are higher among socially excluded groups) or lower poverty rates (because people at the bottom end of the distribution are more likely to have all their income recorded). We discuss comparisons with some alternative data sources below.

The time period for income collection
In most countries, incomes are recorded for a twelve-month period. However, in the UK and Russia most income sources are recorded for a shorter period (last pay, or income in the last month). Because incomes fluctuate over the year, this may to lead to a higher measured poverty rate in these countries.

However, there is some evidence that suggests that this effect is unlikely to be large. Ditch et al. (1996) for example, compare UK child poverty rates calculated using the current income data in the LIS with the annual income data collected in the European Community Household Panel. While definitional differences make precise comparisons impossible, the relative position of UK children compared to children in other European countries appears to be much the same in the two data sets.

The sharing unit

In this report we use the household as our base sharing unit, but this is not possible in Sweden and Switzerland where the unit is the nuclear family, with children aged 18 or over classed as separate units. It is common in the literature based on the Luxembourg Income Study to assume that this unit definition implies that poverty in these two countries will be underestimated. Larger units mean more pooling of incomes and hence fewer people with extreme low incomes. However, while this may be true for poverty overall, the direction of bias is less certain for child poverty, and the bias is likely to be different for each of our poverty definitions.

With respect to absolute poverty, biases in both directions are possible. On the one hand, a larger unit will bring in more family members with incomes; on the other hand, these additional family members are most likely to be older siblings or the grandparents of the children. If these people are students/unemployed or retired, respectively, their inclusion in the unit might increase the child poverty rate.

With respect to the 'child median' poverty rate these offsetting influences are likely to be at work for both the poor and median household, and so a strong impact is unlikely.

For the conventional (overall median) poverty line, however, it is most likely that the use of a wider income unit would produce a higher level of child poverty. This is because the inclusion of many smaller units into larger units is likely to lead to the calculation of a higher median equivalent living standard (because larger units benefit more from economies of scale). Most children, on the other hand, will be in units that do not change composition under different unit definitions. The higher poverty line may, in turn, lead child poverty rates to increase.

Finally, we should note that these data do not include many of the irregular transfers of resources between households (regular private transfers are usually included). This means we underestimate the living standards of the receivers, and over-estimate that of the givers. In general, we would expect these transfers to be greatest in those countries with the least developed welfare states, but we do not have any evidence on the quantitative importance of this.

Other Studies

Do other data sources tell a different story? Several studies have compared the results from LIS with those from the first wave of the European Community Household Panel (ECHP). The ECHP collected income data for 1993 across the 12 EC members.

In theory, harmonised surveys such as the ECHP provide the best means of obtaining cross-nationally comparable data. However, harmonisation is both difficult and imposes its own burdens. It is difficult to ensure that fieldwork practices are identical, and formulations of questions appropriate for one country may not work very well in other countries (eg depending upon whether tax is deducted at source, it may be easier to collect information on pre- or post-tax incomes).

Callan and Nolan (1997) compare poverty rates calculated from the ECHP with the LIS poverty calculations reported in Atkinson, Rainwater and Smeeding (1995) for Belgium, Luxembourg, France, the UK, Ireland, and Italy. They find differences in both poverty rates and the ranking of poverty rates between countries. In most countries, the ECHP shows higher poverty rates. However, the ranking of poverty rates for four of the countries remains unaltered between the two data sets. The exceptions are Luxembourg and Ireland where the poverty rate ranking is higher in the ECHP data than in the LIS data. This suggests that the LIS data may be underestimating poverty in these two countries (or that the ECHP is overestimating poverty). However, in terms of poverty *levels,* Ireland is the only country with a similar poverty rate in the two data sets.

Looking more specifically at child poverty, Ditch et al. (1998) compare child poverty rates in Belgium, Denmark, Germany, the Netherlands, Italy, Spain, and the UK. Across this set of seven countries, the correlation in poverty rates between the ECHP and LIS is very high (0.91), despite differences in methodology and survey years. The main outlier is Belgium, which has a higher poverty rate (and rank) in the ECHP data than in LIS.[9] While this concordance in cross-country ranking is encouraging, the actual *levels* of poverty recorded in the two surveys differ markedly; they are much higher in the ECHP data. While there are definitional difference between the two surveys, this difference seems large.

Micklewright and Stewart (1999) also compare poverty estimates for the above seven countries, plus France, Ireland and Luxembourg, using data from the LIS (from this paper), the ECHP and data from household expenditure surveys of the late 1980s (from Hagenaars, de Vos and Zaidi, 1994).

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[9] The Ditch et al. calculations use the 1991 Italian data. If the 1995 data are used (as in Table 3.3), this correlation drops to 0.84 because of the large increase in Italian poverty between these two years as measured in the LIS surveys.

Although the years, definition of children and the poverty thresholds differ, the patterns of poverty relativities are similar, particularly between the LIS and expenditure survey data. If the 10 countries are ranked according to their child poverty rates, the only countries that move more than one rank position between the two measures are the Netherlands and the UK. Both of these countries have a lower child poverty ranking in the expenditure surveys, with the UK moving from the highest to third position (after Italy and Ireland). When the LIS data is compared with the ECHP data, however, it is Italy and Luxembourg who are the outliers (with lower and higher relative poverty rates respectively in the ECHP).

It is difficult to draw a simple conclusion from these results. To the extent to which there are differences between data sources, these could reflect the different definitions used or problems in any (or all) of the data sources. Callan and Nolan point to several problems with the ECHP income data, and expenditure surveys tend to be less representative, though it is probably also fair to say that there has been insufficient research undertaken on the quality of the LIS data sets. The correlation in child poverty rates between the different data sources is encouraging, but the remaining differences between sources should remind us that poverty measurement is an inexact science – where one should not place too much weight on small differences.

▪ 4.2 *Non-cash benefits*

Non-cash benefits provided by the state form an important component of government welfare policy and household consumption. For the countries here, non-cash benefits are of a similar order of magnitude to the cash income transfers provided to households. Moreover, the nature of these services to families and children is a major part of the social policy debate in most countries. Would a more comprehensive definition of income that included the consumption of these services change the poverty conclusions of the previous section?

The overall conclusion from the research that we review here is that including non-cash benefits would not make much difference to the general cross-national pattern of child poverty. However, there are still identifiable gaps in this research at both empirical and conceptual levels.

The main focus of the existing research has been on estimating the value of health, education and housing services. State provision is important in all three of these areas. In a few countries (eg the US), employers provide substantial health services (via insurance schemes), while in most countries many households receive consumption services from assets such as their owned housing.

The key paper in this area (from the perspective of cross-national comparisons) is Smeeding et al. (1993). They review many of the conceptual and practical difficulties associated with valuing these benefits. One of their key conclusions is with respect to the lifecycle impact of these services.

Our results indicate that once both health benefits and education are counted, non-cash income tends to even out fluctuations in the risk of poverty over the life cycle and although single nonaged people miss out relatively speaking, our results suggest that intergenerational inequities may be less than previous research has indicated (Smeeding et al., 1993, p.255).

This statement, however, is somewhat misleading. It is certainly true that non-cash benefits play a major role in evening out living standards over the lifecycle. The living standards of children (and/or their parents) would be significantly lower in the absence of the extensive state support for education that exists in all industrial societies. Similarly, the aged would have a much lower living standard if they were required to pay for all the health services they consumed.

However, the last part of this extract reflects a common misinterpretation of the relationship between cash and non-cash measures of poverty. It ignores the fact that the methodology of cash income-based poverty measurement already implicitly takes account of the distribution of non-cash benefits.

This is perhaps seen most clearly if we consider the equivalence scales commonly used in poverty calculations. Most such scales (including the scales used in this paper) assume that the income needs of adults of working age are the same as the needs of elderly people. This assumption would be unreasonable if the elderly did not receive non-cash health benefits. Similarly, the relativities for children inherent in equivalence scales have been developed on the basis of the consumption needs evident within the pre-existing framework of non-cash benefits and other public goods. In the absence of state funding of education, the costs of children would be much greater. This problem is less important for housing expenditures (where needs are relatively constant across the lifecycle), but must be central to an understanding of the distributional impact of education and health benefits.

Poverty measurement based on cash income therefore implicitly takes account of the equalising effect of non-cash benefits. However, this does not alleviate the need to understand the incidence of non-cash benefits. If different countries have different patterns of non-cash benefits then, using this same logic, poverty analysis using cash incomes should use a different equivalence scale for each country. The natural alternative to this is to use the same equivalence scale in every country, but to include non-cash benefits as

part of income. This is the approach taken by Smeeding et al. and most other studies examining these issues.

However, neither of these approaches adequately incorporates the needs of different population groups for non-cash services. If we are to add the value of non-cash services to household incomes then we should also use equivalence scales that take account of the variations in needs for these services over the lifecycle.[10] The literature to date has not used any such adjustments.

Note that these issues are not relevant for poverty analysis that is wholly confined within particular lifecycle groups. Thus, it would make sense to calculate a version of our 'child median' poverty index using income plus non-cash benefits, since lifecycle-related needs are relatively homogenous within this group. Again, however, this approach has not yet been employed.

While most of the literature on the welfare impacts of non-cash benefits has explored ways of adding these benefits to cash incomes, there is an alternative approach which does address these lifecycle issues. This is to *subtract* from income those expenditures that are close substitutes for the non-cash benefits. Households can then be compared in terms of their residual incomes available for expenditure on other commodities. A key advantage of this approach is that there is a greater consensus with respect to equivalence scales for these other commodities. For example, it is more reasonable to assume that the needs of working age and elderly are similar when health expenditures are not included in the budget.

This approach has been applied to housing in some countries by calculating poverty 'after housing costs'. That is, income less housing costs is used as the index of living standards, and this index is compared with a different (lower) poverty line. Gardiner et al. (1995) also recommend this approach as the best way to examine the distributional impact of health expenditures.

An ideal measure would be to make a deduction for the value of health care needs which are not covered by publicly available health care. This is, however, very difficult to implement in practical terms, but is approximated by making a simple deduction for health costs paid by households. The data to do this are generally available in household budget surveys (p.86).

A conceptually similar approach is also recommended by the National Research Council (1995) Committee report on the US poverty line. They

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[10] See Radner (1997) and Bradbury (1998). Indeed, when looking at a single country, it may be plausible to assume (as a first approximation) that these need patterns reflect the actual distribution of services. This implies that we should ignore non-cash benefits entirely when calculating poverty rates (Bradbury, 1998). However, this is unlikely to be appropriate when comparing countries where non-cash benefit provision varies.

recommend subtracting work-related expenses (including childcare) and out-of-pocket medical care costs from incomes before comparison with a poverty line.

The subtraction approach addresses the lifecycle issues raised above, and, for health care, also takes some account of the different health expenditure needs of individuals (it is less clear whether this is desirable for education and housing). It is, however, limited by the fact that it does not incorporate a direct indicator of the value of housing, health or education consumption received by the household. That is, households that choose to go without a decent quality of health care, housing or education may be recorded as having a high living standard because their expenditures on these items are low. From this perspective, the conventional approach of adding the value of services is preferable, as it places a greater emphasis on constraint rather than choice.

While there is thus much work to be done before we can be confident of our cross-national comparisons of non-cash benefits and poverty, it is possible to draw some broad conclusions from the available evidence.

At the aggregate level, one of the key conclusions of the existing research is that there is no tendency for societies to use non-cash benefits as a substitute for cash benefits. Indeed, countries that have high levels of cash transfers tend to have higher levels of public non-cash benefits as well (Smeeding et al., 1993). This relationship is illustrated in Figure 4.1 which shows cash and non-cash benefit expenditures (as percent of GNP) for selected countries. (The figure does not include employer provided non-cash benefits – health insurance is important in the US – or other private non-cash benefits such as the services from owner-occupied housing).

