Labour markets, social transfers and child poverty in rich nations

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Abstract

Both earnings and social transfers are important determinants of the living standards of disadvantaged families with children. What is their relative role and how do they interact? What constraints do low-skill wage rates place on social transfer structures?

This paper examines the relative living standards of the poorest one-fifth of children in rich and middle-income countries using data from the Luxembourg Income Study. We use a decomposition approach, disaggregating family incomes into the components due to net social transfers, employment hours and wage rates. This permits us to separately consider variations in factors influencing the demand and supply of labour (wages and replacement rates respectively), the resulting employment and labour incomes, and the total incomes of working and non-working families at the bottom of the income distribution.

We examine both the latest cross-section of countries available in LIS (around 2010) and how the relative living standards of the poorest one-fifth of children vary within countries across time from the early 1980s to 2010. We expect both the cross-sectional analysis to reflect robust country-specific institutions. The changes within countries are interesting as many countries have implemented changes to tax-transfer policies to encourage labour supply at the intensive margin (such as the earned income tax credit).

Our initial results suggest that within-country variation in living standards over time predominantly involves substitution between earnings and transfers (following the business cycle) with comparatively little variation in net living standards.
1 Introduction

Child poverty is widely recognized to be an important topic of social science research and public policy. The living standards of disadvantaged children are affected by public policies both directly, e.g. by income transfers (including tax credits) to families with children, and indirectly, both via the provision of public services and through policies aimed at the labour force, such as unemployment insurance and, especially of late, policies aimed at increasing labour supply at the extensive margin. The purpose of this paper is to both document levels of, and changes in, the living standard of disadvantaged children in rich countries and to examine the contribution of labour markets and public policies.

Both earnings and social transfers are important determinants of the living standards of disadvantaged families with children. What is their relative role and how do they interact? What constraints do low-skill wage rates place on social transfer structures? To address these questions, this paper examines the relative living standards of the poorest one-fifth of children in rich and middle-income countries using data from the Luxembourg Income Study.

Our earlier work (Bradbury and Jäntti, 2001) found that earnings rather than social transfers play the greatest role in explaining cross-national variations in the living standards of poor children. Here we build on this work using a decomposition approach disaggregating family incomes into the components due to net social transfers, employment hours and wage rates. This permits us to separately consider variations in factors influencing the demand and supply of labour (wages and replacement rates respectively), the resulting employment and labour incomes, and the total incomes of working and non-working families at the bottom of the income distribution.

We examine the role of wage inequality and low wages in particular. While low wages might increase the demand for low skill workers, any employment response must be strong to lead to an overall increase in earnings. At the same time, the desire to maintain labour supply incentives means that low wages places constraints on social transfers. To what extent are these labour market constraints binding on family living standards? Which national combinations of wages rates, employment, and social transfers for those in and out of work is most effective?

This paper is structured as follows. In Section 2, we review research literature on both child poverty and how labour market institutions affect it. We discuss our data in Section 3 and the analytical methods in Section 4. In Section 5, we examine the levels of child poverty in rich countries and explore the role of labour market institutions in accounting for cross-country variation. In Section 6, we turn our attention to changes across time in child poverty. Section 7 concludes.
2 Literature review

Our literature review is organized along two lines. The first includes studies based on country comparisons examining child poverty rates and changes in child poverty rate. The other focuses primarily on studies evaluating effects on poverty rates from changes in labour market institutions, e.g. changes in minimum wage regulations.

