Child poverty across industrialized countries[1]

Markus Jäntti , Bruce Bradbury

1. Introduction

This paper presents evidence on variations in child poverty across the industrialized world and assesses the contributions of family structure, state transfers and market incomes to this variation. The results here are mainly based on data from the Luxembourg Income Study (LIS), supplemented by data for Japan (which is not a member of LIS) and some recent observations for LIS countries obatined from other sources.[2] LIS covers some 26 industrialized countries, many of which with information for several years. The objective is look at the general patterns of variation in child poverty outcomes across the industrialized world. We here only examine OECD countries (although the LIS does not include some, such as New Zealand and Portugal, which are excluded from our analysis). The latest (and only) observation of child poverty in Japan is for 1992, so we use data from the mid 1990s for the LIS countries.

From previous research on child poverty, a number of important themes emerge Cornia & 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 Rainwater & Smeeding (1995).

We present estimates of child poverty using different approaches to the definition and measurement of poverty. In general, our conclusions based on data from the mid-1990s are in line with the conclusions of earlier research. Relative child poverty rates, are high in those countries that have a wide dispersion of income and high relative poverty rates. The association between child poverty and overall inequality and poverty is far from perfect, however. Across the whole spectrum of countries, real (constant international price) poverty does tend to increase with national incomes. Many industrialized countries have very close levels of national income but display the full variation of real child poverty, which suggests there is more to "absolute" living standards than income per capita. Likewise, countries with similar levels of national income and of child poverty, as measured by the proportion of poor children, face very different costs of reducing child poverty, measured as the aggregate child poverty gap. Family structure, the

[1] The authors are greatly indebted to John Micklewright and Stephen Jenkins for numerous discussions of the subject matter of this paper. This authors would also like to thanks Brian Nolan, Timothy Smeeding, Jiri Vecernik and Koen Vleminckx for providing data and assistance in understanding it. The work reported here has been supported in part by the Unicef Innocenti Research Center, Florence.

[2] 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/.

only "covariate" of poverty we consider here, accounts for very little of the cross-country differences while the public sector makes a large difference, at least in terms of the difference in pre-tax, pre-transfer market income and post-tax, post-transfer disposable income.

The paper is structured as follows. Section 2 discusses methods for measuring income and poverty. The results are shown in the rest of the sections: Section 3 shows relative child poverty, Section 4 child poverty relative to a common real international standard. Sections 5 and 6 contrast child poverty to overall poverty and inequality, while Section 7 breaks poverty down by poverty in lone-parent and two-parent households. Sections 8 and 9 examine the public-policy related issues of how large is the difference between market income and disposable income poverty and how much would it cost, in terms of market income, to close the poverty gap. Section 10 offers some concluding comments.

2. Income data and methods for measuring poverty

We examine child poverty as measured by the low-income status of their households. This does not capture all aspects of child poverty or more broadly child deprivation, nor is it intended to do so.[3] While all areas of the deprivation of children are highly relevant, there are good reasons to study the income position of children in particular, including the fact that money income is a central vehicle for generating economic well-being in modern industrialized countries and that income data are readily available.

Three major decisions that must be made in any poverty study concern the measure of resources, the choice of sharing unit (e.g. within nuclear families or within households) and the equivalence scale (the needs of different types of sharing units). There is a very large literature that addresses these issues (see e.g. Jäntti & Danziger, 2000; Gottschalk & Smeeding, 1997; Jenkins & Lambert, 1993) . Our choices on these matters are fairly standard, limited in part by the structure of the data available to us.

Our measure of resources is annual[4] disposable income. This includes market incomes and government cash transfers, and deducts income taxes and compulsory social insurance contributions. Whilst this is not a comprehensive indicator of the resources available to the families of children (eg it excludes non-cash services) it remains the best available indicator of cross-national variations in living standards. These issues of the appropriate resource measure (and the role of non-cash benefits in particular) are discussed in more detail in Bradbury & Jäntti (1999). For a recent treatise on the measurement of income, see Export Group on Household Income Statistics (The Canberra Group) (2001).

We assume resources are shared within households and define every person in the household to have the same poverty status. This definition is the one that is most commonly available across our countries. The exceptions to this is Sweden, where the source data are limited to tax units, corresponding to nuclear

[3] The approach of this paper rests on work done for the UNICEF (Bradbury & Jäntti, 1999,2001,2000). See also UNICEF (2000), available at http://www.unicef-icdc.org/research/ESP/CIIC1.html.

[4] Except in the UK, where current income is used.

families of parents and their dependent children. In these two countries, adult children and lone parents living with their parents are treated as separate units.

Children are defined to be persons who are 17 years old or younger. Their economic resources are measured by allocating to each child the income per equivalent adult, calculated by dividing household cash disposable income by the square root of household size. This is a common choice of equivalence scale in international comparisons. An alternative, used by Jenkins & Cowell (1994) and also recommended for use by the US National Science Foundation Poverty Commission National Research Council (1995), associates children with lower needs than adults and then uses a power of the number of adult equivalents to standardize for economies of scale. Bradbury & Jäntti (1999) examine this issue at some length. This difference is not very important for ranking countries by level of child poverty.

The literature on poverty measurement has typically used two types of poverty threshold: absolute and relative poverty lines. Absolute , or more properly, fixed real price 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 (eg half median income).

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.

The use of the median 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 at the two extremes of the income distribution are likely to be more frequent, the median is a more robust measure of central tendency than the mean.

Though the comparison of real living standards across countries requires the use of 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 that were spread (proportionately) evenly across the population.

Both relative and real provide important insights into the way the living conditions of the most disadvantaged children vary across countries. Relative poverty is measured by estimating the proportion of children whose economic resources are less than one half of the median of adjusted disposable income in their country in the year of the survey. We also measure poverty defined in an internationally comparable metric, Purchasing Power Parity-adjusted (PPP) international 1995 dollars, relative to the US official poverty line for a family of

four. This is currently only available for the LIS countries listed in Table 1.

Table 1: Data sources

Country	Year	LIS	Source
Australia	1997	AS97	UNICEF
Belgium	1992	BE92	LIS
Canada	1994	CN94	LIS
Czech Republic	1996	CZ96	UNICEF
Denmark	1992	DK92	LIS
Finland	1995	FI95	LIS
France	1994	FR94	LIS
Germany	1994	GE94	LIS
Greece	1994	GR94	Oxley et al. (1999)
Hungary	1994	HU94	LIS
Ireland	1997	IR97	UNICEF
Italy	1995	IT95	LIS
Japan	1992	JP92	Smeeding (1997)
Luxembourg	1994	LX94	LIS
Mexico	1994	ME94	Oxley et al. (1999)
Netherlands	1994	NL94	LIS
Norway	1995	NW95	LIS
Poland	1992	PL92	LIS
Spain	1990	SP90	LIS
Sweden	1995	SW95	LIS
Turkey	1994	TU94	Oxley et al. (1999)
United Kingdom	1995	UK95	LIS
United States	1997	US97	LIS

The following tables and figures use information based on calculations by Brian Nolan and Jiri Vecernik for UNICEF (Czech Republic and Ireland), Smeeding (1997) (Japan), Oxley et al. (1999) and our own estimates the Luxembourg Income Study (LIS), as detailed in Table 1.

3. Relative child poverty

We have ranked altogether 26 OECD countries for which data are available by the proportion of children below one half of the overall median of disposable income, our measure of relative child poverty, shown in Table 2. The

proportion of children who are estimated to be poor ranges from one in 50 (2 percent) in the Slovak Republic to more than one in four (26.2 percent) in Mexico. More than one in five children (22.4 percent) are poor in the United States, the second richest country in this league but has the third highest rate of child poverty. The likelihood that a randomly chosen child in Italy is poor is also more than on in five (20.5 %), while it is just below that in the United Kingdom (19.8 %) and Turkey (19.7 %). Roughly on in six children are poor in Ireland (16.8 %) and Canada (15.5 %), while a little less than on in eight are poor in Greece (12.3 %), Spain (12.3 %) and Japan (12.2 %). More than one in ten children are poor in the following two countries in this league, Germany and Hungary.