For the expenditure items included in this figure, non-cash benefits are a similar order of magnitude to cash benefits, though with a slightly lower dispersion. Though expenditures on the two measures are not perfectly correlated, there is certainly no indication that the countries with lower expenditures on cash benefits compensate by having higher levels of non-cash expenditure.

This figure shows aggregate expenditures only, and the allocation of this aggregate expenditure to different demographic and income groups can also vary between countries. Nonetheless, after calculating overall poverty rates including an allocation of these expenditures to households Smeeding et al. (1993, p. 255) conclude that:

… the basic results in this paper do not give rise to a pattern of national differences in poverty rates or income inequality which are markedly different from those which emerge from previous LIS research based on cash income alone.

Figure 4.1: *Total expenditures on cash and non-cash benefits, 1993 (% of GNP)*
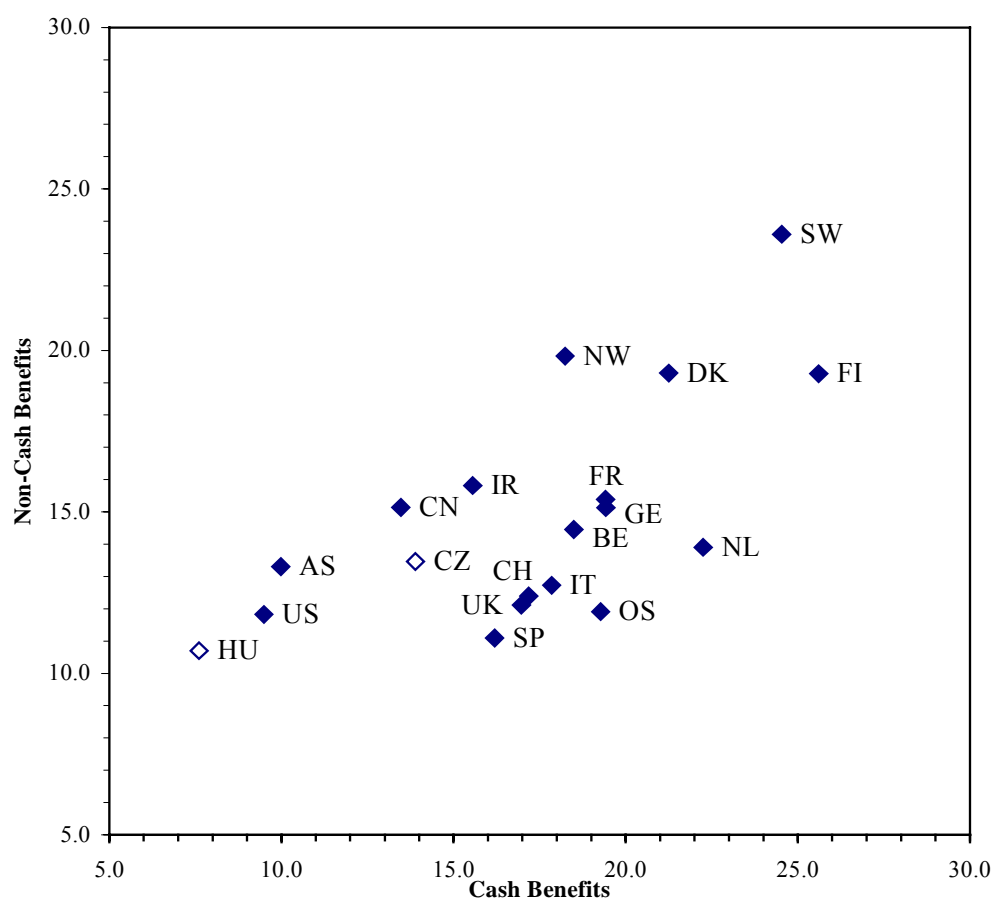
Note: Data for the transition economies (denoted by open diamonds) may be incomplete. Non-cash welfare expenditures are state welfare expenditures on health, education (excluding student income support), labour market programs and welfare services. All housing benefits are included as cash benefits (even if not directly received as cash income to the household).

Sources: OECD Social Policy Expenditure and Education databases, and UNICEF (1997).

These results were based on the first wave of LIS data (1979-1983). A more recent study by Whiteford, Kennedy and Bradshaw (1994) calculated child poverty rates using the second wave of LIS data for the mid-1980s. Though they are concerned to point out the importance of non-cash benefits for the measurement of living standards, their results reinforce the conclusions of Smeeding et al. Figure 4.2 summarises some of their results. This figure shows child poverty estimates using two income definitions and two poverty thresholds for six countries. Child poverty rates using the more comprehensive income definition are always lower than child poverty rates based on incomes alone. This reflects the more equal distribution of health and education services across the population compared to market incomes. (The broader income definition is used to define the average income and hence the poverty line, as well as the income of the poor; in this respect their methods differ from those of Smeeding et al.).

Figure 4.2: *Child poverty calculated using cash income and cash income plus education and health benefits, mid 1980s.*
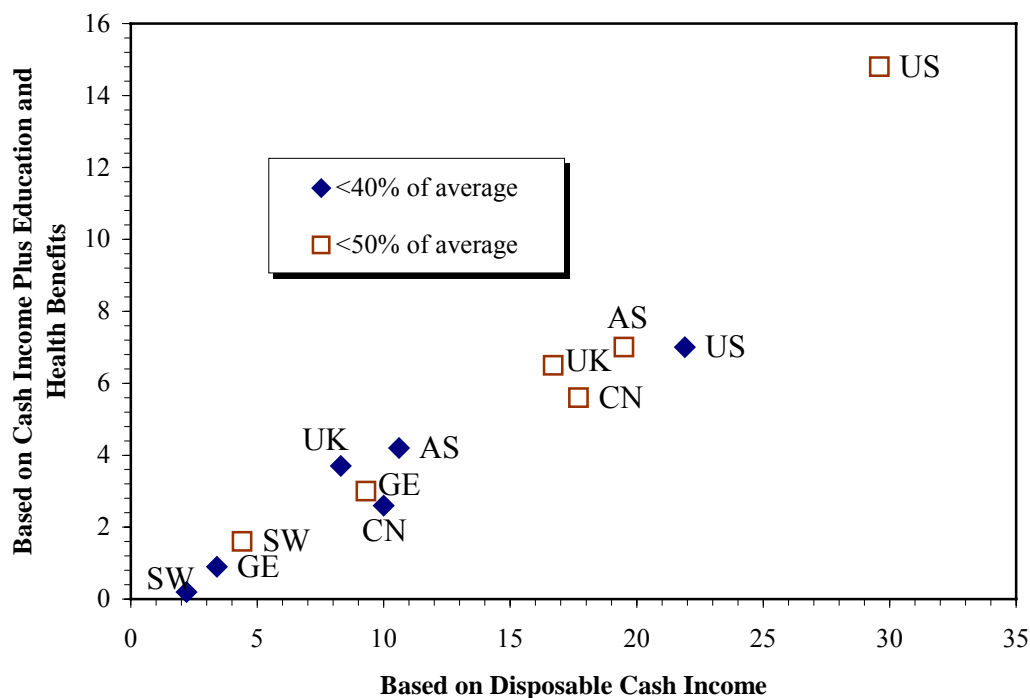
Source: Whiteford, Kennedy and Bradshaw (1994), Table 8a.

Despite the difference in levels, however, there is a very strong correlation between the poverty rates calculated using the two income definitions. The only ranking to change is that between Canada and the UK (Canada has less poverty when non-cash benefits are included).

These results do not include housing benefits, however, and Whiteford, Kennedy and Bradshaw point to the central role that these play in the welfare programme of industrial countries. In some cases housing assistance is given as a cash payment (and hence is included in disposable income), while in other cases these benefits take the form of reduced housing costs (and are not included). In addition (though this is less relevant to our interests in this paper), the living standard of elderly poor is substantially increased in some countries by the consumption services they receive from their owner-occupied housing.

As noted above, one simple method of controlling for such patterns of non-cash housing benefit is to calculate poverty rates on the basis of incomes after housing costs are deducted. This describes the extent to which families have sufficient income to meet their non-housing expenditures. As a general approach to poverty measurement this suffers from the limitation that people who choose to have a high level of housing consumption may be defined as poor (and there is no measure of poor housing quality). Nonetheless, this

simple method allows us to gain some insight into the extent to which patterns of housing costs might alter the broader picture of child poverty.

While comparable measures of housing costs and incomes are relatively rare, these data have been collected in the European Community Household Panel. V. J. Verma has calculated for us estimates of child poverty based on income and on income less housing costs using provisional data from the first wave of the study. These estimates are shown in Figure 4.3. (An estimate for Australia in 1989, derived from LIS, is also included). Despite the differences in housing policy across these countries, the conclusion is clear: the two measures of poverty are very highly correlated.

It is possible that this conclusion would change if we were to include the transition countries, where subsidised housing has in the past been much more important.[11] In general, however, these examples suggest that we should not find much change in the cross-national 'league table' of child poverty rates if we were to include health, education and housing non-cash benefits in the measure of income available to households. The picture for within-country patterns of poverty rates between different groups is less clear, since we have no methodology for adequately assessing the relative needs of different lifecycle groups.

From one perspective, however, this conclusion is paradoxical. In national debates on child poverty and related issues, the nature and provision of health, education and housing services are a central part of the debate. There seems to be little dispute that these services are important for the living standards of poor children. How can it be that these non-cash services do not contribute much to the picture of poverty patterns that we observe?

One reason for this is that cross-national variations in expenditures on non-cash services tend to be correlated with cash benefits. Countries generous on one measure tend to be generous on another, and so information on non-cash benefits does not add much information to the relative generosity of different welfare states. This however, does not imply that non-cash benefits are unimportant. Changes in non-cash generosity can alter poverty rates just as much as can changes in cash benefit rates.

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[11] Or indeed data for other periods. [Ritakallio, 1999] compares Australia and Finland in the mid 1990s and finds that subtracting housing costs does make a difference to comparative poverty patterns. We speculate that this different conclusion is due to the different housing costs environments (interest rates were high in the late 1980s and low in the mid 1990s).

Figure 4.3: *European child poverty rates based on income and income less housing costs*
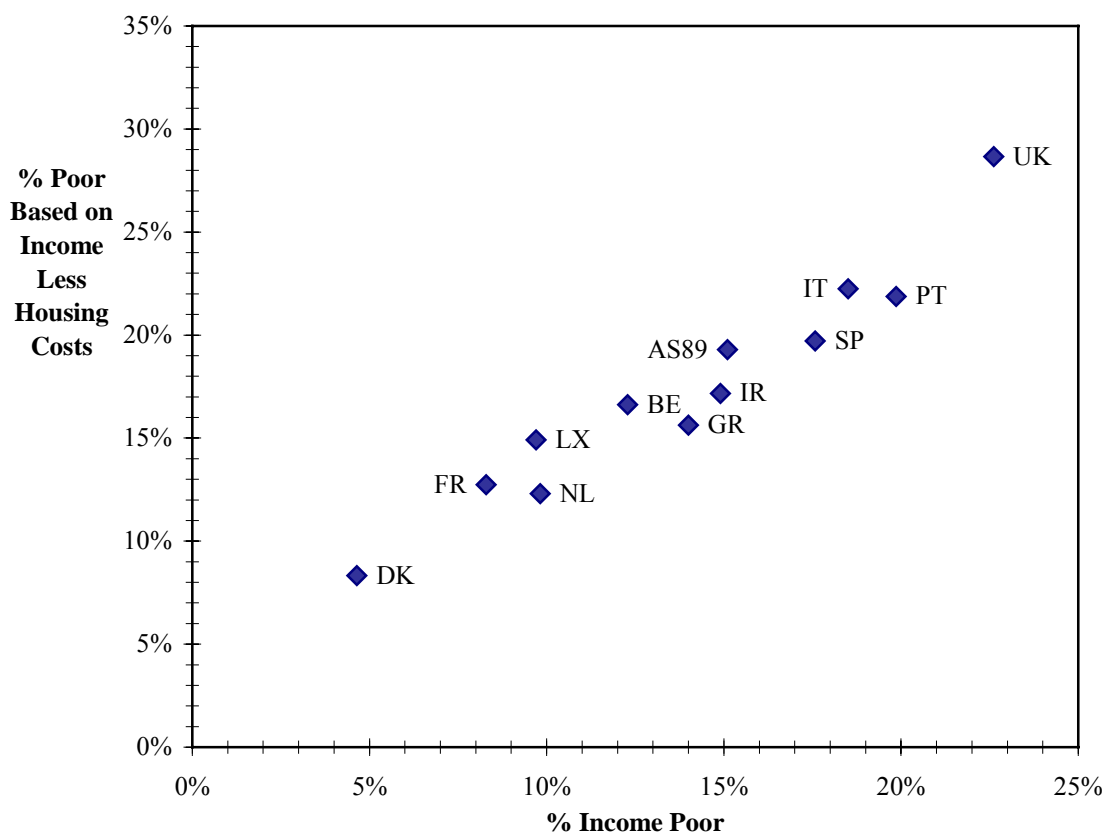
Sources: Australian 1989 Survey, LIS. Other countries, ECHP calculations by V. J. Verma. The poverty line is half the overall median (of income or of income less housing costs as appropriate), with a square-root equivalence scale. The ECHP data refer to children aged under 16.