Country comparisons

Chen and Corak (2005) analyze changes in child poverty rates during the 1990s in 12 OECD countries using data from the Luxembourg Income Study. The authors estimate the impact of state support on these changes and account for them by decomposing the influence into effects of families and demographic forces, labour markets and the state. An overall finding is that there has been little progress in reducing child poverty during the 1990s. In the countries where poverty rates did change, the authors find that families and demographic forces play a limited role. Instead, changes in labour markets and government support are found to be major causes of changing child poverty rates. In countries in which child poverty rose, adverse labour market developments are one important common factor. When it comes to reforms intended to increase labour supply, the results differ depending on which country is studied. E.g. in both the United States and the Netherlands, significant changes were made to social policy in order to encourage labour market participation, but unlike in the US, child poverty rose in the Netherlands. In countries facing economic crises, the amount of income transfers from the state did not appear to have been increased as a way to mitigate the effect of the crisis. Instead the opposite seems to have occurred in many countries.

Whiteford and Adema (2007) used data on poverty rates from the OECD Income Distribution Survey to explore the extent to which child poverty is related to the work status of parents. The data are based on equivalized disposable income of individuals, i.e. disposable income of households adjusted for the number of members in the household using the square root of household size. They cannot identify lone-parent families who share household with other adults, so the share of lone parents is likely to be under-estimated. The poverty line is OECD standard, i.e. households with equivalent disposable income less than 50% of the median income in each country. When evaluating levels of redistribution, they identify three main groups of countries where the first is characterized by below average levels of child poverty and efficient tax and benefits systems that reduce levels even more, below 5 percent (Belgium, Finland, Denmark and Sweden); the second group of countries has high levels of child poverty and rather efficient redistribution, but still higher poverty than in group 2 (France, Australia); and the third group has inefficient redistribution systems (Mexico, Italy, Portugal, Spain, Japan, Switzerland). The authors also find that all countries with very low levels of child poverty also have low levels of
joblessness and market income poverty as well as high spending. Through simulations of increased family spending and employment-stimulating policies, the authors show that reforms to reduce joblessness would have small effects in some countries (US, Luxembourg, Japan and Portugal) and large in other (Australia, the Czech Republic, France, Germany, Ireland, New Zealand and the UK). Simulations where tax and benefit systems were made as effective as the third best performing country (Sweden) show that the child poverty rate in the OECD countries would be more than halved from 10.2 to 4.3 percent. But since Sweden has such low level of joblessness and poverty rate, most countries would have to spend more than Sweden in order to achieve this level of distribution.

Brady and Burroway (2012) analyse whether targeted or universal social policies or individual characteristics can explain variation in single mother poverty across 18 democracies. They use The Luxembourg Income Study from around year 2000 in the analyses and define an individual as poor if she resides in a household with less than 50% of the median household income. The results for individual characteristics show that single mother households with multiple earners, well-educated and older heads, and multiple adults are less likely to be poor. Those with no one employed, low-educated and younger heads, and multiple children are more likely to be poor. The results also show that generous, comprehensive and universal welfare states substantially reduce the poverty of single mothers. Universal social policy is also found to be much more effective than targeted social policy. However, the authors also suggest that targeting may be effective under specific circumstances. When social policy is generous for all citizens, additional benefits directed to single mothers is beneficial.

Cholezas and Tsakloglou (2007) study earnings inequality and its changes and the underlying factors behind these changes in 13 European countries using data from the European Community Household Panel (ECHP). Examining the impact of education, age, sex and sector of employment, the results show that in most countries education and then age were found to be most closely associated with earnings inequality. When instead focusing on hourly earnings, returns to education, tax progressivity and centralisation are found to be the factors most closely associated with aggregate inequality in the distribution of hourly earnings. The authors also find that changes in the composition of wage and salary earners regarding the four mentioned factors (education, age, sex and sector of employment) had a relatively large, but not uniform across countries, effect only in a few countries and mainly when the partitioning factor was education.