Table 2: Proportion of children below half overall adjusted median

Country	Year	LIS code	Poverty rate	Rank
Mexico	1994	ME94	26.2	(1)
United States	1997	US97	22.4	(2)
Italy	1995	IT95	20.5	(3)
United Kingdom	1995	UK95	19.8	(4)
Turkey	1994	TU94	19.7	(5)
Ireland	1997	IR97	16.8	(6)
Canada	1994	CN94	15.5	(7)
Australia	1997	AS97	12.6	(8)
Greece	1994	GR94	12.3	(9)
Spain	1990	SP90	12.3	(10)
Japan	1992	JP92	12.2	(11)
Germany	1994	GE94	10.7	(12)
Hungary	1994	HU94	10.3	(13)
Poland	1992	PL92	8.4	(14)
France	1994	FR94	7.9	(15)
Netherlands	1994	NL94	7.7	(16)
Czech Republic	1996	CZ96	5.9	(17)
Denmark	1992	DK92	5.1	(18)
Luxembourg	1994	LX94	4.5	(19)
Belgium	1992	BE92	4.4	(20)
Finland	1995	FI95	4.3	(21)
Norway	1995	NW95	3.9	(22)
Sweden	1995	SW95	2.6	(23)

One out of twelve children in the next country, Poland (ranked 14th, 8.4 %), are poor, while France and the Netherlands have a little fewer than 8 percent (7.9 and 7.7 %) of their children in poverty. The child poverty rate in the Czech Republic is 5.9 % and 5.1 % in Denmark, translating to around one in twenty children whose standard of living is less than one half of that of the average person. Luxembourg, the richest country in our league, has 4.5 % of its children in poverty, with Belgium and Finland close with 4.4 and 4.3 %. Norway has just under one out of every 25 children in poverty (3.9 %) while one out of every 40 children is poor in Sweden.[5]

The relative child poverty league table suggests that those countries that are less developed (in the sense of having low income per capita), are large (and possibly therefore are ethnically and culturally heterogeneous) and/or English-speaking are more likely to have children in poverty, while small, fairly highly developed and/or (northern or central) European are likely to have fewer of their children in poverty.

A common objection to measuring poverty relative to the average standard of living in a society is that this is more akin to the measurement of relative inequality than to the standard of living. This objection is presently addressed both by examining the poverty ranking of countries relative to a common poverty line defined in a comparable income metric and by explicitly examining the claim that relative child poverty measures inequality rather than poverty.

4. Child poverty relative to PPP-adjusted US poverty line

Table 3 shows the proportion of children with income less than the US official poverty line (USD 8832 per equivalent adult) in 22 countries, ordered by the level of Purchasing Power Parity (PPP) adjusted Gross National Product *per capita*, along with their rank placement in this league. Figure 1 plots the same information.

Looking at the scatter plot of the proportion of children below the US poverty line against GNP per capita does suggest that having higher income does reduce the likelihood of poverty. Excluding the transition countries makes this negative relationship far less steep, and the large variation in child poverty in the countries with incomes close together but large variation in child poverty suggests that there is far more to child poverty than average income.

Table 3 and Figure 1 demonstrate that also poverty measured in terms of a real income standard and inequality are related. The richest country in the league table, Luxembourg, has only 1.2 percent of its children below the US poverty line. One in seven, or 13.9 percent of US children have a standard of living that is less than the poverty line, giving the US, the second richest country in the table, the tenth place in this ranking.

[5] It should be noted, however, that the statistical reliability of our low end estimates is likely such that countries only a few percentage points apart are likely not distinguishable in the sense of statistical significance.

Table 3: Proportion of children below US poverty line (PPP-adjusted dollars)

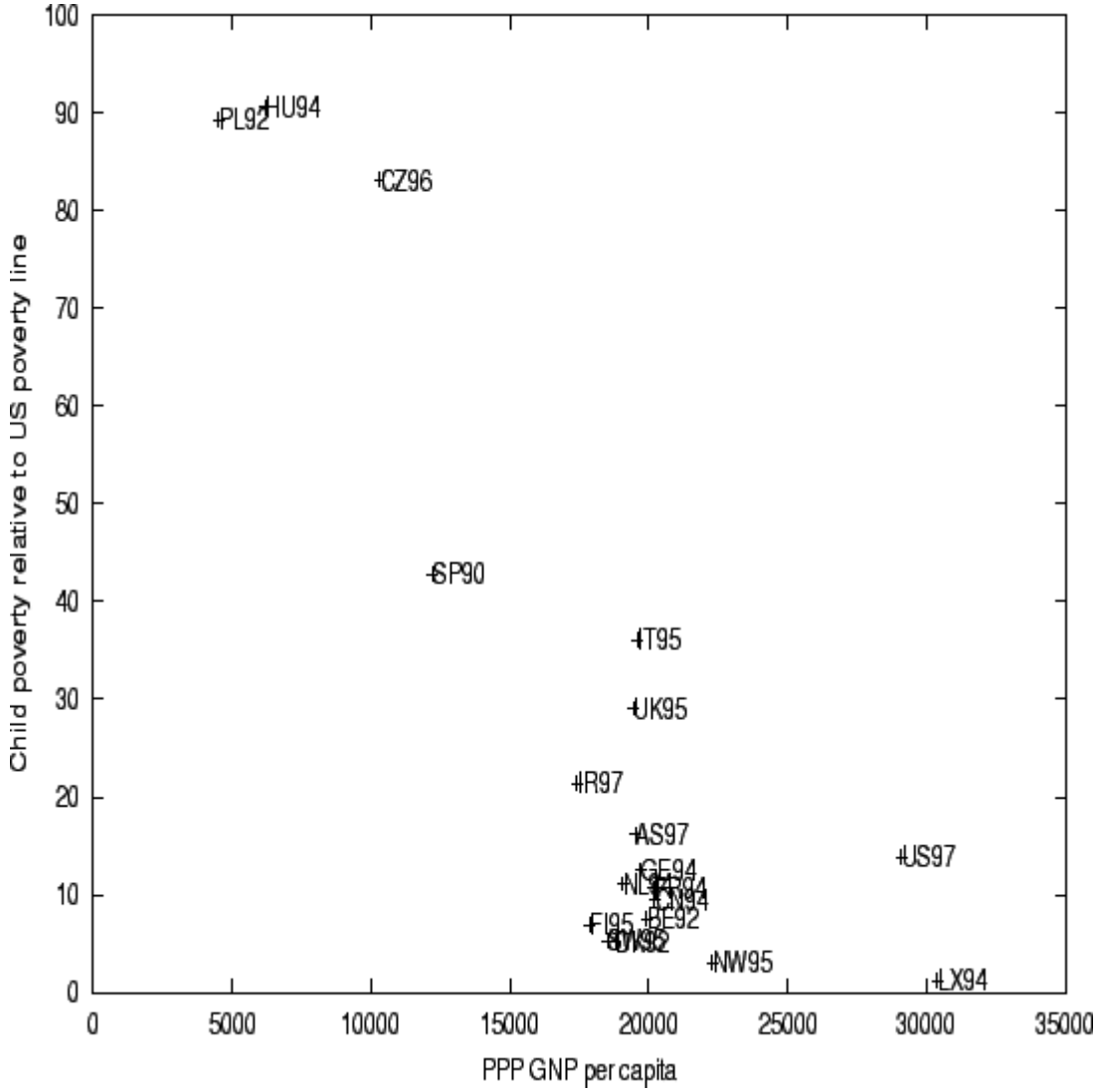
Country	Year	LIS code	Poverty rate	Rank
Poland	1992	PL92	89.2	(2)
Hungary	1994	HU94	90.6	(1)
Czech Republic	1996	CZ96	83.1	(3)
Spain	1990	SP90	42.8	(4)
Ireland	1997	IR97	21.4	(7)
Finland	1995	FI95	6.9	(15)
Sweden	1995	SW95	5.3	(16)
Denmark	1992	DK92	5.1	(17)
Netherlands	1994	NL94	11.1	(11)
United Kingdom	1995	UK95	29.1	(6)
Australia	1997	AS97	16.2	(8)
Italy	1995	IT95	36.1	(5)
Germany	1994	GE94	12.5	(10)
Belgium	1992	BE92	7.5	(14)
France	1994	FR94	10.7	(12)
Canada	1994	CN94	9.5	(13)
Norway	1995	NW95	3.0	(18)
United States	1997	US97	13.9	(9)
Luxembourg	1994	LX94	1.2	(19)

The transition countries that are included in the table, namely Poland, Hungary and the Czech Republic, have very high poverty rates measured using this real international standard.

Spain and Ireland, 4th and 5th in the GNP per capita ranking, top the non-transition countries in this poverty ranking, with around two out of every five children enjoying a living standard that is less than the US poverty line. Finland, in 6th place in terms of GNP per capita, with 6.9 percent of Finnish children at risk of being poor relative to the US official poverty line, almost exactly half the risk that the a randomly chosen US child is poor. Indeed, inspecting Figure 1, many countries are very close in terms of GNP per capita. Of the countries between Finland, at 6th place with 17.880 USD in GNP per capita, and Norway, the third richest country, with 22.270 USD, the proportion of children with incomes lower than the US official poverty line varies from 36.1 percent in Italy, putting it in 4th highest rank after Spain, to Norway's 3.0 percent. Australia, having the 10th lowest GNP p.c., has more than one out of every five children poor while Sweden and Denmark, 11th and 12th lowest in the GNP p.c. ranking,

has just over one out of 20 children poor measured against the US poverty line.