However, it is also possible that the conclusions of this section are more dependent upon the relatively crude measures used by researchers to describe the distribution of non-cash benefits. In general, the within-country variation in calculated non-cash benefits is substantially less than the variation in cash benefit receipt – even among disadvantaged households. To some extent this is because all people benefit from the availability of universal health insurance and education systems. However, it is possible that this is also due to the relatively simple methods used in cross-national studies to allocate benefits. Typically, resource constraints mean that some important expenditures such as those on childcare services are not included. Similarly, factors such as variations in educational quality by school type or location, and variations in access and quality of health care and subsidised housing are not modelled (though these issues are modelled in some single-country studies). This means that the measurement error for non-cash benefits may be significantly greater than that for cash benefits.

While this reinforces the conclusion that cash income is the best indicator for cross-national comparisons of living standards, it also means that the type

of studies reviewed here can, as yet, tell us little about the relative importance of cash and non-cash benefits for variations in child well-being across nations.

▪ 4.3 *Income, consumption and life-time savings patterns*

Providing resources for consumption in old age is a central goal of the welfare state. However, this consumption can be financed in different ways. In most industrialized countries, social insurance is the key mechanism. This involves workers (or their employers) contributing to socially administered funds during their working life and receiving pensions in old age. In some countries, however, private saving plays a large role, particularly through the purchase of owner-occupied housing. Finally, some countries place significant reliance on private inter-generational transfers from adult children to their retired parents (both within and between households).

These different financing mechanisms for old-age support may also affect the living standards of children to the extent to which the financing mechanisms divert resources from the child-rearing years to retirement. Although a diversion of resources to retirement may be a common feature of all societies, different financing methods have different implications for the measurement of household living standards. This is particularly the case when comparing countries that finance retirement through social insurance compared to those that use private finance.

In the Luxembourg Income Study (as in other similar data sets), employee social insurance contributions are deducted from gross income when calculating disposable income, and employer contributions are not counted as part of either gross or disposable income. Whiteford (1995, 1997) argues that the fiscal incidence of employer contributions is most likely to fall on employees via reductions in gross wage rates and that this will bias international comparisons. In countries with large employer social security contributions, gross wages will be lower as employees receive a greater share of their income in the form of increased pension rights. This has implications for comparative indices of living standards such as the OECD 'average production worker wage'. Any income in the form of employer social security contributions is not included in such summary measures – underestimating the full income available to workers in these countries.

Similarly, this can lead to biases when using relative poverty lines. In countries where substantial income is received in the form of employer contributions to social security, median disposable income will be low – even though these workers are accumulating substantial retirement entitlements. If the poverty line is set at some percentage of median income, it in turn will be low in such countries, producing a low poverty rate. This may be

inappropriate since those near the poverty line will be unlikely to be receiving the same social security contributions as those for whom the median income is calculated.

Table 4.1 illustrates the effect that these alternative saving patterns could potentially have on poverty measurement. It shows the income, consumption and saving levels for two hypothetical countries, each with seven people. The distribution of consumption is identical in the two countries. However, using an income measure of poverty, Country A has one poor person, while Country B has three. The difference is that in Country A, saving is done via social insurance, while in Country B saving is private (eg via home purchase or personal investments).

Table 4.1: *The implications of alternative savings models for poverty measurement*

Two hypothetical seven person countries with the same distribution of consumption, but with different poverty rates

Family description	Market income (A)	Pension income (B)	Cash Income (C=A+B)	Employer Contribu- tion (D)	Private saving (E)	Consum- ption (F=C–E)	Poor? (C<Pov. Line)
Country A: Social Insurance							
High income, workforce age	180	0	180	20	0	180	No
High income, workforce age	180	0	180	20	0	180	No
High income, workforce age	180	0	180	20	0	180	No
Mid income, workforce age	80	0	80	20	0	80	No
High income aged	0	50	50	0	0	50	No
Low income aged	0	20	20	0	0	20	**Yes**
Low income workforce age	45	0	45	0	0	45	No
Poverty line (=50% of median cash income)			40				
Number below poverty line							*1*
Country B: Private Saving							
High income, workforce age	200	0	200	0	20	180	No
High income, workforce age	200	0	200	0	20	180	No
High income, workforce age	200	0	200	0	20	180	No
Mid income, workforce age	100	0	100	0	20	80	No
High income aged	0	30	30	0	-20	50	**Yes**
Low income aged	0	20	20	0	0	20	**Yes**
Low income workforce age	45	0	45	0	0	45	**Yes**
Poverty line (=50% of median cash income)			50				
Number below poverty line							*3*

With a social insurance system, saving both reduces the disposable income of the median person and increases the disposable income of the (aged) poor. Private saving, on the other hand, does not reduce the income of working households (though it reduces their consumption), and it does not increase the income of the aged (though it increases their consumption).

It is important to note in this example that the different poverty rates do not arise simply because of the different incomes of the aged in the two countries. Rather, one of the apparently 'additional poor' in Country B is of

working age. Although the consumption of this family is identical in the two countries, they are classified as poor in Country B because the cash income of the median household is lower.

In summary, when using relative poverty lines, it is necessary to consider whether the indicator of the living standards for the benchmark (median) family is consistent across countries. Differential savings patterns mean that this might not be the case. Nonetheless, though it is possible to construct hypothetical examples where these differences count, these savings patterns may have only a small impact in practice. The above example assumes that in the country without social insurance, households will use private saving to achieve the same purpose. However, other means of financing retirement are possible. For example, there might be substantial non-funded state support for retirement (both via income support and service provision). The additional taxes required to fund this *are* accounted for in household income survey databases. Direct taxes are subtracted from incomes, and indirect taxes are usually close to proportional across the income distribution and so not important for relative poverty measurement. Alternately, the aged in countries without extensive social insurance may simply have lower living standards. In either case, there will be no differential bias in the measurement of consumption between countries.

To test this hypothesis, therefore, it is necessary to look more closely at patterns of household saving. While this is generally difficult to do on a comparable basis, one important means of household saving is via home ownership, and some data on this do exist.

Home ownership rates have traditionally been higher in those countries where social insurance contributions are lowest. Australia is the archetypical example of this, but the other English-speaking former colonies have also had high rates of home ownership. Particularly during periods when interest rates have been high, costs associated with home purchase by middle income families have been a major policy concern in these countries. Though not all the expenditure associated with home ownership is saving, the prevalence of home ownership (and the associated high housing costs) does provide an indicator of the likelihood of this type of saving substitution.

These English-speaking countries are also countries that have some of the highest relative child poverty rates, and so it is important to check whether these poverty rates are a consequence of this particular choice in the definition of median living standard.

Castles (1998) examines the impact of housing investment from the perspective of poverty among the aged, and concludes that comparisons based on incomes alone might provide a misleading picture of variations in poverty across OECD countries. In particular, countries with high levels of social expenditure also tend to have low levels of home ownership. This relationship

is illustrated in Figure 4.4. If the outlier Switzerland is excluded (see Castles for a discussion of some special features of the Swiss housing market), this association is substantial.[12]

Figure 4.4: *Owner-occupation by social expenditure*
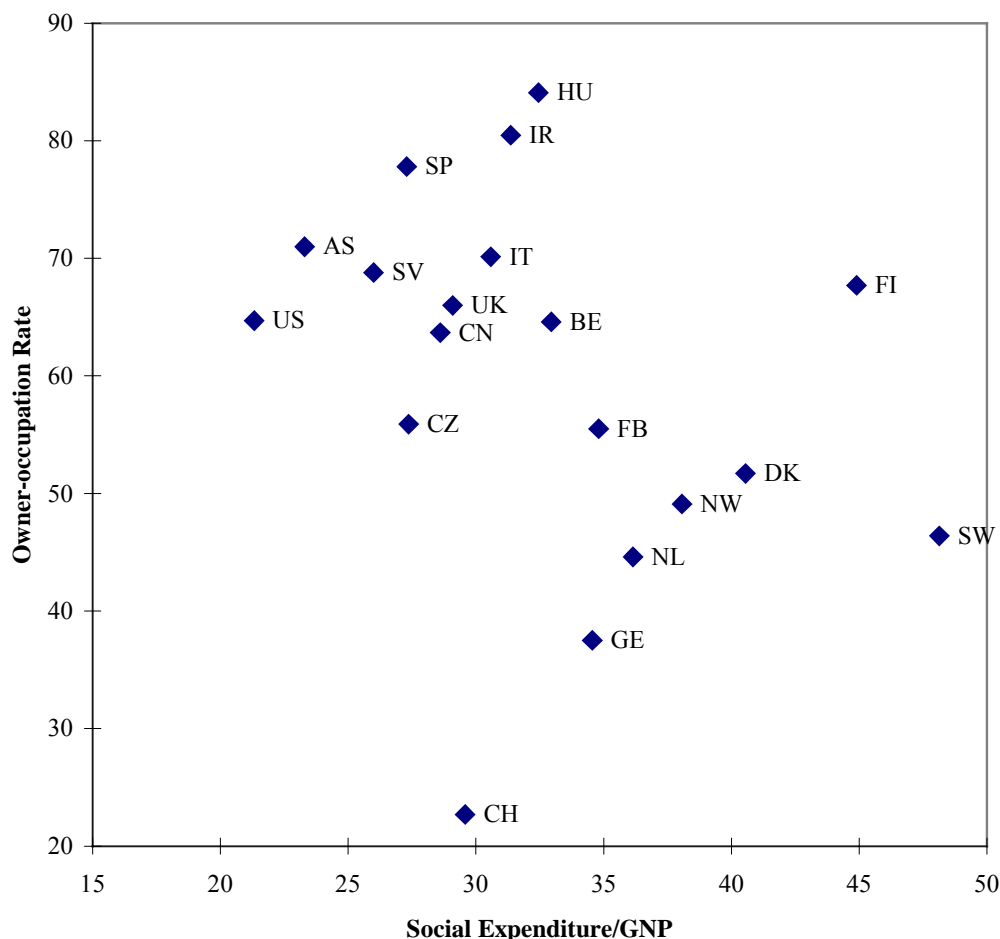
Sources: Social Expenditure: Most countries, OECD Provisional Social Expenditure Data Base (March 1998) and OECD Education Data Base (July 1998). Hungary and Slovakia UNICEF (1997). GNP: see Table 3.1. Tenure: Most countries: LIS database most recent year. Ireland and Italy ECHP round 1 (1993).