Gornick and Jantti (2011) use data from the Luxembourg Income Study to examine child poverty in 20 high- and middle-income countries. The focus is mainly on the role of family structure, educational attainment, and labor market attachment and how the effect of these factors vary across countries. The analyses are made by household type and using relative and absolute poverty measures, as well as pre- and
post-taxes and transfers. The authors find that child poverty rates vary markedly across the countries and that the variation takes many forms. Child poverty varies with both when measured as market- and disposable-income poverty, relative and real-income thresholds, and also with most demographic and labor market status subgroup analyzed. They also show that child poverty rates shift over time and that was an overall worsening of the economic wellbeing of children during the 1990s. Further, family demography and parents’ labor market engagement are very important with respect to children’s risk of living in a poor household.

Finally, Bradbury and Jäntti (1999) use data from the Luxembourg Income Study to study child poverty across 25 countries during the 1990s. The results show that the Nordic and Western European countries usually have low rates of child poverty, whereas Southern European and English-speaking countries typically report high rates. This finding holds both using relative and absolute poverty measures. They also show that across the upper-income countries studied, those with higher levels of national income tend to have lower real poverty rates – although the US emerged as a marked exception, with a substantially higher level of child poverty than its national income would predict. When accounting for the diversity of child poverty outcomes across countries, variation in the market incomes received by the families of disadvantaged children was an even more powerful explanatory factor than variation in welfare state institutions.

**Effects on poverty rates from changes in labour market institutions**

Sabia (2014) reviews the literature on the effect of minimum wage increases on poverty. The most common approach in the literature is the Card and Krueger difference-in-difference model, where identification of the minimum wage effect comes from within-state variation in minimum wages. Most studies find that minimum wage increases have little or no effect on poverty rates. Also in studies that try to account for negative employment effects, minimum wage increases are described as inefficient, as poverty seems to be redistributed rather than alleviated.

Dube (2013) estimates the effects of U.S. minimum wage policies on the distribution of family incomes using data from the March Current Population Survey. He finds that minimum wage increases lead to increases in incomes at the lower end of the family income distribution. For individuals under the poverty threshold, the minimum wage elasticity varies between -0.12 and -0.30 depending on the specification. The elasticities are broadly similar in the 1990s and 2000s. The poverty reduction from minimum wage increases is found to be greater among disadvantaged racial minorities and those without college education.

Bernstein and Shierhotz (2014) discuss a number of embedded complications when evaluating the social benefit of minimum wage increases and summarize earlier research including meta-analyses on potential employment effects. The overall conclusion for studies based on U.S data is that if negative effects on employment are
present, they seem to be too small to be detected. The authors also cite a lot of reports and research that conclude that increased minimum wages would raise many over the poverty line.

In sum, some general findings are that countries with very low levels of child poverty also have low levels of joblessness and that family demography and parents’ labor market engagement are very important with respect to children’s risk of living in a poor household. In particular, universal welfare states seem to substantially reduce the poverty of single mothers. But few countries have been very successful in reducing child poverty in recent decades.

3 Data

3.1 LIS data

We measure children’s living standards using data from the Luxembourg Income Study (LIS).

We measure children’s living standards using data from the Luxembourg Income Study (LIS). LIS covers most industrialised countries, most of which with information for several years, and several large middle income countries. The objective is look at the general patterns of variation in child poverty outcomes across the industrialised world. We focus on OECD countries (although the LIS does not include some OECD countries, such as New Zealand and Portugal, which are therefore not included in our analysis).

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. 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 industrialised 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. Gottschalk and Smeeding, 1997; Jenkins and Lambert, 1993; Jäntti and Danziger, 2000). 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 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 (e.g. 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)

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 exception to this is Sweden, where the source data before the last wave of LIS is limited to tax units, corresponding to nuclear families of parents and their dependent children. Prior to 2000, Swedish adult children and lone parents living with their parents are treated as separate units.5

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 a scale that is close to the so-called “old” OECD scale (see Bradbury and Jäntti, 1999). Our scale, used by Jenkins and 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 standardise for economies of scale. Bradbury and 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 (e.g. 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. As our decompositions in this paper rely on convenient properties of the mean, we will in fact relate relative living standards to the average income of the middle quintile group (which is in general quite close to the mean and closer so than the overall average).