Figure 1: Proportion of children below US poverty line by GNP *per capita* (in PPP-adjusted dollars)



5. Relative child and overall poverty

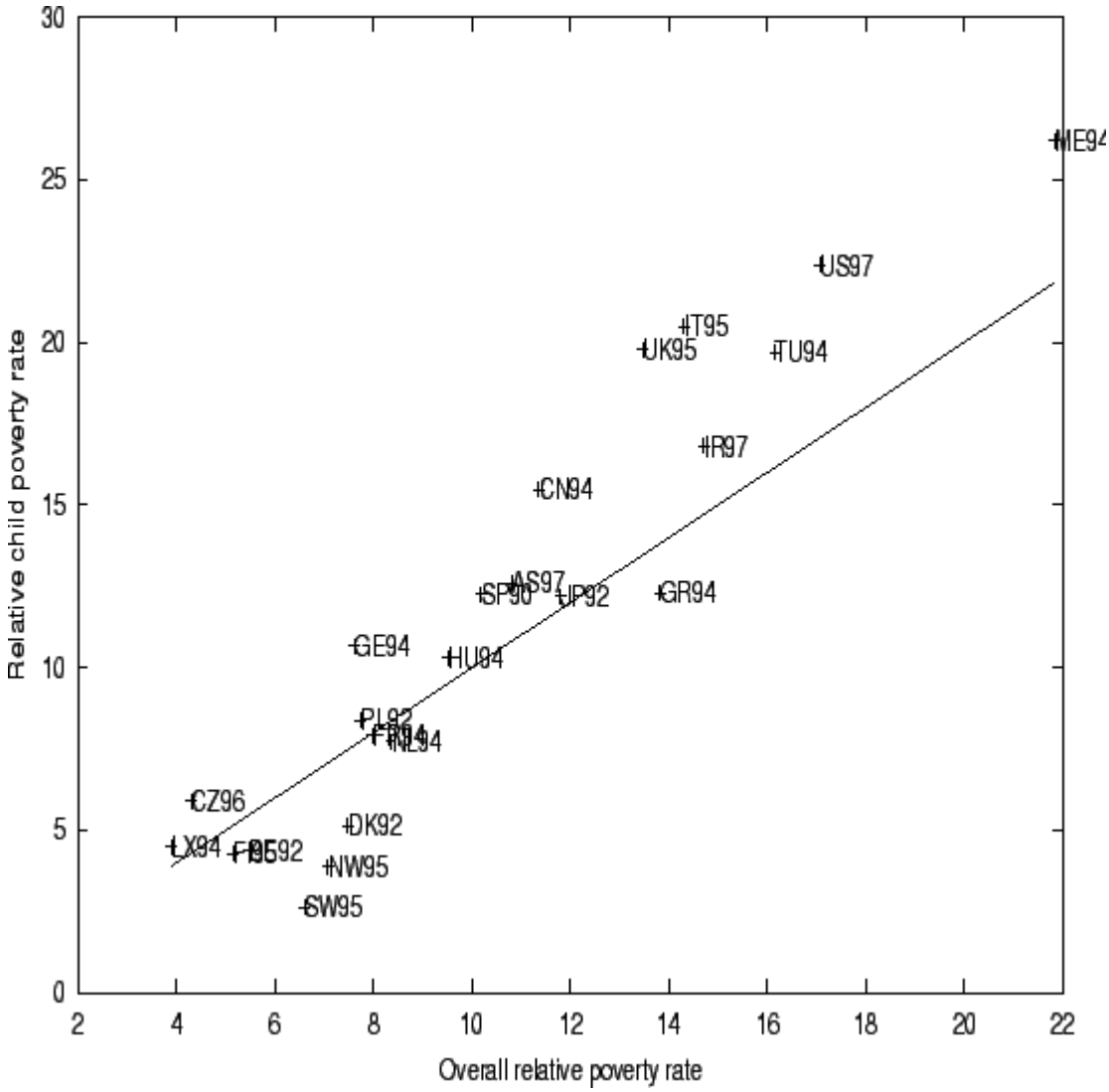
The focus here is on children rather than persons in households with children (which also includes adult household members in the population that is studied) or, what is more common, on the overall population. This raises the question: Does a focus on children only give information that is different from that obtained by studying the whole population. This is examined by comparing relative child poverty to overall poverty, shown in Table 4 and Figure 2. There are at least two reasons why these results should be interpreted with some caution. First, differences in the position of a country in the ``league table'' of child vs overall poverty is affected by many factors, including the socio-economic and

demographic structure of the population relative to that of others. Second, differences across these rankings may be affected by the choice of equivalence scale (although this probably has a greater effect on the relative poverty *rates*, see below). Despite these reservations, it may be instructive to examine the rankings.

Table 4: Proportion of children and all persons below half adjusted median

Country	Year	LIS code	Child Poverty	Rank	Overall Poverty	Rank
Mexico	1994	ME94	26.2	(1)	21.8	(1)
United States	1997	US97	22.4	(2)	17.1	(2)
Italy	1995	IT95	20.5	(3)	14.3	(5)
United Kingdom	1995	UK95	19.8	(4)	13.5	(7)
Turkey	1994	TU94	19.7	(5)	16.1	(3)
Ireland	1997	IR97	16.8	(6)	14.7	(4)
Canada	1994	CN94	15.5	(7)	11.4	(9)
Australia	1997	AS97	12.6	(8)	10.8	(10)
Greece	1994	GR94	12.3	(9)	13.8	(6)
Spain	1990	SP90	12.3	(10)	10.2	(11)
Japan	1992	JP92	12.2	(11)	11.8	(8)
Germany	1994	GE94	10.7	(12)	7.6	(16)
Hungary	1994	HU94	10.3	(13)	9.5	(12)
Poland	1992	PL92	8.4	(14)	7.7	(15)
France	1994	FR94	7.9	(15)	8.0	(14)
Netherlands	1994	NL94	7.7	(16)	8.4	(13)
Czech Republic	1996	CZ96	5.9	(17)	4.3	(22)
Denmark	1992	DK92	5.1	(18)	7.5	(17)
Luxembourg	1994	LX94	4.5	(19)	3.9	(23)
Belgium	1992	BE92	4.4	(20)	5.5	(20)
Finland	1995	FI95	4.3	(21)	5.2	(21)
Norway	1995	NW95	3.9	(22)	7.1	(18)
Sweden	1995	SW95	2.6	(23)	6.6	(19)

Figure 2: Proportion of children and all persons below half adjusted median



The ranking of countries with respect to child and overall poverty are closely but not perfectly related. Mexico has the highest child and overall poverty rate. The US is 2nd in both rankings, whereas Italy has the third highest rate of child poverty but is only fifth in the ranking by overall poverty level. The UK, in fifth place, has an overall poverty rate that gives it the 7th position, a decline in ranking by three places. Turkey, in fifth place in the child poverty ranking, is third in the overall poverty ranking, increasing its rank by two places, as does Ireland (6th vs 4th), Greece (10th vs 8th) and Japan (12th vs 10th). The rank of Canada (7th vs 9th), Australia (8th vs 10th) and Spain (11th vs 13th) declines on moving to look at child rather than overall relative poverty.

The Czech Republic, at rank 17 in the child poverty and 22 in the overall poverty ordering has the largest drop in rank between the two rankings, while Germany, ranked 12th in child poverty but 16th in overall shares with Luxembourg (19th vs 23rd) a decline of four positions on moving to examine

child poverty.

The difference between the poverty rates of children and of all persons depends in part on how children (and of course their parents) are placed in the overall distribution of economic resources. This in turn depends on the joint distribution of income, children and adults across households and is affected by the choice of equivalence scale, i.e., how much household needs are thought to increase with additional adults or children. The current choice, to approximate a household's economic need by taking the square root of household size, is widely used.

With that caveat in mind, it is interesting to note that in the majority of the countries included, children are more likely to be poor than the average person, suggesting children are more at risk than others. The countries that are at the bottom of the child poverty league table, i.e. that have the lowest rates of child poverty, are also the ones where children have a lower risk of poverty than the average person. Of the ten countries with the lowest child poverty risk, only Luxembourg, 19th out of 22 countries in the child poverty ranking, has a higher risk of poverty among children than adults. Conversely, of the ten countries where the poverty risk of children is the highest, only in the ninth, namely Greece, is the poverty risk of children lower than that of the average person.