However, Figure 4.5 shows that this relationship does not also hold for families with children. The 'child owner-occupation rate' is the proportion of children who are living in owner-purchaser households. There is no discernible relationship between social expenditure and owner-occupation rates for children. Many of the Northern European countries which have both low overall home ownership rates and high social expenditures have much higher home ownership rates among families with children. Sweden is the

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[12] The correlation between social expenditure as a percentage of GNP and home ownership is –0.32 overall, and -0.52 if Switzerland and the transition countries (which have quite different housing markets) are excluded. The high home ownership rate in Hungary is due to a range of policies deliberately encouraging home ownership.

most prominent example. While only 46 percent of households are owner-occupied just on two-thirds of children live in owner-occupied housing.

Figure 4.5: *'Child owner-occupation' by social expenditure*
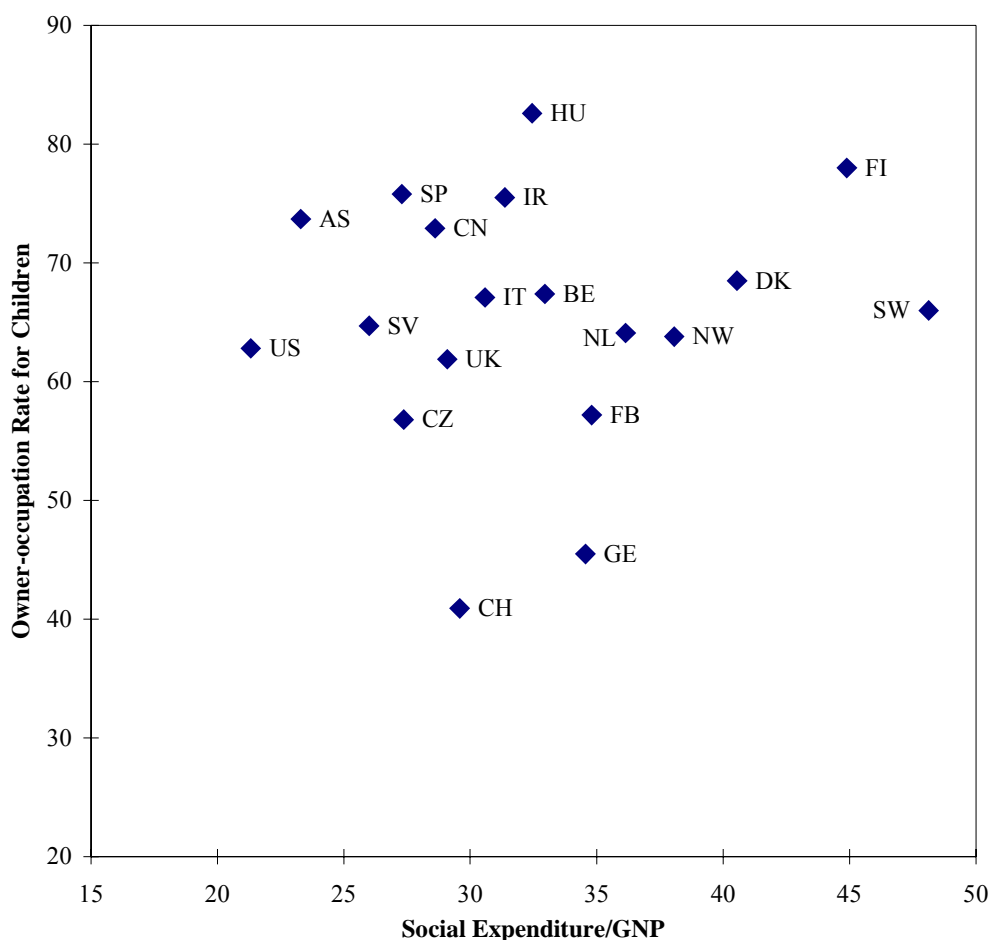
Source: As for Figure 4.4.

To a large extent, these different tenure patterns are a reflection of a steady trend towards greater rates of home ownership in (most) of the Western European economies. As Castles notes, the correlation between welfare state structure and overall rates of home ownership has been declining since the 1960s or 1970s (depending on the measure used), as home ownership rates have converged. The lower correlation that we observe for parents probably foretells a further diminishing of this relationship over the coming years.

With the exception of those living in Switzerland and Germany, housing tenure patterns are now relatively homogenous among children in the wealthy nations. To the extent to which this represents a growth in private savings while still maintaining high levels of social savings in some Northern European countries, this change in tenure patterns may come to place stress on the living standards of children in middle-income families. That is, the take-home wages of their parents will be depressed because of high employee

and employer social insurance charges, and they will also face substantial housing costs.

Nonetheless, from the perspective of cross-national comparisons, the homogeneity of housing tenures implies that the results based on disposable incomes should continue to provide a reasonably accurate picture of relative living standards (since social insurance charges are deducted from incomes). In summary:

- While most information on child poverty is based on incomes, consumption is a better indicator of the living standards of children. The difference between these two indicators is saving.

- Conceivably, patterns of private saving could lead to a different distribution of living standards to that implied by incomes alone. In particular, in countries where private saving is common, the living standards at the middle of the distribution may be closer to those at the bottom than income alone might suggest (because low income households cannot save). This implies that in these countries relative poverty rates based on incomes may be too high.

- It is also the case that the countries that have high income-based poverty rates also tend to be the ones with low levels of social benefits and traditionally have had higher levels of a key form of private saving, home ownership. We therefore address the question of whether a consideration of patterns of private saving might change the patterns of child poverty that we observe calculated on the basis of cash incomes.

- Our focus here is on the impact of saving on the living standards of the *median household*, against which poverty is to be assessed. The more direct impact of housing costs on the living standards of poor families is assessed in Section 4.2 above (see Figure 4.3).

- We conclude that there is no evidence that saving patterns add a bias to the measurement of relative poverty rates between countries. In particular, what might be considered established views about patterns of housing tenure in different countries are fast becoming superseded. For families with children, there is little variation in housing tenure patterns across the countries considered here. Apart from a few outliers maintaining a low level of owner-occupation (Switzerland and Germany), variation is now predominantly related to the North/South variations in Europe. This in turn is more a function of intra-family patterns of asset holding.

5. Social Transfers, Market Incomes and Child Poverty

Why is there so much variation in child poverty across nations?

Since we define child poverty as low income relative to needs, the income sources of families of children provide the natural starting point for the answer to this question. Most research on patterns of poverty in rich nations has, not surprisingly, focused on state income transfers, as these are the policies which are most directly charged with providing incomes to disadvantaged families. Some of the key conclusions of these studies of 'welfare effort' are summarised in Section 5.1.

As might be expected, there is an association between welfare effort and low rates of (relative) child poverty. Countries with a higher share of national income devoted to welfare transfers and services also tend to have lower child poverty rates.

And yet, paradoxically, this relationship is much weaker when attention is focused on those welfare state activities that should have the most direct impact on poverty. There seems to be little correlation between the social transfers received by those below the median and poverty. In Section 5.2, we examine this issue using a decomposition of the variation in the living standards of poor children across different countries.

Previous research on the relationship between poverty and state transfers has typically used counterfactual calculations of the poverty rates that would exist in the absence of transfers. These imply a strong and unrealistic assumption that behaviour will not change in the presence of such a large policy change. Rather than build such assumption into our analysis from the beginning, we use a simple decomposition framework to describe the relative importance of market incomes and state transfers in explaining the diversity of child poverty patterns. The results of this exercise provide a different perspective to that provided by much of the literature, with variation in market income found to be more important than variation in social transfers.

▪ 5.1 *Welfare effort*

Across the industrialized nations, there is wide diversity in the extent to which national resources are devoted to the welfare state and to disadvantaged families with children more specifically.

Some of these patterns are shown in Table 5.1. This shows three summary measures of aggregate social expenditures, expressed as a percentage of GNP. These data are derived from the OECD Social Expenditure database (March 1998 version), the OECD Education Database and UNICEF (1997). Total social expenditure includes most government expenditures on cash and non-cash social benefits, but not social aspects of taxation systems (such as tax

concessions for families and health care expenditure) and not social expenditures undertaken by employers (eg health care in the US, and social services provided by firms in the transition countries). It should be noted that the data for the transition economies are incomplete, and expenditure for Russia in particular is believed to be underestimated.

Table 5.1: *Workforce age social expenditures as percent of GNP, 1993*

		Total		Workforce-age (incl. education)		Workforce-age (excl. education)	
		%	(rank)	%	(rank)	%	(rank)
OECD countries							
Sweden	SW	48.1	(1)	25.7	(1)	17.6	(1)
Finland	FI	44.9	(2)	25.4	(2)	17.1	(2)
Denmark	DK	40.6	(3)	24.2	(3)	15.6	(3)
Norway	NW	38.1	(4)	20.1	(4)	11.9	(5)
Netherlands	NL	36.2	(5)	19.1	(5)	13.7	(4)
France	FR	34.8	(6)	14.7	(8)	9.0	(9)
Germany	GE	34.6	(7)	14.5	(9)	9.8	(8)
Belgium	BE	32.9	(8)	15.5	(7)	9.8	(7)
Ireland	IR	31.4	(9)	17.2	(6)	10.8	(6)
Austria	OS	31.2	(10)	12.0	(14)	6.6	(13)
Italy	IT	30.6	(11)	10.1	(16)	5.0	(16)
Switzerland	CH	29.6	(12)	11.4	(15)	5.8	(14)
United Kingdom	UK	29.1	(13)	13.6	(10)	8.5	(10)
Canada	CN	28.6	(14)	12.5	(11)	5.3	(15)
Spain	SP	27.3	(15)	12.3	(13)	7.5	(11)
Australia	AS	23.3	(16)	12.3	(12)	6.7	(12)
United States	US	21.3	(17)	7.9	(17)	2.7	(17)
Transition countries							
Hungary	HU	32.4	(1)	13.7	(1)	7.4	(1)
Poland	PL	29.4	(2)	8.0	(4)	3.9	(4)
Czech Republic	CZ	27.4	(3)	11.4	(2)	5.4	(2)
Slovakia	SV	26.0	(4)	9.4	(3)	4.2	(3)
Russia	RL	8.4	(5)	4.6	(5)	0.5	(5)
Correlation with overall median child poverty rate							
OECD countries		-0.76		-0.70		-0.70	
All countries		-0.66		-0.57		-0.56	

Notes: Countries sorted by total social expenditure. Workforce age expenditures are expenditures on family cash benefits, family services, active labour market programmes, disability and sickness benefits, education, unemployment, housing benefits, and other contingencies (social assistance).

Sources: Most countries: OECD Provisional Social Expenditure Database (March 1998) and OECD Education Database (July 1998). Hungary, Poland, Russia, Slovakia: UNICEF (1997) based on data provided by national statistical offices. Russian data in particular are known to be incomplete.

As well as total social expenditures, the table also provides estimates of 'workforce-age' expenditures. This excludes those categories of social

expenditure that provide greatest benefits to the aged-health care and aged income support (though of course the former is also received by those of workforce age). The last column of the table excludes the main non-cash benefit, education, and thus provides a measure of welfare effort that one might expect to have a reasonably direct impact on income poverty.

For OECD countries, the overall ordering of countries in the table reflect long-standing and well-recognised patterns of total social expenditures. Overall social expenditures as a percentage of GNP range from the low 20s (US, Australia) to the 40s (Denmark, Finland, Sweden). The other English-speaking countries and those of Southern Europe generally have low levels of social expenditure, while the countries of Northwest Europe have social expenditures of around one-third of GNP. The transition countries have total social expenditure levels that are spread across this range, from Russia (8.4%) to Hungary (32.4%) (though we are not fully confident that the data for these countries are comparable to that of the OECD countries).

If countries are ranked by workforce age expenditure, the English-speaking countries other than the US tend to move up the expenditure ranking and Italy, in particular, moves down. This largely reflects the relative expenditures on the social insurance schemes for the retired (eg generous in Italy and income-tested in Australia). Nonetheless, the broad distinction between the Nordic, Western European and the remaining countries still holds.