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,
discount entirely the poverty alleviation benefits of income increases that were spread (proportionately) evenly across the population.

Both the relative and real measures 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 dollars, relative to the US official poverty line for a family of four.

We have somewhat modified the standard LIS income variables for the analyses where we decompose disposable income in the poorest fifth into market income and net social transfers. In particular, we depart from the usual practise of either truncating or censoring disposable income at zero and leaving its constituent parts intact. Rather, we censor each of the following components at zero: earnings (head, spouse, other members), self-employment income, property income, other private income, social insurance income, means-tested transfers. We then add all market-based income components together to form market income, sum transfers from which we subtract taxes to form net social transfers and then define disposable income to be the sum of those. This is, obviously, coherent only for those datasets for which gross incomes are available. In our analysis we therefore focus on those countries and datasets that make available not only net incomes (i.e., income components from which taxes paid have been subtracted) but the actual gross values along with direct taxes.

3.2 Wage rates

The OECD collects data on the wages of full-time workers at the 10th percentile relative to the median wage. This data is drawn from both household and employer surveys as well as register data. While these different sources could possibly imply inconsistencies, a comparison with the LIS data in selected countries does not find any clear bias to these results (see appendix).

4 Methods: decomposition framework

To show the influence of these various factors on the relative living standards of the most disadvantaged children, we take advantage of the additive decomposability of mean incomes. This framework decomposes the relative income of the most disadvantaged one-fifth of children into that due to market income and that due to net social transfers. Market income is further disaggregated into earnings and other income, and earnings disaggregated into wage rates and employment probabilities. Another practical advantage of this disaggregation approach is that it allows us to transparently combine data from several different sources.

For child \(i\) in year \(t\) in country \(c\) their equivalent household disposable income can be decomposed as

\[ D_{itc} = M_{itc} + T_{itc} \]
where $D_{itc}$ is household disposable income, divided by the number of equivalent adults in the household, $M_{itc}$ is household market income similarly equivalised and $T_{itc}$ is equivalent net social transfers. The latter is defined as household social income transfers received minus income taxes and compulsory social insurance contributions (all equivalised).\(^1\)

Market income can be further split into income from capital and earnings [not sure where we decided to put self-employment income]

$$M_{itc} = K_{itc} + E_{itc}$$

Our focus is on how the living standards of the most disadvantaged children compare to the average child in each country. We thus calculate the average of these income measures for children in the households with the lowest-fifth of equivalent disposable income. These averages are then expressed as relative to the average equivalent disposable income of children in the middle quintile group. [could use median, but this is probably easier to calculate]

We denote the mean disposable income of the bottom fifth as $D_{Q1tc}$, this divided by the middle group disposable income as $D'_{Q1tc} = \frac{D_{Q1tc}}{D_{Q3tc}}$, and similarly for $M'_{Q1tc} = \frac{M_{Q1tc}}{D_{Q3tc}}$ and so on. Then the decomposition above for individual children carries through to the normalised group means as

$$D'_{Q1tc} = M'_{Q1tc} + T_{Q1tc} \quad M'_{Q1tc} = K'_{Q1tc} + E'_{Q1tc}$$

The first line of this decomposition is used in Bradbury and Jantti (2001). They use LIS data to diagrammatically decompose the cross-national variation in the relative living standards of disadvantaged children into the variation due to market income and that due to net social transfers (plus the covariation between the two).

Earnings, in turn, can be decomposed into the product of the probability of being employed, wage rates and hours worked. We do not, however, have a single database where all these items are available at the household level (hours of work are not recorded consistently across the LIS datasets). We therefore draw upon estimates of the overall wage distribution to impute these sub-components.

More specifically, we assume that the 10\(^{th}\) to 50\(^{th}\) percentile wage ratio can be used as a proxy for the relative wages facing parents in the bottom and middle fifths of the household income distribution. This permits a decomposition of the relative mean earnings of the bottom quintile into the relative employment of those at the bottom of the income distribution, their relative wages, and their relative hours when working.