6. Child poverty and overall inequality

The difference in relative child poverty and overall inequality is affected, in addition to the difference in the income distributions among children and all persons, by the distribution of income in the upper part of the income distribution. The proportion of persons below one half of median income can be thought of as a way of describing the relative inequality in the lower part of income distribution. Overall inequality is, of course, affected also by inequality above the median (and, indeed, by inequality between the median and 50 percent of it). In order to examine the relationship between child poverty and overall inequality, we compare relative child poverty to a commonly used measure of overall inequality, the Gini coefficient.[6]

As can perhaps be expected, the ranking of countries by relative child poverty and by overall inequality are closely, but again far from perfectly associated. The scatter plot (Figure 3) suggests that at low levels of inequality and child poverty, the association is fairly close. The poverty rates of countries with Gini coefficients below 25 percent are between 2.6 and 5.1 percent. For Gini coefficients between 25 percent (Czech Republic, 25.8) and 30 (Canada, 28.5), the dispersion of child poverty rates increases to a low of 5.9 and high of 15.5 percent. In the next 5-percent range of Gini coefficients, Hungary with a Gini at 32.3 in 8th place has a poverty rate of 10.3, whereas Italy and the UK, with Ginis at 34.6 (5th and 4th) have poverty rates of 20.5 and 19.8 percent. The US has the third highest

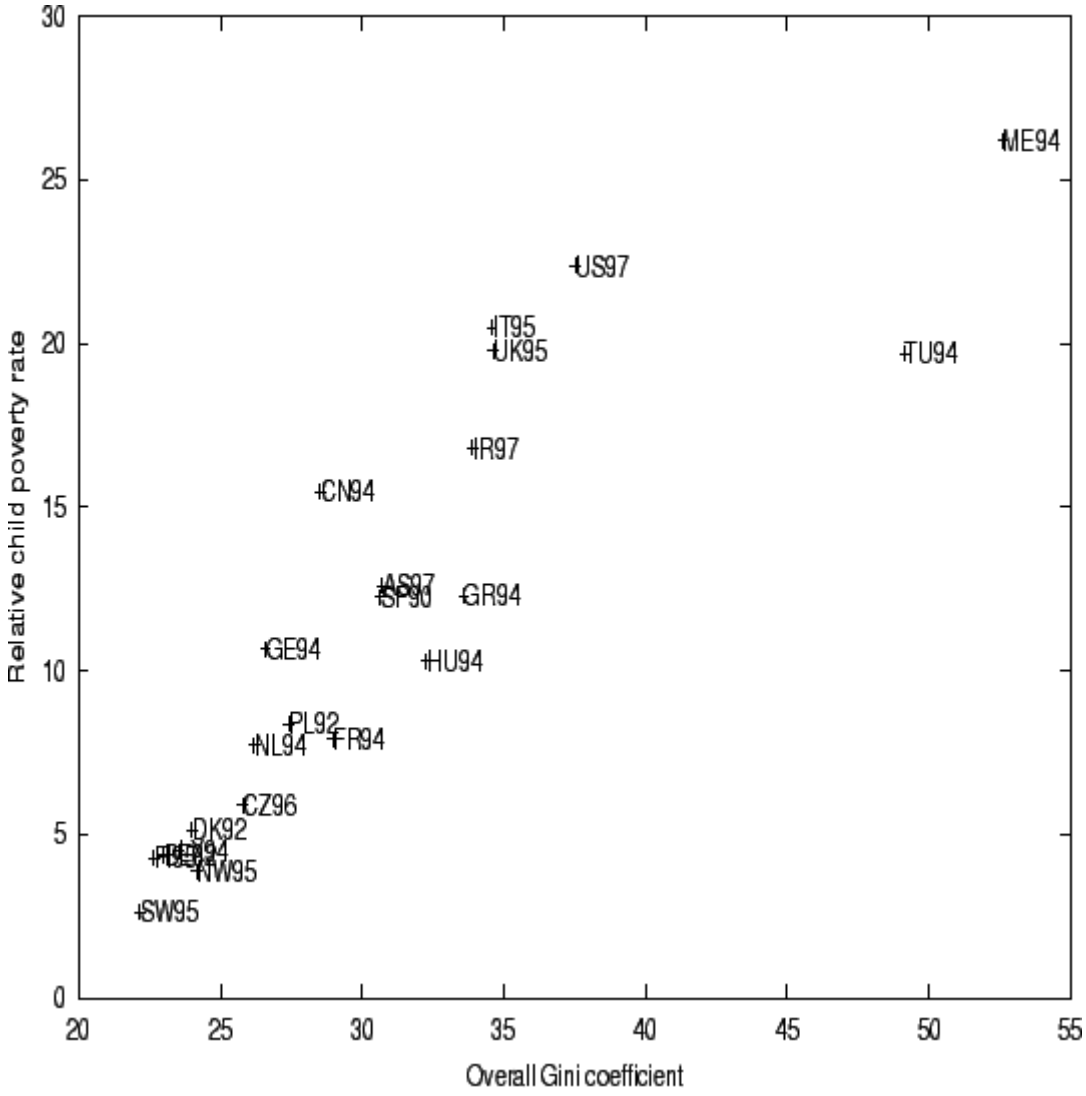
[6] The Gini coefficient is a commonly used index of income inequality, but has an intuitive interpretation is the average of the difference in incomes in all comparisons of higher incomes with lower ones in an economy, relative to average income. The overall Gini coefficient of Mexico, 52.6, means that the difference in disposable income between all Mexicans with those who are poorer is one half of average income.

level of inequality but is second in the child poverty ranking, while Turkey is 5th in the child poverty ranking but has the second highest inequality. Mexico has the highest level of both relative overall inequality and relative child poverty.

Table 5: Proportion of children below half of adjusted median income and overall Gini coefficient

Country	Year	LIS code	Child Poverty	Rank	Overall Gini	Rank
Mexico	1994	ME94	26.2	(1)	52.6	(1)
United States	1997	US97	22.4	(2)	37.5	(3)
Italy	1995	IT95	20.5	(3)	34.6	(5)
United Kingdom	1995	UK95	19.8	(4)	34.6	(4)
Turkey	1994	TU94	19.7	(5)	49.1	(2)
Ireland	1997	IR97	16.8	(6)	33.9	(6)
Canada	1994	CN94	15.5	(7)	28.5	(12)
Australia	1997	AS97	12.6	(8)	30.7	(9)
Greece	1994	GR94	12.3	(9)	33.6	(7)
Spain	1990	SP90	12.3	(10)	30.6	(10)
Germany	1994	GE94	10.7	(12)	26.6	(14)
Hungary	1994	HU94	10.3	(13)	32.3	(8)
Poland	1992	PL92	8.4	(14)	27.4	(13)
France	1994	FR94	7.9	(15)	29.0	(11)
Netherlands	1994	NL94	7.7	(16)	26.2	(15)
Czech Republic	1996	CZ96	5.9	(17)	25.8	(16)
Denmark	1992	DK92	5.1	(18)	24.0	(18)
Luxembourg	1994	LX94	4.5	(19)	23.5	(19)
Belgium	1992	BE92	4.4	(20)	23.0	(20)
Finland	1995	FI95	4.3	(21)	22.7	(21)
Norway	1995	NW95	3.9	(22)	24.2	(17)
Sweden	1995	SW95	2.6	(23)	22.2	(22)

Figure 3: Proportion of children below half of adjusted median income and overall Gini coefficient



7. Child poverty in lone parent and two parent households

Children are to a large extent dependent on the incomes of adults who live in the same households, most often their parents. Children in lone parent households have fewer adults to provide for them and are in general less well off than children in households with two parents (or other adults). Children in lone parent households are most often more likely to live in poverty than other children. The larger is the share of children who live in lone parent households, the higher would we expect its child poverty rate to be. This is the topic of the following set of tables and figures.

There are differences in how the countries that are included treat cohabitation and adult children. We define lone parenthood quite narrowly, in that only households with a lone head and no other adults present are counted as single parent households. All others are defined to be two parent households. Some

single mother living with the child's grandparent(s) will thus be counted among two parent households.

Table 6 shows the poverty rate and rank of children in lone parent and in two parent households, along with the share of children in each household type. Figure 4 plots lone parent poverty against overall child poverty and Figure 5 plots lone parent poverty against the share of children in lone parent households. Figure 6 again plots the overall child poverty rate against the share of children in lone parent households.

Table 6: Proportion of children below half of adjusted income by household type

Country	Year	LIS code	Lone parent		Two parent		Share	
			Rate	Rank	Rate	Rank	Lone parent	Two parent
Mexico	1994	ME94	27.6	(11)	26.1	(1)	4.3	95.7
United States	1997	US97	55.4	(1)	15.8	(4)	16.6	83.4
Italy	1995	IT95	22.2	(15)	20.4	(2)	2.8	97.2
United Kingdom	1995	UK95	45.6	(5)	13.3	(6)	20.0	80.0
Turkey	1994	TU94	29.2	(10)	19.6	(3)	0.7	99.3
Ireland	1997	IR97	46.4	(4)	14.2	(5)	8.0	92.0
Canada	1994	CN94	51.6	(2)	10.4	(10)	12.2	87.8
Australia	1997	AS97	35.6	(6)	8.8	(12)	14.1	85.9
Greece	1994	GR94	24.9	(13)	11.8	(8)	3.7	96.3
Spain	1990	SP90	31.6	(7)	11.8	(9)	2.3	97.7
Germany	1994	GE94	51.2	(3)	6.2	(16)	9.8	90.2
Hungary	1994	HU94	10.4	(19)	10.3	(11)	7.4	92.6
Poland	1992	PL92	3.7	(22)	8.6	(13)	4.7	95.3
France	1994	FR94	26.1	(12)	6.4	(15)	7.7	92.3
Netherlands	1994	NL94	23.6	(14)	6.5	(14)	7.4	92.6
Czech Republic	1996	CZ96	30.9	(8)	3.6	(18)	8.3	91.7
Denmark	1992	DK92	13.8	(16)	3.6	(19)	15.2	84.8
Luxembourg	1994	LX94	30.4	(9)	2.9	(21)	5.8	94.2
Belgium	1992	BE92	13.5	(17)	3.6	(20)	8.2	91.8
Finland	1995	FI95	7.1	(20)	3.9	(17)	11.8	88.2
Norway	1995	NW95	13.1	(18)	2.2	(22)	15.0	85.0
Sweden	1995	SW95	6.7	(21)	1.5	(23)	21.3	78.7
Simple average			27.3		10.2		9.4	90.6