After an examination of similar[13] data on workforce-age social expenditures across OECD countries, MacFarlan and Oxley (1996, p.150) comment that,

A striking feature of these data is the variation in the amount spent on such programmes across countries. In 1992, spending under this heading ranged from 1 to 2 percent of GDP in Japan and Greece, 3 percent in the United States to around 13 percent in Finland and the Netherlands. This difference is the largest of any component of government spending and accounts for nearly three-quarters of the variation in *total* general government spending across countries.

The study of the historical and political origins of these policy variations and the extent to which it is sensible to talk about a typology of welfare states have been the subject of much research and debate, particularly since the publication of Esping-Andersen's *The Three Worlds of Welfare Capitalism* (1990). Our focus here is narrower. What are the implications for these variations in welfare state effort on child poverty?

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[13] MacFarlan and Oxley show 1992 expenditures as a percentage of trend GDP rather than GNP and use a slightly different classification of expenditure. The correlation between their estimates of workforce age expenditures and the non-education expenditure measure in Table 5.1 is 0.93.

We begin by examining the association of these indicators of welfare effort with the overall median child poverty rate. The correlation of these expenditure measures with the overall median child poverty rate is shown at the foot of Table 5.1 and in Figure 5.1. In general there is a qualitatively significant relationship – countries with a high share of GNP spent on social expenditure have lower relative poverty rates. For the OECD countries, the correlation is -0.70 for workforce age expenditures, and, somewhat surprisingly, is a little higher when health and aged expenditures are included. The relationship diminishes when the transition economies are added (in part because of the less reliable measurement of social expenditures).[14]

Figure 5.1: *Poverty rates by workforce age social expenditure*
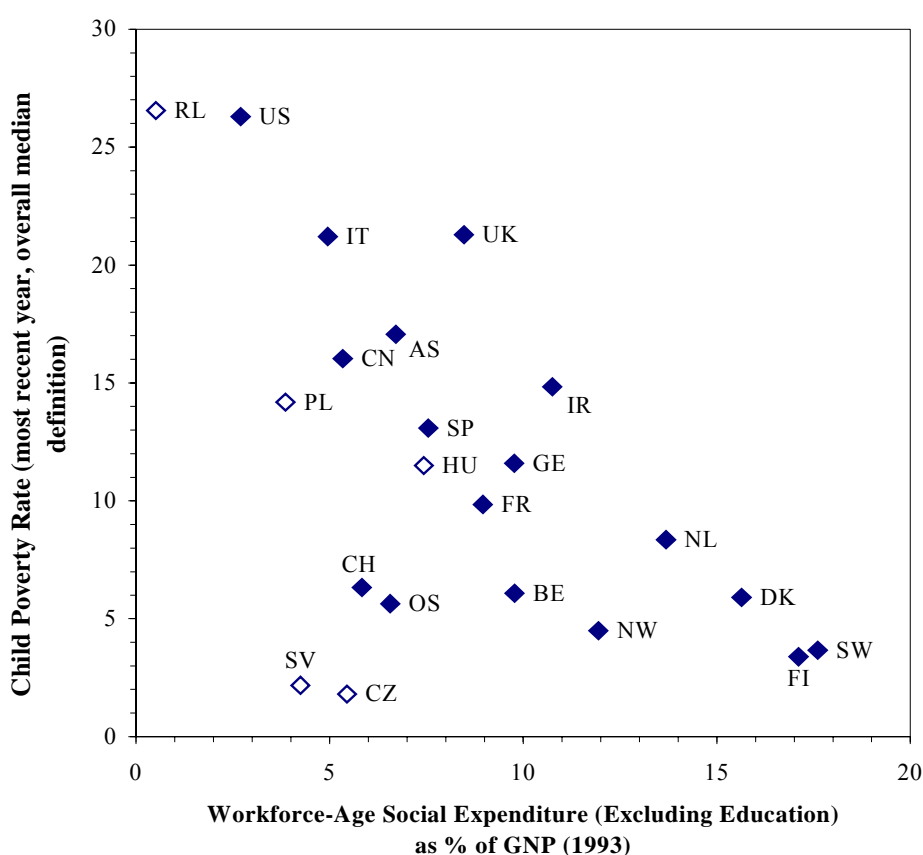
Much of this social expenditure, however, is spread more broadly across the population rather than only being targeted at those likely to be poor. In particular, most countries (the US being a prominent exception) spend substantial amounts on programmes that provide cash transfer support to all or most families with children (Bradshaw et al., 1993).

It would be reasonable to expect that the link with poverty would be stronger if we could identify income transfers going to families likely to fall

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[14] It should also be noted that, though the social expenditure data are for 1993, the poverty rates are calculated for different years. In particular, the Swiss result is for the early 1980s.

into poverty. However, previous research on this issue has found the opposite. Atkinson, Rainwater and Smeeding (1995) compare poverty rates for the working-age population with the levels of transfers received by the population with below-median incomes. Though their ranking of poverty rates for all the non-elderly is similar to our ranking of child poverty rates, they find a much weaker relationship between poverty and below-median transfers. Norway, for example, has low poverty, but also low transfers, while the UK and Ireland have high transfers, but also relatively high poverty rates.

The reason for this weaker relationship must lie in the other sources of income available to households. In particular, even for the families of the most disadvantaged children, market incomes often comprise a major component of their 'income package'. What is the relative importance of market and transfer incomes for the living standards of poor children? Are social transfers or labour market policies likely to be more important for their living standards?

▪ 5.2 *State, market and patterns of child poverty*

The simplest disaggregation of family incomes relevant to this question is the decomposition into (net) social transfers and market incomes. Which of these plays the greatest contribution to the observed variation in child poverty across nations?

All components of income add together to form total income, so all components must form part of any simple causal model of child poverty. Our goal here, however, is not to develop a model which predicts child poverty rates, but rather to seek to describe the diversity of poverty outcomes across nations in terms of the diversity and associations between different income components.

In most of the existing literature examining the determinants of poverty patterns, this issue has been addressed with the use of counterfactual calculations. Poverty rates are calculated on the assumption that social transfers are zero and then compared with poverty rates based on the actual disposable incomes of families.

Using this approach, Smeeding (1997) finds a greater cross-national diversity in poverty rates when living standards are measured using market incomes alone and also finds a substantial correlation between market income poverty and disposable income poverty (see also Atkinson, Rainwater and Smeeding, 1995 and Smeeding, Danziger and Rainwater, 1997). Interestingly, however, he finds no strong correlation between unemployment rates and market income poverty. Finland, for example, had high unemployment and low market income poverty, while poverty in the United States followed the reverse pattern. For children, disposable income poverty was positively

associated with market income poverty and even more strongly associated with the relative difference between market and disposable income poverty. The latter measure is, however, also associated with disposable income poverty by arithmetic definition and so is of limited used in explaining the relationship between welfare effort and outcomes.

The problem with counterfactual assumptions, of course, is that they are just that – counter to fact. In the present case, it is very likely that market incomes would change substantially in the total absence of state transfers – particularly since this counterfactual implies that large fractions of the population would have zero incomes. In general, if there is substitution between social transfers and market incomes (eg via labour market or savings incentives), then this type of counterfactual will overestimate the redistributive impact of social transfers (Whiteford, 1997).

Rather than rely on such counterfactual assumptions at the commencement of the analysis, in this section we utilise some simple descriptive graphical and algebraic methods to decompose the variation of child poverty rates across nations. The patterns we find must naturally be interpreted in the context of possible behavioural interactions, but at least this approach permits a clearer distinction between the numerical analysis and the assumptions required for its interpretation.

In previous sections of this paper, we use several different poverty lines together with the headcount index as our measure of poverty. However, the discontinuous nature of the headcount poverty index means that it is not very well suited to decomposition by income components (though this is not impossible, see Danziger and Gottschalk, 1986).

Instead, we use two alternative, but closely related, indicators of living standards. The first is the *bottom quintile disposable income*, defined as the mean household equivalent disposable income of the 20 percent of children who live in the households with the lowest equivalent income levels.

These incomes are adjusted to a common currency using the same PPP as for the absolute poverty calculation. As might be expected, the disposable income of the bottom quintile is strongly correlated with the absolute poverty rate, with r = -0.88 across the most recent wave of LIS countries and with a rank correlation of -0.98 (the relationship is curvilinear).

The second measure we use in this section is this bottom quintile disposable income divided by the median household equivalent disposable income of all children. This index, *bottom quintile relative income*, is thus closely related to the 'child median' head count, with which it has a correlation of -0.98. This is also closely related to the overall median headcount rate, with a correlation of -0.95.

Rather than focus only on children below the poverty line, we therefore examine a closely related question. How do the one-fifth of children who are

most disadvantaged in each society fare? In particular, we are interested in the variation in the living standards of these different groups of children across nations. Does the variation in living standards stem from variations in social transfers or from different levels of market incomes?

We use a very simple decomposition framework. For the bottom quintile of children in each country, the following identities hold.

$$DI = MI + NST \text{ and} \qquad (1)$$
$$DI/m = MI/m + NST/m$$

Where DI is the mean equivalent disposable income of the quintile, MI is mean equivalent market income, NST is mean equivalent net social transfers (social transfers minus income taxes and social insurance contributions), and m is median equivalent disposable income (across all children).

In this section we also make some adjustments to the raw income data of the LIS data files. The measurement of negative incomes and income taxation varies somewhat across the LIS data files, and, because means are more sensitive than poverty headcounts to extreme values, we have adjusted the incomes of cases with negative incomes or apparently very high taxation. For most countries this means a negligible change. The most important exceptions are Australia and the Netherlands.[15]

These shares of market incomes and net social transfers in the 'income packages' of the poorest children in each country are shown in Table 5.2 – along with some additional information on the components of these two income categories. The first data column of the table shows the value of equivalent disposable income (DI) for the poorest one-fifth of children in each country, and the second column shows DI/m. Both these vary widely across nations, following the patterns of relative and absolute child poverty discussed in Section 3. Disadvantaged children in Luxembourg, the Nordic countries and Taiwan had the highest absolute living standard, followed by Canada and Belgium. The bottom fifth of children in France, Germany and the Netherlands had incomes between US$4,000 and US$5,000, while the

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[15] More specifically, we employ the following adjustments. If Market Income (MI) is less than zero, it is set to zero (negative MI values usually represent business losses). If Disposable income (DI) is less than MI/4, it is set to equal MI/4. This adjustment implies that no household can have an average tax rate of over 75%. This adjustment is necessary because in some countries there are a few households with income tax (or social insurance contributions) that reduce their disposable income to very low, or negative amounts. We assume that this discrepancy represents a measurement timing issue and is not informative about the consumption opportunities for the household (eg high incomes in a previous year, implying high tax liabilities or payments in the current year). These adjustments make no or negligible differences for most countries. The most important exceptions (where the variables changed by more than 3 percent) are: Australia, where this adjustment increases average MI by 44 percent and DI by 10 percent; Ireland, Italy and Sweden where MI increases by 12, 8 and 5 percent respectively; and the Netherlands, where MI is unchanged, but DI increases by 5 percent and NST by 17 percent. The increases in MI are due to the LIS database including negative business incomes. The increase in DI (and associated increase in NST) for the Netherlands is because of apparent very high taxation rates for some households (probably due to timing discrepancies in the data). Similar tax issues (but of much smaller magnitude) appear in France and the UK.

other English speaking countries fared somewhat worse, followed by children in the Southern European and transition economies.