\(^1\)Note on net income countries.
That is, (dropping the time and country subscripts for clarity and using $E$ as a subscript to denote the population with positive earnings)

$$E_{Q1}^\dagger = p_1 E_{E1}^\dagger = p_R w_R h_R E_{Q3}^\dagger$$

where $p_1$ = the proportion of children in the bottom fifth who have positive parental earnings

$E_{E1}^\dagger$ = mean positive earnings in the bottom fifth (relative to $Q3$ disposable income)

$p_R = p_1 / p_3$, relative employment rates

$$w_R = \frac{w_{10}}{w_{50}}$$, relative wages

$$h_R = \frac{E_{E1}^\dagger}{E_{E3}^\dagger}$$, (imputed) relative hours of workers

In addition, we make two demographic disaggregations. Total earnings are disaggregated into male and female earnings in the household, and we separately consider three types of household, couple-headed, lone mother and other.

5 Child poverty across countries

Here we will focus on recent cross-national variations in relative child living standards (one recent observation per country).

Some questions and/or potential descriptive analyses:

- How much of the cross-national variation in the relative living standards of the bottom fifth is due to market income vs net More detailed description of the above decomposition. Eg a (large) table with countries, ranked by $D_{Q,1c}$ with the key summary variables from the above equations. Possibly with disaggregation by male/female earnings.

- Descriptive outline of potential causal impacts of wage inequality on outcomes. [In simple terms, what is associated with $w_R$?]

  o Labour demand story: Is greater wage inequality associated with less employment? [$w_R$ vs $p_R$ and $h_R$? or $w_R$ vs OECD employment rates]

  o Income component story. What is the relationship between $w_R$ and earnings income and net social transfers? The earnings relationship is the net effect of offsetting wage and (possible) employment effects. The net social transfer association might arise because of policy feedbacks of incentive maintenance.
Replacement rate associations with $h_R$ and $w_R$ and OECD employment rates

6 Changes in child poverty across time

This decomposition will allow us to look at the market/transfer decomposition as we did in our previous paper. It will also permit a simple decomposition of the earnings component. For example, we would expect to find the US low earnings result to be due more to low wages than low hours.

[NB: These results are preliminary and will be updated to contain newer waves of LIS]

An analysis of the income package of the poorest fifth of children by household type reveals that the composition of the income package tends to vary quite substantially from year to year (see Figures 1 and 2). For instance, for the poorest fifth of US lone-mother children, 75 percent of their disposable income in Wave 1 stemmed from net social transfers. This proportion increased until in wave 5 (in the year 2000), then declined substantially to less than 50 percent. This variation in the composition of the income packages was achieved at a remarkably stable relative living standard. In other words, the initial increase and later decrease in net social transfers almost exactly corresponded to an equal but opposite change in market income. Put in yet another way, the increase in market income was for these US children not associated with an increase in relative living standards, as it was matched by a decline in income transfers. Moreover, the relative poverty rate declined quite substantially in the US, while this measure suggests little change in the living standards of the worst-off US children. It may therefore be that the children who were moved out of poverty did not move very far, leading to know change in the average of the poorest fifth.

Patterns in other countries, and also for two-parent children in the US, tends to be more varied, reflecting both changes in the relative well-being of the poorest fifth of children and the composition of their income packages. We see, for instance, an increase in the relative well-being of UK lone-mother children while the share of net social transfers also increased.

Figure 1: The relative living standard and income package of lone mother households in the poorest fifth of children in all LIS waves by household type – net social transfers and market income (the numbers denote LIS waves)
Figure 2: The relative living standard and income package of lone mother households in the poorest fifth of children in all LIS waves by household type – net social transfers and market income (the numbers denote LIS waves)
7 Discussion and concluding comments

TBA
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