Figure 4: Lone parent and overall child poverty

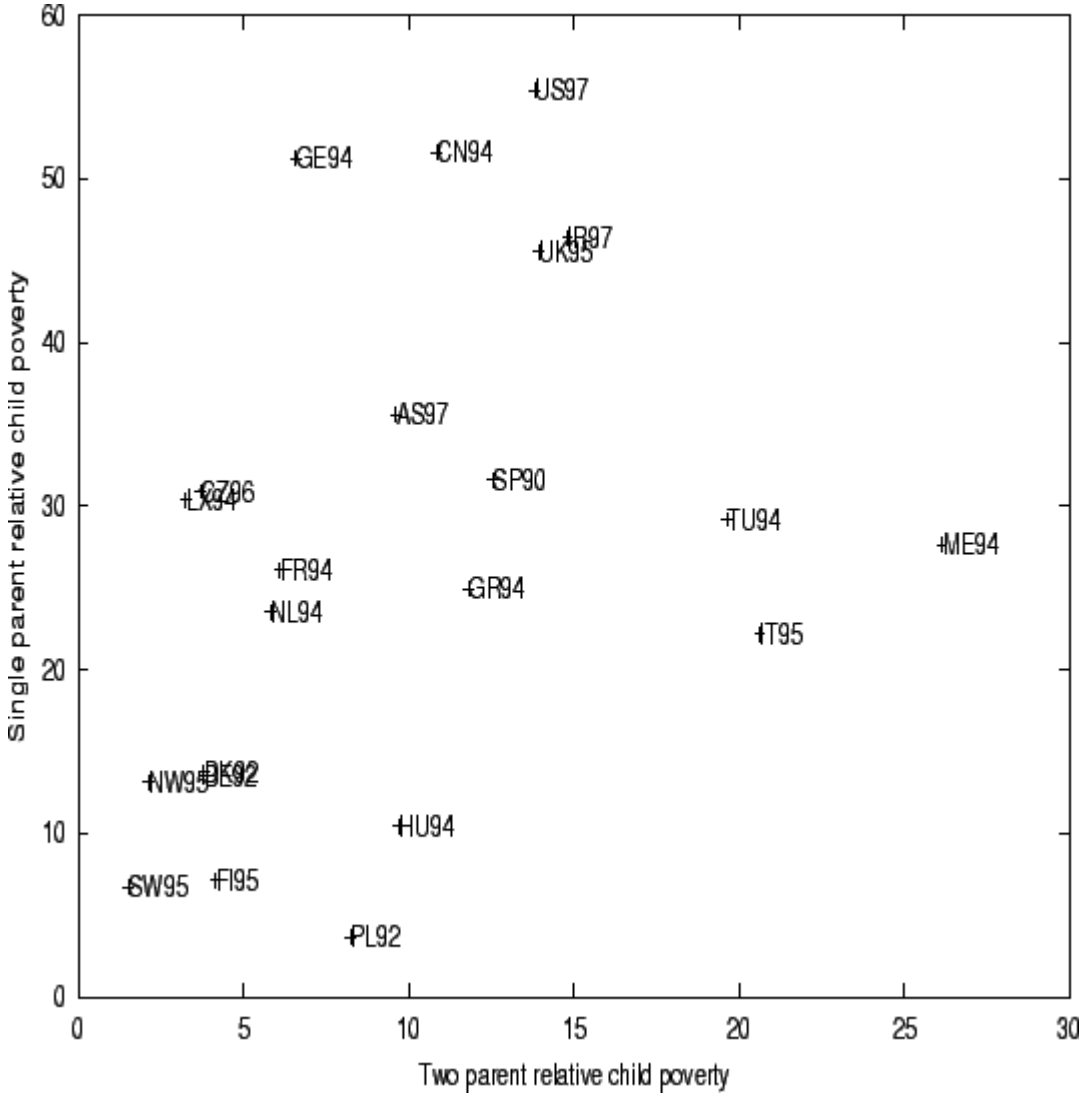


Figure 5: Lone parent child poverty and share of children in lone parent households