Table 5.2: *The income sources of the poorest one-fifth of children in each country*

		Mean real disposable income (1995 USD)	Mean DI / Median DI for all children	Market income share			Net social transfers		
				Wages	Other market incomes	Total market income (MI)	Taxes (and misc)	Social transfers	Total (NST)
Taiwan	1995	6,400	0.57	0.56	0.32	**0.88**	0.03	0.09	**0.12**
Italy	1995	2,361	0.36	(0.64)	(0.14)	**(0.78)**	(0.05)	0.18	**(0.22)**
Finland	1991	7,061	0.64	0.56	0.21	**0.77**	-0.17	0.40	**0.23**
Spain	1990	2,706	0.46	(0.57)	(0.15)	**(0.72)**	(0.03)	0.25	**(0.28)**
Germany	1994	4,793	0.52	0.68	0.03	**0.71**	-0.11	0.40	**0.29**
Netherlands	1991	4,837	0.52	0.64	0.04	**0.68**	-0.27	0.59	**0.32**
Norway	1995	6,992	0.60	0.56	0.11	**0.67**	-0.12	0.45	**0.33**
Luxembourg	1994	8,891	0.62	(0.60)	(0.07)	**(0.67)**	(0.02)	0.32	**(0.33)**
Czech Republic	1992	2,758	0.67	0.62	0.04	**0.66**	-0.07	0.40	**0.34**
Poland	1992	1,245	0.46	(0.50)	(0.12)	**(0.62)**	(0.12)	0.26	**(0.38)**
Denmark	1992	6,509	0.57	0.62	0.00	**0.62**	-0.28	0.67	**0.38**
Sweden	1992	6,547	0.63	0.50	0.07	**0.57**	-0.16	0.59	**0.43**
Israel	1992	2,897	0.48	0.48	0.08	**0.56**	-0.01	0.45	**0.44**
Belgium	1992	5,618	0.57	0.55	0.00	**0.55**	-0.09	0.55	**0.45**
Russia	1995	173	0.18	(0.35)	(0.19)	**(0.54)**	(0.13)	0.34	**(0.46)**
Slovakia	1992	2,220	0.67	0.50	0.03	**0.53**	-0.07	0.53	**0.47**
France	1989	4,360	0.51	(0.39)	(0.10)	**(0.49)**	(-0.02)	0.53	**(0.51)**
United States	1994	3,861	0.34	0.43	0.05	**0.48**	-0.02	0.54	**0.52**
Canada	1994	5,504	0.46	0.33	0.10	**0.43**	-0.02	0.58	**0.57**
Australia	1994	3,832	0.43	0.32	0.03	**0.35**	-0.03	0.67	**0.65**
Hungary	1994	1,238	0.47	(0.29)	(0.00)	**(0.30)**	(0.02)	0.68	**(0.70)**
Ireland	1987	2,520	0.48	0.20	0.10	**0.29**	-0.06	0.77	**0.71**
United Kingdom	1995	3,620	0.44	0.20	0.05	**0.25**	-0.07	0.82	**0.75**

Notes: All incomes are adjusted by the standard equivalence scale. Disposable income, total market income (MI), and total net social transfers (NST) are adjusted as per footnote 15. All income shares are expressed as a fraction of the adjusted disposable income (shown in column 1). Numbers in brackets are not fully comparable to the non-bracketed numbers, as wages and some other income sources in these countries are recorded on an after-tax basis. Compared to the other countries, this biases market income components downwards and taxes and net social transfers upwards.

Other market incomes includes business and investment income together with private pensions.

Taxes (and misc) comprises income taxes and social insurance contributions (as negative amounts), plus alimony/child support and miscellaneous income sources (as positive amounts).

Source: Authors' calculations from LIS.

In Table 5.2, the first column in bold shows the share of household disposable income from market income, and countries are sorted in descending order on this variable (or equivalently by ascending in net social transfers). Market incomes are further disagregated into wages and other market incomes (mainly business income), and taxes and social transfers are distinguished within overall net social transfers.

The share of market incomes in the income package of the poorest children varies widely, from around three-quarter of disposable income (Taiwan, Italy, Finland, Spain, Germany) to as low as one-quarter (the UK). In most countries, this market income is mainly wages and salaries. In Taiwan, Russia, Ireland, and Finland, however, around one-third of market income is from other sources (eg farm and other business income), and in a number of countries these sources contribute around one-fifth of market income.

The right-hand panel of the table shows the taxes and transfers received by the bottom quintile. For some countries, wage income is recorded net of taxes, and we have no direct information on income tax. In these cases, the estimates of taxes and market incomes are placed in brackets, and the estimates in the 'tax and misc.' column refer solely to alimony/maintenance and miscellaneous incomes (in some cases, less social insurance contributions). In Russia and Poland private transfers from charities and relatives are of a significant size. (In Poland income from 'odd jobs' for non-workers is also included here.)

For most of the remaining countries, taxes and social insurance contributions (net of miscellaneous transfers) are small, as we might expect for the bottom quintile. The most notable exceptions are Denmark, the Netherlands, Finland, and Sweden, where taxes, plus social insurance contributions (less miscellaneous private transfers) range from 28 to 16 percent of disposable income. To the extent to which these represent timing discrepancies (eg high incomes in the previous year), it is possible that the low disposable incomes flowing from these payments are not indicative of low consumption levels.

To begin with, however, we focus attention on the two summary indicators of market and state contributions to household income shown in bold in Table 5.2. To what extent are variations in market incomes and net social transfers responsible for the observed variation across nations in the living standards of the poorest children?

The equations in (1) imply that the variance across countries of mean disposable income can be decomposed as

$V(DI) = V(MI) + V(NST) + 2C(MI,NST)$ and

$V(DI/m) = V(MI/m) + V(NST/m) + 2C(MI/m, NST/m)$

where $C(MI,NST)$ is the covariance between market income and net social transfers.

The variation of these different income components is shown graphically in Figures 5.2 and 5.3 and numerically in Table 5.3. The first figure shows the average market and transfer incomes for the poorest 20 percent of children in each of the 23 countries with recent LIS data (excluding Austria, where we cannot separately identify market incomes). The five transition countries have been separately identified with open diamonds.

As noted above, for seven countries (France, Italy, Luxembourg, Spain, Hungary, Poland, and Russia) only net incomes are available. This has little impact for the three transition countries, as income taxes were negligible or non-existent. For the others, if incomes in these countries were defined in the same way as for other countries, their data points in Figures 5.2 and 5.3 would be moved down and to the right. The bias is unlikely to be large, however, as taxes are likely to be a small component of net incomes for those in the bottom quintile.

Figure 5.2: *The income package of the poorest quintile of children*
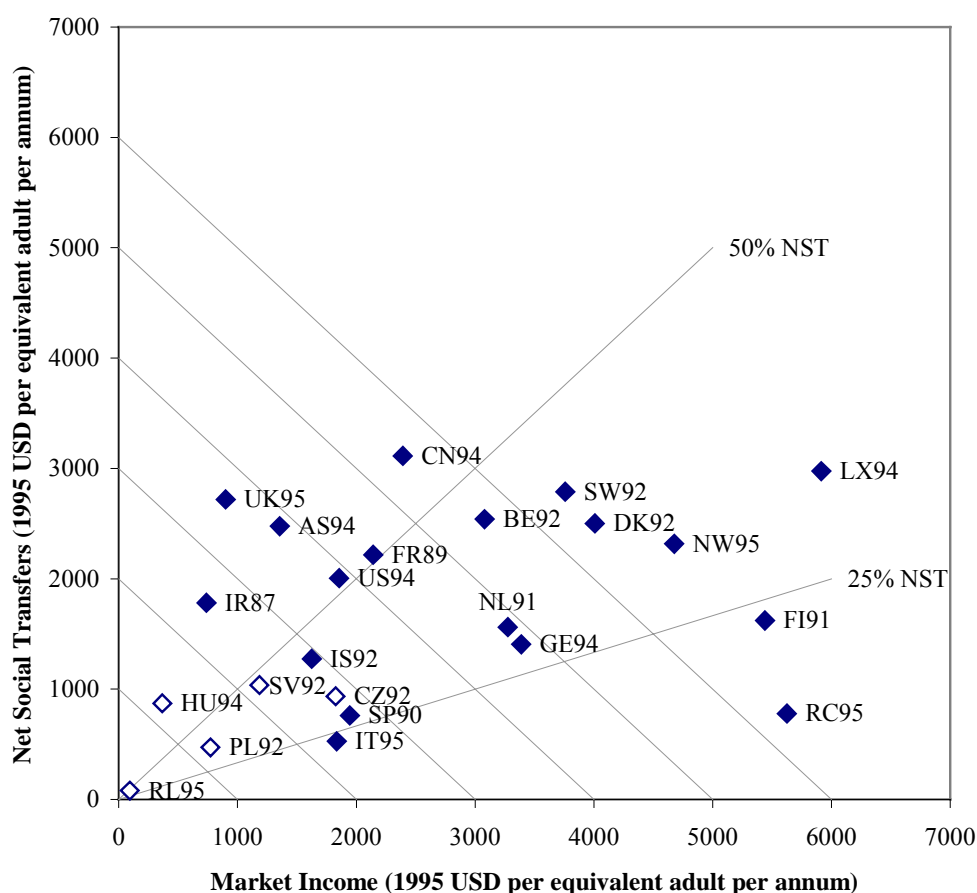
Since market income and net social transfers are defined to add up to disposable income, this can also be read directly from this figure. The lines running from top-left to bottom-right indicate contours of equal disposable income. The further is the diagonal band from the origin, the higher is the real

living standard of the most disadvantaged children (the estimates of equivalent disposable income can also be read directly from Table 5.2). In addition, the rays from the origin in the figures indicate the share of income received from the different sources, with lines corresponding to 25 percent and 50 percent of income from net social transfers shown.

Figure 5.3 shows the corresponding patterns for incomes relative to the median equivalent household income of children in each country. The further out from the origin is a country, the closer is the average living standard of the poorest one-fifth to the median living standard of children in their own country. The ranking of countries in this respect parallels the child median poverty results in Section 3, with the Nordic countries, joined by the Czech and Slovak republics, with relatively equal distributions of income among children.

Figure 5.3: *Relative income package of the poorest quintile of children*
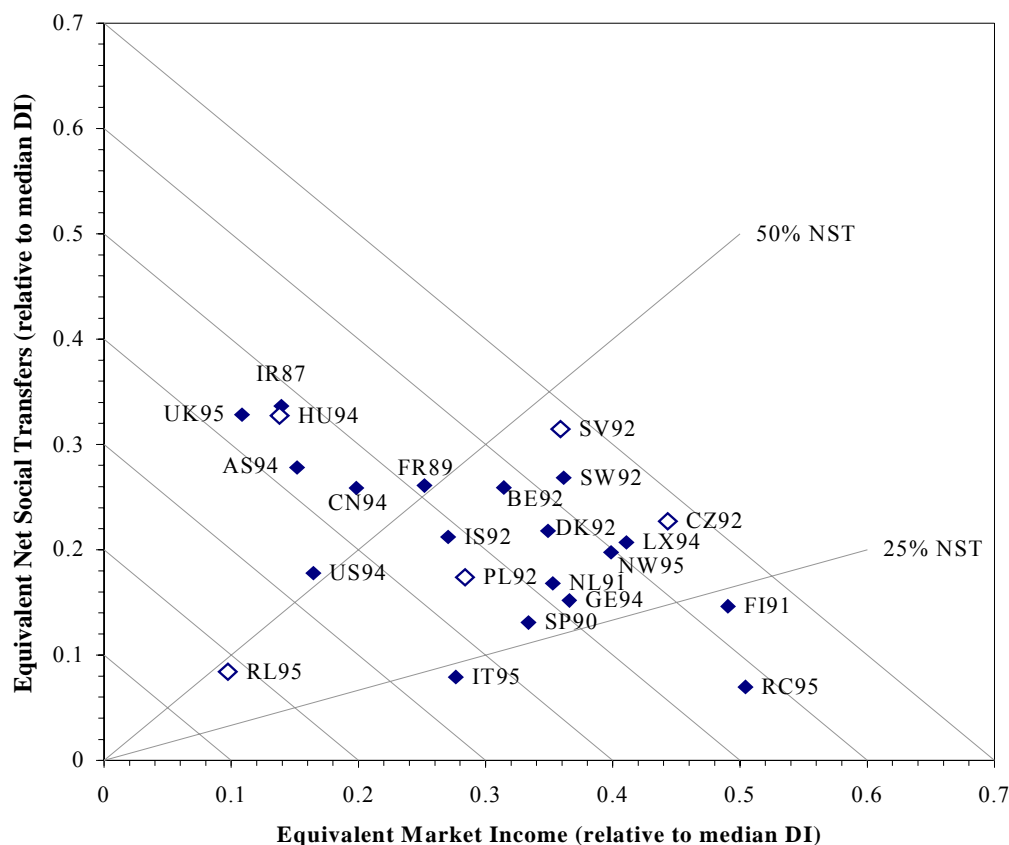
The most interesting feature of these figures, however, is the insight they provide into the source of this variation in absolute and relative disposable income. These patterns of variation are also summarised in Table 5.2a. This table shows the variance in market and social transfer incomes both real and relative to the median and for all countries and the non-transition (richer) countries separately.