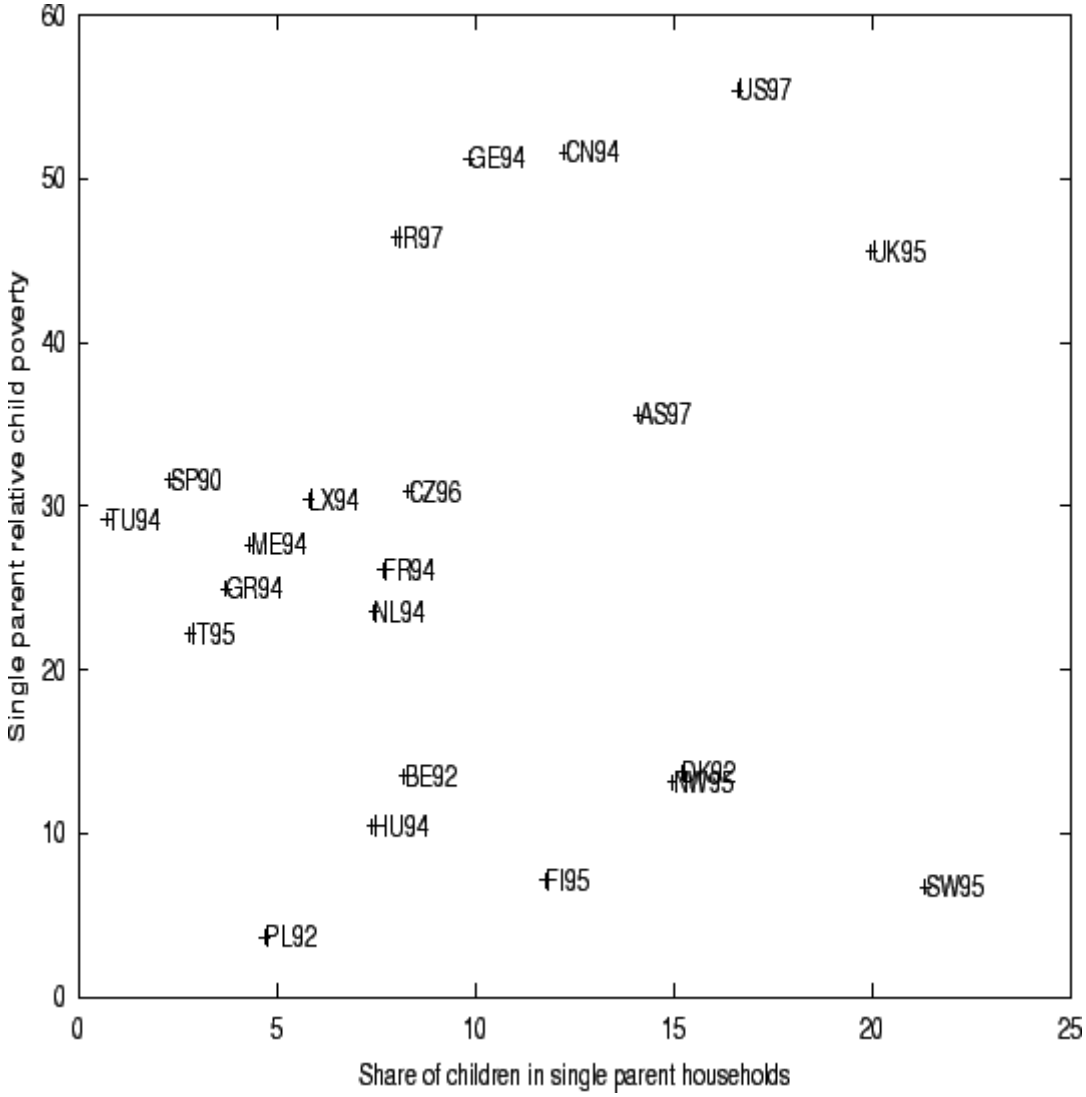


Figure 6: Overall child poverty and share of children in lone parent households

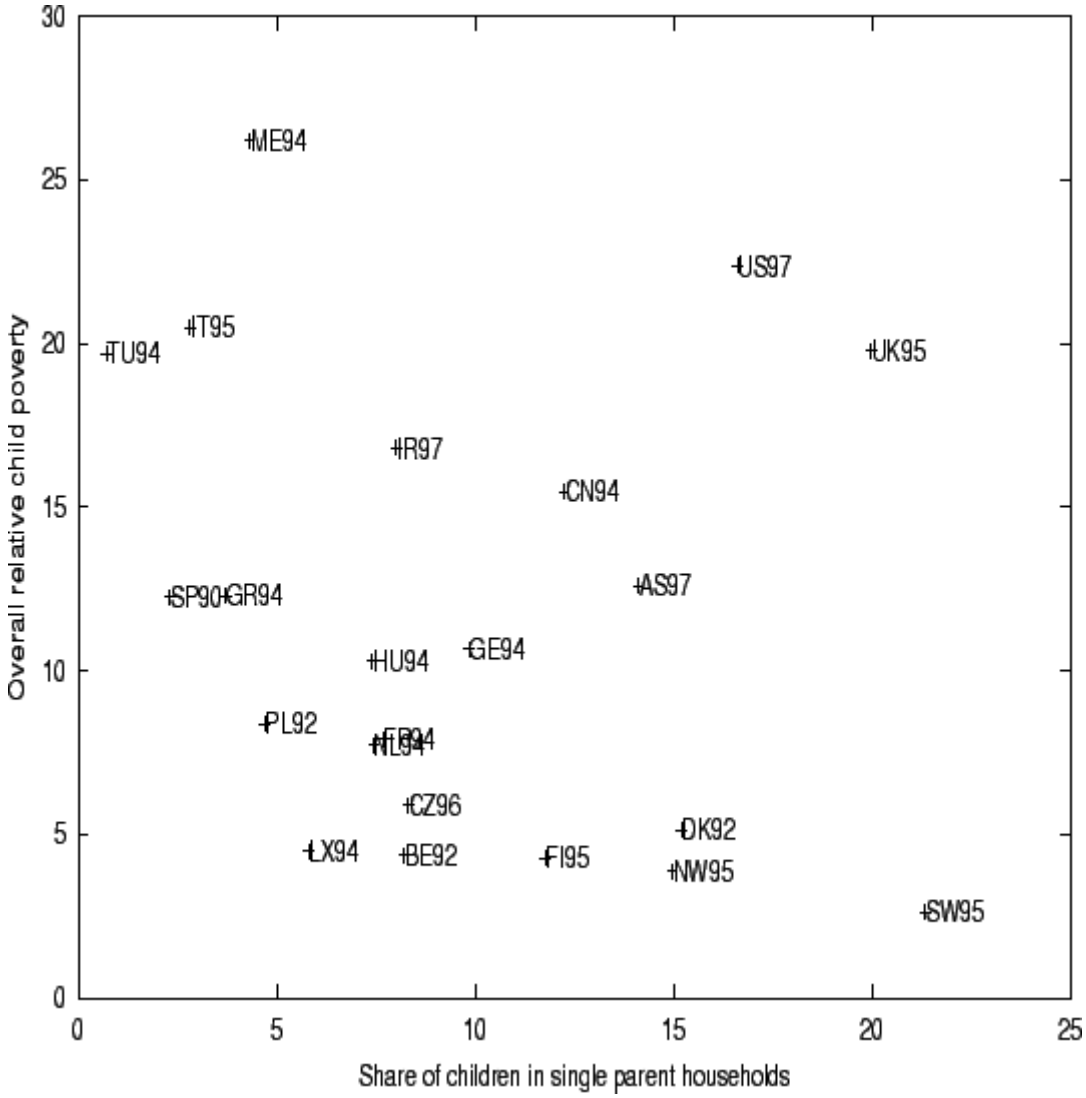


Table 7 compares the actual child poverty rate in each country with two counter-factual sets. The fifth column shows the poverty rate every country would have if the share of children in lone parent families was the same across countries but each country had its own household-type specific poverty rate. The difference between this counter-factual poverty rate and the actual one shows what role differences in lone parent share play in the formation of the child poverty ranking.

Table 7: Counterfactual child poverty rates: Actual, common share of lone parent children, common lone and two parent poverty rates

Country	Year	LIS code	Poverty rate		
			Actual	Common share	Common rates
Mexico	1994	ME94	26.2	26.3	10.9
United States	1997	US97	22.4	19.5	13.0
Italy	1995	IT95	20.5	20.6	10.7
United Kingdom	1995	UK95	19.8	16.4	13.6
Turkey	1994	TU94	19.7	20.5	10.3
Ireland	1997	IR97	16.8	17.3	11.6
Canada	1994	CN94	15.5	14.3	12.3
Australia	1997	AS97	12.6	11.3	12.6
Greece	1994	GR94	12.3	13.1	10.8
Spain	1990	SP90	12.3	13.7	10.6
Germany	1994	GE94	10.7	10.5	11.9
Hungary	1994	HU94	10.3	10.3	11.4
Poland	1992	PL92	8.4	8.1	11.0
France	1994	FR94	7.9	8.3	11.5
Netherlands	1994	NL94	7.7	8.1	11.5
Czech Republic	1996	CZ96	5.9	6.2	11.6
Denmark	1992	DK92	5.1	4.5	12.8
Luxembourg	1994	LX94	4.5	5.5	11.2
Belgium	1992	BE92	4.4	4.5	11.6
Finland	1995	FI95	4.3	4.2	12.2
Norway	1995	NW95	3.9	3.3	12.7
Sweden	1995	SW95	2.6	2.0	13.8

The last column, in turn, shows what poverty rates would be if the household-type specific poverty rates were the same in each country but each country retained its share of lone-parent children. The difference between this

counter-factual rate and and the actual one reflects the importance of differences in household-type specific poverty rates.

Equalizing the share of children in lone parent families, as in the fifth column ("Common share") affects very little the child poverty ranking, where as equalizing the household-type specific poverty rates, as in the last column, gets rid of almost all the variation in poverty rates. It appears that no large role can be attributed to variations in the share of lone parents to the variation in overall child poverty rates across countries.

It follows that policies directed at reducing lone parenthood will not be very effective in reducing child poverty. Efforts to improve upon the living standards of children in lone parent households, by contrast, show much more scope for allowing child poverty to be be reduced.

8. Relative child poverty before and after taxes and transfers

A common way of examining the impact of the public sector on child poverty is to measure poverty based on market income only, before taxes are deducted and transfers added, and disposable income, after the public sector income sources have been accounted for.

Table 8 and Figure 7 show the proportion of children who have market income and disposable income less than one half of adjusted median disposable income. The scatter plot divides the market income - disposable income child poverty plane into regions according to the percentage reduction in poverty on moving from market to disposable income poverty. The lowest of the lines running from south-west to north-east shows the case where disposable income poverty is reduced to more than 75 percent of market income poverty, followed by the region where poverty is reduced to 50 and 25 percent from what it would be under the counter-factual assumption that there would be no taxes nor any transfers and that the distribution of market income would remain the same.[7]

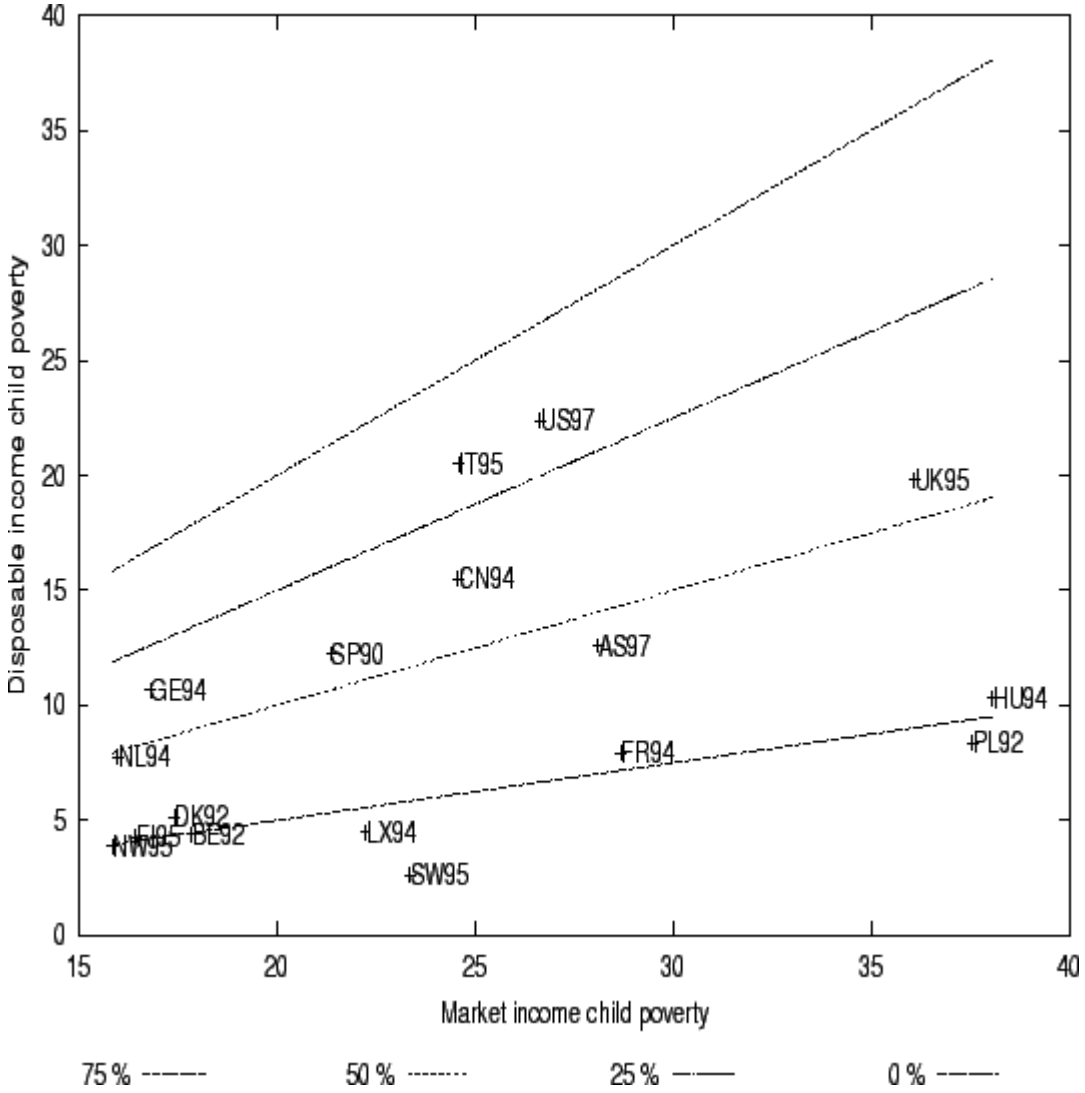
There is much variation in the extent to which the public sector, by this definition, reduces poverty. Italy and the US are in the region where poverty is reduced by less than 25 percent, whereas children in the Germany, Spain, Canada and the United Kingdom have poverty rates based on disposable income that are between 25 to 50 percent lower after the public sector has "intervened". Only Belgium, Luxembourg, Sweden and Poland have poverty reductions in excess of 75 percent.