Considering the variation in absolute living standards first, a number of features are evident. Most prominently, the variation in market incomes is much greater than the variation in social transfers (ie there is more horizontal than vertical spread in Figure 5.2). This variation in market incomes amounts to 60 or 77 percent of the total variation in disposable incomes (for all countries and the non-transition countries, respectively, see Table 5.2a). Across all countries, there is a positive correlation between market and transfer incomes. This reflects the fact that richer nations provide higher market incomes and can afford greater (net) social transfers. When we restrict attention to the richer nations, however, this correlation disappears.[16]

Table 5.2a: *Cross-national variance of market incomes, net social transfers and disposable incomes for the bottom quintile of children.*

	Mean	% of DI	Variance	% of Var(DI)	Correlation with DI
Real Incomes					
All countries					
Market income (MI)	2,530	60.0	2,822,235	59.8	0.93
Net social transfers (NST)	1,685	40.0	773,786	16.4	0.70
2x covariance of MI and NST			1,125,382	23.8	(0.38)a
Disposable income (DI)	4,215	100.0	4,721,403	100.0	1.00
Non-transition countries					
Market income (MI)	2,997	60.4	2,498,501	77.0	0.90
Net social transfers (NST)	1,965	39.6	594,239	18.3	0.48
2x covariance of MI and NST			153,910	4.7	(0.06)a
Disposable income (DI)	4,962	100.0	3,246,651	100.0	1.00
Incomes Relative to Median					
All countries					
Market income (MI)	0.29	58.1	0.0140	108.8	0.77
Net social transfers (NST)	0.21	41.9	0.0061	47.6	0.28
2x covariance of MI and NST			-0.0073	-56.4	(-0.39)a
Disposable income (DI)	0.51	100.0	0.0129	100.0	1.00
Non-transition countries					
Market income (MI)	0.30	59.2	0.0128	176.1	0.76
Net social transfers (NST)	0.21	40.8	0.0055	75.3	0.00
2x covariance of MI and NST			-0.0110	-151.4	(-0.66)a
Disposable income (DI)	0.51	100.0	0.0073	100.0	1.00

Notes: (a) Correlation between MI and NST. All incomes are in adult-equivalent terms.

In addition, there are wide disparities in the share of transfer income. At one extreme is Taiwan, where social transfers to families with children are very low, but levels of market income are high. At the other extreme are the English-speaking countries, where net transfers constitute more than half of

[16] Though if we examine social transfers only (ie ignoring the 'taxes and misc' column in Table 5.2), this correlation remains – mainly because of the changed position of Denmark and the Netherlands.

the income of the poorest children. Children in the remaining countries generally receive between 25 and 50 percent of their income from social transfers.

When we look at income relative to the national child median, the picture changes in some respects. Though the income share patterns described above do not alter (by definition), other aspects of the distribution change substantially. In presenting incomes relative to the median, we hold national income constant, and so this permits a closer focus on the inequality of child living standards within each country (more specifically, the difference between the bottom quintile and the middle).

With incomes measured in relative terms, Table 5.2 shows a substantial negative correlation between market and transfer incomes for the bottom quintile (-0.39 and -0.66, for all and non-transition respectively). In other words, in countries where the families of the most disadvantaged children have market incomes that are well below average, there tends to be a higher level of social transfers. There are at least two interpretations possible for this correlation. One is the behavioural-response hypothesis: high levels of social transfers to the most disadvantaged suppress their labour supply. The other is that in countries where markets lead to substantial child poverty there is a policy response to alleviate this.

Whatever the cause of this correlation, the outcome is that the cross-national variation in disposable income (relative to the median) is less than the variance in market incomes. In terms of the causal mechanisms hypothesised in the previous paragraph, this can be interpreted two ways. One interpretation is that social transfers alleviate the dispersion in poverty rates arising from the market. The other is that market incomes adjust to more than offset the patterns of social transfers. Given that the latter would imply an extremely strong (and unlikely) behavioural response, we conclude that the variation in social transfers across nations does reduce the cross-national variation in poverty at least to some degree.

Examining Figure 5.3, one can see that the two outliers in this correlation between market incomes and social transfers, among the richer nations, are the US and Italy, which both have very low relative disposable incomes for the bottom fifth of their children.

The other English-speaking countries provide an interesting illustration of the strength of the correlation between social and market incomes and the wide variation in the latter. While the US has the highest relative child poverty rate among the non-transition countries, the other English-speaking countries also have high poverty rates (see Table 3.3). Yet these countries, as a group, have a relatively high level of social transfers going to their most disadvantaged children.

Indeed, if we use as our 'poverty' index the average income of the poorest 20 percent of children relative to that of the median child (justifiable as an approximation in the light of the strong correlation with more conventional measures of poverty), we can use Figure 5.3 to describe some results using a counterfactual simulation that is the opposite to that commonly utilised. If the poorest 20 percent of children were forced to rely only upon the social transfers that their families were receiving at the time of these surveys, then the relative poverty rates in Ireland, the UK, Hungary, the Slovak Republic, and Australia would all be *lower* than those in Sweden. In fact, however, it is the high *labour market* earnings of Swedish parents that ensure high living standards for their most disadvantaged children.

It is particularly interesting to contrast the distinctive pattern for the English-speaking countries found here (low market, high transfers) with the pattern of social expenditures shown in Figure 5.1, where they have relatively low levels of social transfers. The difference is because a larger fraction of transfers are targeted to low-income families (and particularly families with dependent children) in these countries.

It has been argued by many that this targeting can be counter-productive for the poor as it may erode middle class political support for the welfare state and hence reduce the total funds available for transfers. The higher level of poverty in the English-speaking countries could be seen as providing some support for this proposition.

However, the data here also suggest a different interpretation. In the English-speaking countries, with the prominent exception of the US, social transfers to the families of the poorest one-fifth of children are quite substantial. Instead, the reason for their high level of child poverty lies in the low levels of *market* incomes received by the most disadvantaged families. As noted above, one explanation for this is that these targeted transfers reduce labour supply. Alternately, the causality may spring from broader aspects of the labour market environment in these countries.

We conclude this section with some sensitivity testing of these results. It is possible that the patterns we describe above are a reflection of the different demographic patterns in the different countries, or possibly income measurement problems. As was noted in Section 3, the countries in this study have different rates of sole parenthood, and the relative poverty risk associated with sole parenthood also varies significantly. The interaction of these factors with the greater likelihood that sole parents will receive social transfers is one reason why social transfers vary between countries.

However, we find little evidence that variations in family composition are responsible for the patterns described here. Table 5.3 shows the variation in the household composition of the poorest one-fifth of children. There is a

weak tendency for countries that have more children living with their lone-mother to have a lower market income share.

Table 5.3: *Household composition of the poorest one-fifth of children in each country*

		Lone mother	Two parent	Other (larger households)
Taiwan	1995	0.04	0.48	0.48
Italy	1995	0.03	0.71	0.26
Finland	1991	0.13	0.73	0.14
Spain	1990	0.04	0.57	0.39
Germany	1994	0.26	0.60	0.14
Netherlands	1991	0.23	0.71	0.06
Norway	1995	0.29	0.58	0.12
Luxembourg	1994	0.11	0.69	0.20
Czech Republic	1992	0.17	0.71	0.12
Poland	1992	0.03	0.67	0.30
Denmark	1992	0.31	0.60	0.09
Sweden	1992	0.23	0.75	0.03
Israel	1992	0.06	0.69	0.25
Belgium	1992	0.14	0.70	0.16
Russia	1995	0.09	0.59	0.32
Slovakia	1992	0.09	0.75	0.16
France	1989	0.15	0.64	0.21
United States	1994	0.39	0.34	0.27
Canada	1994	0.29	0.55	0.16
Australia	1994	0.21	0.62	0.17
Hungary	1994	0.05	0.61	0.35
Ireland	1987	0.05	0.84	0.10
United Kingdom	1995	0.35	0.57	0.08

Countries sorted by market income share

Source: Authors' calculations from LIS.

Figure 5.4 therefore controls for this family composition effect by only including those children in the bottom quintile who were also in two-parent families. In broad terms, the picture is similar to that in Figure 5.3, though, not surprisingly, there is a shift towards a greater share of income being received from the market. Market incomes still play the main part in living standard variations, and the relative locations of the different countries are still much the same.

Figure 5.4: *Relative income package of children in two parent families and in the bottom quintile*
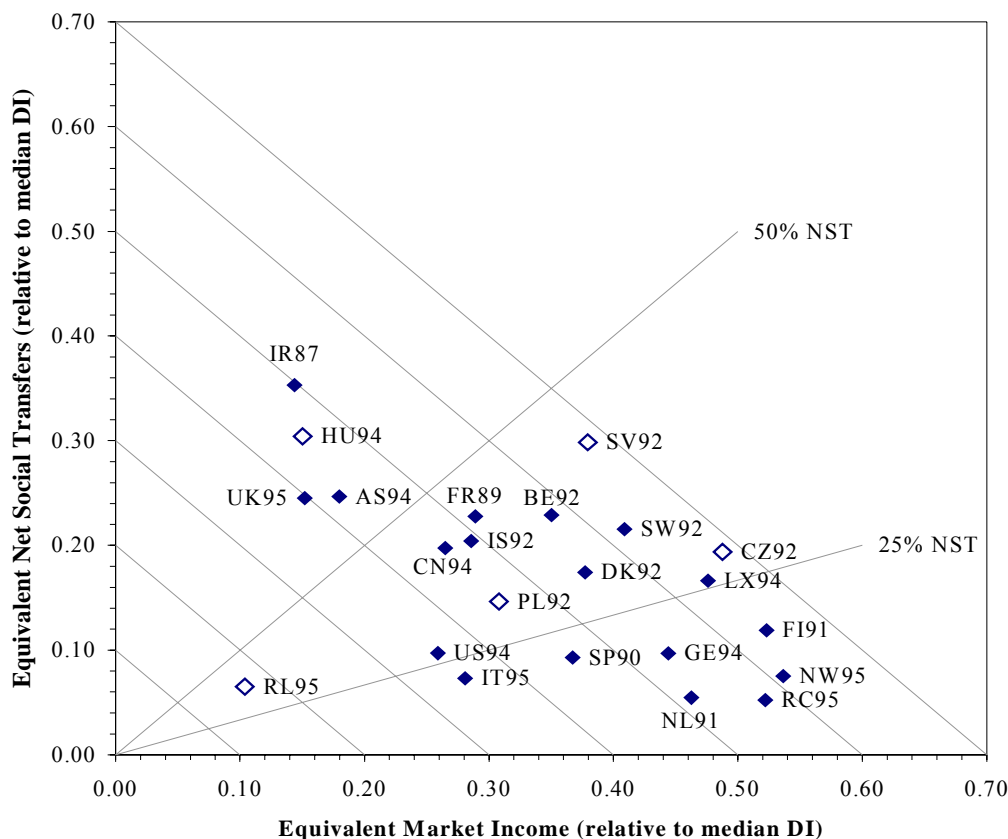
6. Conclusions

Why is there so much variation in rates of child poverty across nations? These results begin to tell us where we should begin to look for an answer, and where we need not look.

Child poverty, whether measured in relative or real terms, varies widely across the industrialized countries. Our results, based on the latest available LIS data for early to mid-1990s are, in most cases, in line with earlier studies. Nordic and Northern European countries have low rates of child poverty, whereas Southern European and English-speaking countries tend to have high rates. While the ranking within the richer group of countries differs between the relative and 'absolute' approaches, the broad grouping is not all that different. The poverty ranking of most of the transition economies in LIS, on the other hand, depends very much on this distinction. We remain skeptical, however, of the extent to which the purchasing power parity adjusted exchange rates correctly reflect the real living standards in these countries.

Across the whole spectrum of industrial countries considered here, those with higher levels of national income do tend to have lower real poverty rates.

A significant deviant from this relationship is the US, which has a much higher level of child poverty than its national income would suggest.

Children are generally more likely to be poor if living with a lone mother, but variations in rates of lone motherhood are not an important reason for the variations in child poverty across countries. Children are in most cases more likely to be poor (on our definitions) than another traditionally vulnerable group, the elderly, but also here there is large variation across countries.

Although our measurement methods are necessarily imperfect, the general patterns of poverty variation across nations do seem robust. Even though non-income factors such as household saving patterns and, most importantly, non-cash benefits are important for the living standards of children, they appear to add little to our income-based knowledge of the child poverty 'leaders and laggards'.

What explanations, then, seem worth examining further? Clearly, income transfers and the other services of the welfare state are very important for the living standards of poor children, and these have been the focus of much previous research on child (and adult) poverty. Those countries which are 'welfare leaders' tend to have low poverty rates, while the 'welfare laggards' have much higher child poverty rates. The historical, political and economic developments that have led to the different structures of welfare state institutions have been and continue to be a fertile ground for comparative research. An understanding of these processes must be a central part of any attempts to reduce child poverty in the industrialized world.

However, social transfers are only one part of the income package of the families of poor children. Market incomes are also important and indeed play a larger role than state transfers in accounting for the diversity of child poverty outcomes across nations.

In this context, the English-speaking countries stand out. Even though they are usually categorised as 'welfare laggards' because of their low aggregate levels of social expenditures, the tight targeting of this expenditure means that in most cases they actually provide quite substantial income transfers to their most needy children (the US is the exception). The living standards of these children, however, remain relatively low because of low labour market incomes. The higher living standards of the most disadvantaged children in the 'welfare leaders' (particularly the Nordic countries) is due to the higher *market incomes* in these families. Whether this is because of different labour market and family support policies (such as childcare subsidies), because of the different incentive structures imposed by different targeting patterns, or other factors, remains to be seen.

However, these results do suggest that an understanding of child poverty variation requires serious attention to be devoted to labour market environments and outcomes. One starting point for such an investigation

might be the variation in market incomes observed in Figures 5.2 and 5.3. There, the contrast between the English-speaking and 'European' model of income packaging is quite noticeable. It would appear that despite, or perhaps because of, their well-known rigidities, continental European labour markets do a better job in providing resources to the most disadvantaged children. The reasons for this are likely to be found in both employment and wage rates (for both mothers and fathers), as well as in other factors such as household composition and self-employment patterns. Assembling the full picture of the sources of income variation is not a trivial task given our available data, but it would seem a valuable task.

It appears to us, in conclusion, that policy-makers who are seriously concerned about the economic well-being of their countries' children, need to closely and critically examine the answer to this question: Which features of labour markets best protect the living standards of children?

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Appendix: Purchasing Power Parity Indices and Cross-National Poverty Comparisons

A purchasing power parity (PPP) index is similar to the price indexes used to compare incomes at different points in time. Rather than comparing across time, however, it seeks to compare the costs of consuming some representative bundle of goods in different countries. In this paper we use PPP estimates for GDP derived (for most countries) by the OECD and Eurostat for either 1993, or 1995 (for Taiwan and Israel we use data from the Penn World Tables). These estimates have then been adjusted to provide indices for other years using the National Accounts implicit price deflator for GDP. The matrix of price deflators used to compare incomes in different years and countries are shown in Table A1 (only estimates from 1987 onwards are shown).

The four Australian surveys record incomes for July-June financial years. In this case we average the PPP indices for the two relevant years as follows: AS81 (1981,1982), AS85 (1985,1986), AS89 (1989, 1990), AS94 (1993, 1994). (Note the different naming convention for AS94).

There are many limitations associated with the use of PPPs. First, PPPs share all the problems of inter-temporal price indices: different population groups have different consumption patterns and so may face different average prices; the goods priced may not be of comparable quality in different time periods (or countries), and the fixed weight indices do not take account of changes in consumer behaviour (substitution effects). Though these taste and substitution problems are common to both inter-temporal and cross-national price indices, they may well be more significant across countries than over time.

Second, in deriving PPPs, statisticians must deal with a number of practical issues that are not encountered when calculating inter-temporal indices. For example, variations in prices within countries can be easily controlled with inter-temporal indices (by repeatedly sampling from the same or similar location), but this cannot be done with cross-country comparisons. Finally, PPPs have so far been developed on a more limited basis than have inter-temporal indices. For the latter, separate price indices for national production (GDP deflators) and consumer prices (CPI indices) are commonly available. The most commonly available PPPs on the other hand are only directly applicable to the measurement of the real value of total national production (as indicated by the SNA measure of GDP).

Table A1: *Purchasing power parities for GDP (US 1995=1)*

	1987	1988	1989	1990	1991	1992	1993	1994	1995
Australia	1.06	1.15	1.22	1.26	1.28	1.30	1.31	1.34	1.34
Austria	11.05	11.22	11.54	11.92	12.40	12.91	13.35	13.80	14.10
Belgium	29.57	30.11	31.57	32.52	33.39	34.57	35.98	36.93	37.70
Canada	1.01	1.05	1.10	1.14	1.17	1.18	1.20	1.20	1.24
Czech Republic	4.59	4.67	4.56	5.00	7.36	8.67	10.08	11.19	12.21
Denmark	7.11	7.35	7.67	7.87	8.05	8.29	8.36	8.51	8.63
Finland	4.55	4.87	5.16	5.47	5.61	5.65	5.78	5.83	6.01
France	5.44	5.60	5.77	5.94	6.14	6.27	6.42	6.51	6.62
Germany	1.61	1.64	1.68	1.74	1.81	1.91	1.98	2.03	2.07
Hungary	16.79	19.78	23.58	29.33	37.66	45.77	55.50	66.32	82.28
Ireland	0.54	0.56	0.59	0.59	0.60	0.61	0.63	0.64	0.65
Israel	1.15	1.39	1.64	1.89	2.27	2.58	2.81	3.14	3.44
Italy	1,024	1,092	1,160	1,248	1,344	1,404	1,464	1,517	1,589
Luxembourg	27.28	28.63	30.51	31.22	32.61	34.23	37.65	38.99	39.80
Netherlands	1.77	1.80	1.82	1.86	1.91	1.95	1.99	2.04	2.08
Norway	7.55	7.88	8.35	8.70	8.93	8.89	9.12	9.15	9.37
Poland	83.63	141	560	2,975	4,586	6,387	8,349	10,778	1.37
Russia	0.489	0.505	0.531	0.619	1.415	22.7	222	934	2,717
Slovakia	5.45	5.54	5.69	6.09	8.22	9.26	10.62	12.15	13.24
Spain	79.40	83.89	89.79	96.35	103	110	115	119	125
Sweden	6.68	7.12	7.68	8.36	9.01	9.11	9.34	9.60	9.97
Switzerland	1.63	1.67	1.74	1.83	1.93	1.99	2.03	2.05	2.06
Taiwan	17.3	17.4	18.0	18.7	19.4	20.2	20.9	21.3	21.7
UK	0.46	0.49	0.52	0.56	0.59	0.62	0.64	0.65	0.67
USA	0.78	0.81	0.85	0.88	0.92	0.94	0.96	0.98	1.00

This index (PPP for GDP) is less than ideal for the measurement of household living standards for a number of reasons which are additional to the general issues listed above. First, the index includes price indices for capital goods (eg factory construction costs), which do not directly affect consumer living standards. In practice, however, this probably introduces only a small bias. The OECD has calculated PPP indices which only include those items consumed by households (an 'Individual consumption by households', or ICH, index). This index generally provides a similar estimate to the GDP estimate of PPP. (See Brungger, 1996). This ICH index also excludes government collective expenditures such as military expenditure and public infrastructure. Ideally, one might wish to see some, but not all, of these components included when looking at the cost of maintaining a given living standard.

A more serious omission is the way in which the price indices are generated for those components of personal consumption where there is substantial government production of services. An important example is health care. The price index for health care (in the OECD and other PPP

calculations) is derived by comparing measures of input (national expenditure) with indicators of output such as the number of doctors and nursing staff. This thus provides an (albeit imperfect) indicator of the total cost of producing health services in a given country.

However, the *allocation* of the cost of health care differs substantially between countries. In many industrialized countries, the bulk of health care costs (particularly hospital costs) is met by the state. The US, on the other hand, has a system that is quite different. Many low-income families receive state provided health services (of varying quality across states); many middle and high income families have services provided by their employer, while many other households meet their own costs (sometimes via private insurance). Other countries, such as Australia and the UK, have a mix of public and private provision (though most provision is public). While one would not wish a PPP for GDP to take account of these variations in costs, this would be desirable for PPPs used to assess the real value of household cash incomes. The OECD also publishes an additional PPP indicator for "Private final consumption expenditure". This weights the individual price indices by the average (across countries) of the share of household expenditure on different commodities. This thus takes account of the fact that, across all countries, households spend a relatively low share of their total expenditure on health care compared to their actual consumption of health care services. However this does not take account of the *variations* in this health expenditure share between countries (nor the variations across income levels).

A preferred approach to the measurement of these variations in in-kind benefits between countries (and across income levels) would be to include these benefits in the measure of household consumption. Then it would be appropriate to use the ICH PPP index to compare these total incomes between countries (for which the GDP PPP index used here is a close approximation). An alternative approach might be to subtract actual household expenditures on education and health from their incomes, and calculate a PPP based on those components of consumption where there are not significant in-kind benefits (Castles, 1996). In the absence of these more comprehensive (or symmetrically restricted) measures of household consumption, it is necessary to be particularly cautious in interpreting any estimates of absolute poverty rates.

Implications

The implications of this discussion for the comparison of absolute poverty rates between countries can be summarised as follows.

For those countries where in-kind benefits for people near the poverty line are larger than the average across all countries, absolute poverty rates will be

overstated (compared to the average across countries). This is because they actually face a lower price level than the GDP PPP suggests, as goods such as health care or education are cheaper for these households.

This limitation associated with the GDP PPP is the mirror image of the non-cash income issues discussed in Section 4. Ultimately, data collected to calculate non-cash incomes could also be used to calculate more appropriate PPPs to be used when comparing household cash incomes.

This lack of information on non-cash incomes biases both the relative and the absolute measures of poverty - though in different ways. For absolute poverty lines, bias in cross-country comparisons will occur when non-cash incomes constitute a different proportion of cash incomes for families near the poverty line in the different countries.

For relative poverty lines, the bias due to the existence of in-kind incomes will depend on both the in-kind incomes received by low-income families and the in-kind incomes received by the median family. Generally, in-kind incomes will form a larger percentage of low-income families' incomes, and so poverty will be overestimated (if the 50% rule is held fixed). Poverty comparisons between countries, however, will only be biased if this difference between low- and middle-income families also differs between countries

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