[7] See Bradbury & Jäntti (1999) for a different analysis of the impact of the public sector on child poverty.

Table 8: Proportion of children below half of adjusted income before and after taxes and transfers

Country	Year	LIS id	Market income poverty	Disposable income poverty
United States	1997	US97	26.7	22.4
Italy	1995	IT95	24.6	20.5
United Kingdom	1995	UK95	36.1	19.8
Canada	1994	CN94	24.6	15.5
Australia	1997	AS97	28.1	12.6
Spain	1990	SP90	21.4	12.3
Germany	1994	GE94	16.8	10.7
Hungary	1994	HU94	38.1	10.3
Poland	1992	PL92	37.6	8.4
France	1994	FR94	28.7	7.9
Netherlands	1994	NL94	16	7.7
Denmark	1992	DK92	17.4	5.1
Luxembourg	1994	LX94	22.2	4.5
Belgium	1992	BE92	17.8	4.4
Finland	1995	FI95	16.4	4.3
Norway	1995	NW95	15.9	3.9
Sweden	1995	SW95	23.4	2.6

Figure 7: Proportion of children below half of adjusted income before and after taxes and transfers



9. The poverty gap

The proportion of children with incomes less than the poverty line is a simple and widely used index of poverty, but suffers from many well known drawbacks.[8] One of them is that it is insensitive to the depth of poverty. A society with a specific fraction of children just below the poverty line will be viewed as having the same extent of poverty as one with the same fraction children in poverty, but where the children have next to no resources available to them. Clearly it is important to know *how poor* the poor are.

One way to assess this is to examine the average extent of poverty, as measured by the average distance of poor children's incomes from the poverty line. In order to give an idea of how expensive a problem child poverty is in the

[8] See Sen (1976) for a classical formulation. For a defense of the current use of the use of the head-count ratio, see Bradbury & Jäntti (1999).

economies that are examined here, Figures 8 and 9 show the aggregate poverty gap, i.e., the sum total of all poor children's income shortfall from the poverty line, relative to aggregate market income against GNP per capita and relative child poverty. Specifically, we calculate

$$\text{Poverty gap as \% market income} = 100 \times \frac{\sum_{i=1}^{n} w_i \times I(y_i < z) \times (z - y_i)}{Aggragate \quad Market \quad Income}, \quad (1)$$

where w is the number of children in the sample household times its sampling weight, z is the poverty line, $I()$ is the indicator function ,taking the value of one when the condition that is its argument is true, n is the sample size and y is equivalent disposable income.

Figure 8: Poverty gap (% of PPP market income) and PPP GNP p.c.

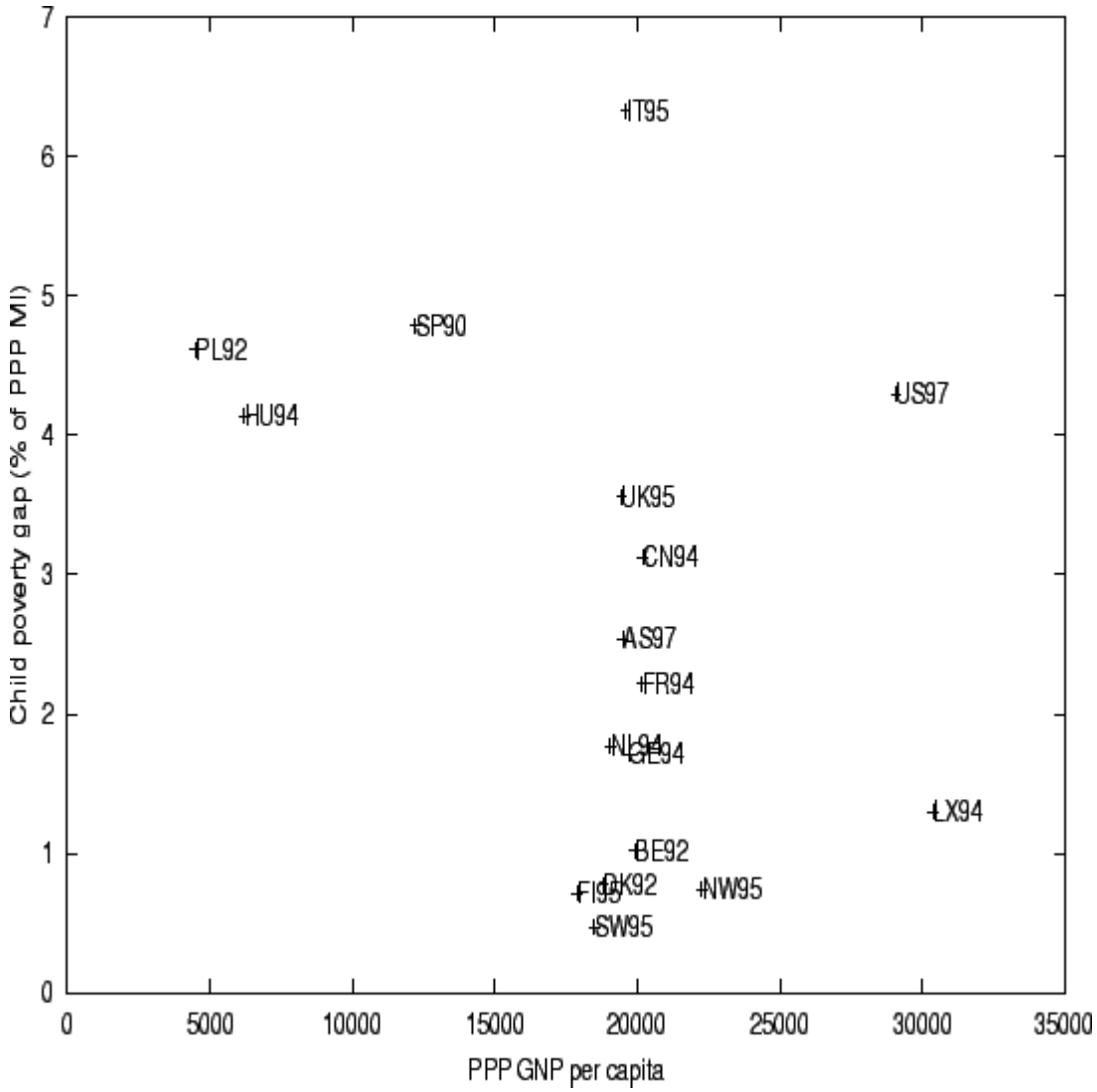
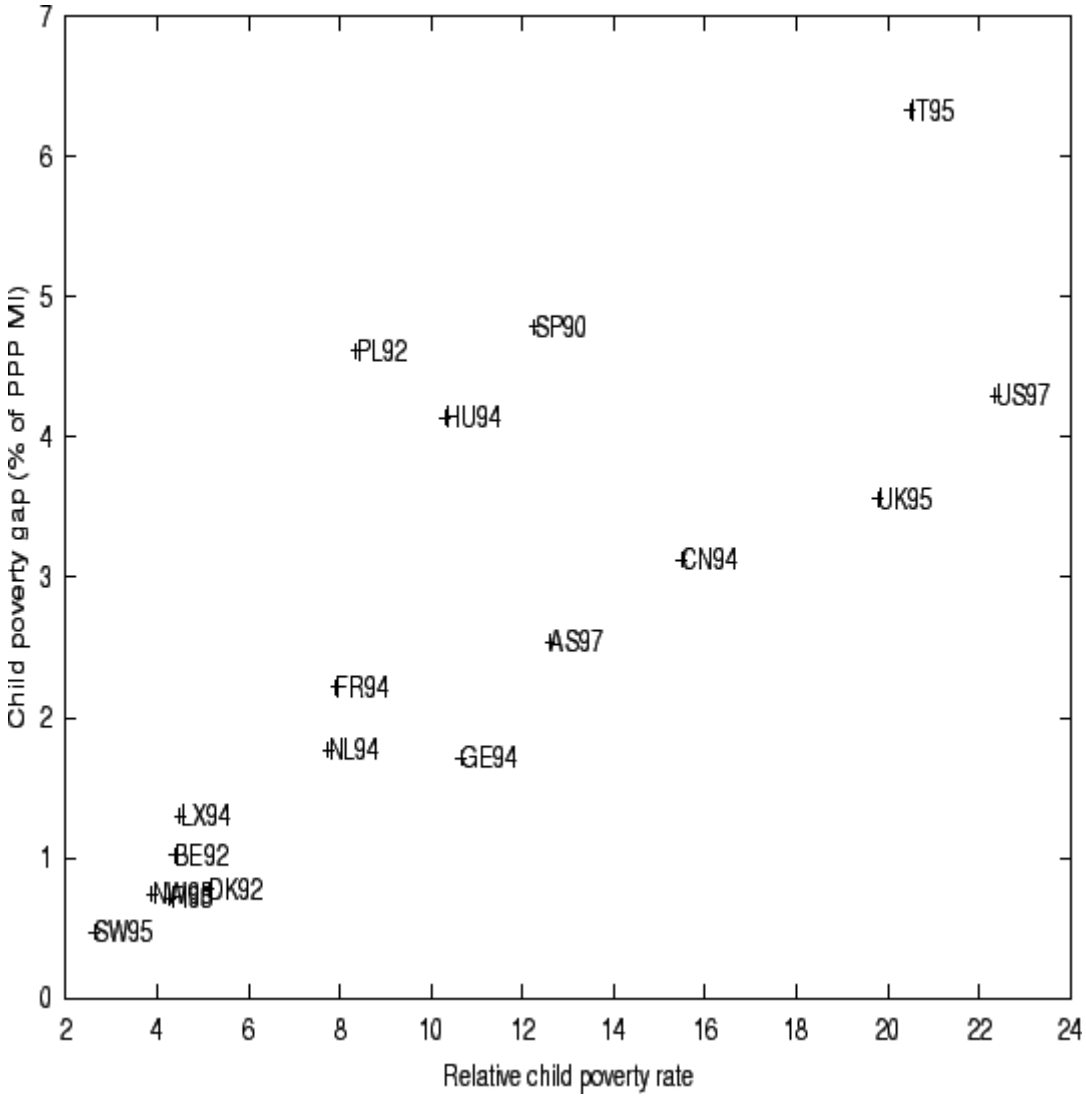


Figure 9: Poverty gap (% of PPP market income) and relative child poverty



The aggregate poverty gap as a percentage of market income ranges from above 6 percent in Italy to about .3 percent in Sweden. The scatter plot of the gap against average income does not suggest any systematize relationship between the two. The two richest countries, Luxembourg and the US, are among those with the lowest and the highest poverty gaps, respectively. The group of countries in the middle of the distribution across countries of GNP p.c. also displays close to the full range of this measure of the extent and depth of child poverty.

Figure 9 shows the aggregate poverty gap as a percentage of aggregate market income plotted against the relative child poverty rates. The association of these two indicators of child well being (or rather lack thereof) is close but not perfect. The association tends to become more dispersed the higher the level of child poverty. For instance, the UK and Italy both have close to one out of every five children in poverty. In the UK, the aggregate income shortfall of poor children from the poverty line is around 3.5 percent of aggregate GNP, while in

Italy the shortfall exceeds 6 percent. This suggests two things: that poor children are less poor in the UK than in Italy and that it would require fewer resources in the UK than in Italy to close the poverty gap altogether.

10. Concluding comments

This paper has explored various dimensions of child poverty, as measured by the child's household having equivalent disposable family income less than (a few different) poverty lines, and contrasted these with overall poverty, inequality and income level. While no attempt has been made to explain poverty levels, the role of family structure, an obvious starting point for accounts of differences in child poverty across nations, was explored to some extent. We also briefly examined the extent to which the public sector affects child poverty and how the cost of reducing child poverty varies across countries.

It would be useful to understand the determinants of child poverty. It should be noted, however, that such an understanding often comes at the expense of losing sight of the phenomenon that prompted the interest in the first place. In particular, since the livelihood of children mostly depends on the labour income of their parents, child poverty determinants are often sought among what affects the labour force behaviour and human capital formation of adults. Such insights are of course welcome, but given the complexity of even the fairly narrow, income-based view of child poverty empirically explored in this paper, it would appear that those insights may filter only slowly to the policy issue at hand, the prevalence of child poverty in rich nations.

However, research and policy reform within particular countries have shown several ways in which the lot of children can be improved (Cornia & Danziger, 1997). The Nordic countries have comprehensive family-policy packages aimed at supporting families with children (Forssén, 1998; Wennemo, 1994). Developments in the 1990s, in part in response to increasing child poverty, include the Earned Income Tax Credit in the United States Scholz (1994) and the Working Family Tax Credit in the United Kingdom. Broad snapshots of child poverty in many countries, such as that given here, serves to place the living standards of children in a broader context and can point at factors associated with cross-country differences. Detailed country- and group-specific studies are needed to more fully understand how public policy can improve the living standards of children.

References

Bradbury, Bruce & Markus Jäntti (1999), Child poverty across industrialized countries, Innocenti Occasional paper 71, UNICEF, International Child Development Centre, Florence.

Bradbury, Bruce & Markus Jäntti (2000), Child poverty across industrialized countries: evidence from the Luxembourg Income Study, *in* K.Vleminckx & T. M.Smeeding, eds, `Child well-being, child poverty and child policy in modern nations', Avebury, Aldershot, chapter 1, pp. 7-32.

Bradbury, Bruce & Markus Jäntti (2001), Child poverty across twenty-five countries, *in* B.Bradbury, S. P.Jenkins & J.Micklewright, eds, `The Dynamics

of Child Poverty in Inustrialised Countries', Cambridge University Press, chapter 3, pp. 62-91.

Cornia, Giovanni Adrea & Sheldon Danziger, eds (1997), *Child poverty and deprivation in the industrialized countries 1945-1995*, Oxford University Press, Oxford.

Export Group on Household Income Statistics (The Canberra Group) (2001), *Final Report and Recommdendations*, Ottawa.

Forssén, Katja (1998), Children, families and the welfare state. studies on the outcome of the finnish family policy, Studies 92, National Research and Development Centre for Welfare and Health, Research Report.

Gottschalk, Peter & Timothy M Smeeding (1997), 'Cross-national comparisons of earnings and income inequality', *Journal of Economic Literature* **32**(2), 633-686.

Jenkins, Stephen P & Frank A Cowell (1994), 'Parametric equivalence scales and scale relativities', *Economic Journal* **104**(425), 891-900.

Jenkins, Stephen P & Peter J Lambert (1993), 'Ranking income distribution when needs differ', *Review of Income and Wealth* **39**(4), 337-356.

Jäntti, Markus & Sheldon Danziger (2000), Poverty in Advanced Countries, *in* Anthony B Atkinson & François Bourguignon, eds, `Handbook of Income Distribution', North-Holland, Amsterdam, chapter 9, pp. 309-378.

National Research Council (1995), *Measuring Poverty: A New Approach*, National Academy Press, Washington.

Oxley, Howard, Thai-Thanh Dang, Michael Förster & Michele Pellizari (1999), Income inequalities and poverty among children and households with children in selected OECD countries: Trends and determinants, Working Paper XX, Luxembourg Income Study, Luxembourg.

Rainwater, Lee & Timothy M Smeeding (1995), Doing poorly: The real income of American children in a comparative perspective, Working Paper 127, Luxembourg Income Study.

Scholz, John Karl (1994), 'The earned income tax credit: Participation, compliance, and antipoverty effectiveness', *National Tax Journal* **47**, 63-87.

Sen, Amartya (1976), 'Poverty: An ordinal approach to measurement', *Econometrica* **44**(2), 219-231.

Smeeding, Timothy M (1997), Financial poverty in developed countries: The evidence from LIS: Final report to the UNDP, Working Paper 155, Luxembourg Income Study, Luxembourg.

UNICEF (2000), League table of child poverty in rich nations, Innocenti Report Cards 1, Innocenti Research Centre, Florence, Italy. http://www.unicef-icdc.org/research/ESP/CIIC1.html.

Wennemo, Irene (1994), 'Sharing the costs of children. studies on the development of family support in the OECD countries.'

Markus Jäntti
(Statistics Finland and Åbo Akademi University)
markus.jantti@iki.fi

Bruce Bradbury
(Social Policy Research Centre University)
b.bradbury@unsw.edu.au