

# Objective and Subjective Measures of Child Poverty in Denmark

Særnummer: Velfærdsstatens udfordringer, forandringer og konsekvenser

*The relative poverty line has been criticized for being arbitrary since it is defined by purely statistical measures without any theory linking objective income poverty to subjectively experienced poverty. The objective-subjective poverty nexus is explored empirically by comparing poverty measures for Danish children using EU-SILC data from 2019. The objective measure is based on the 50 % poverty line, while the subjective measures cover deprivation, financial coping, and accumulation of deprivations. Results shows a far from perfect overlap between objective and subjective poverty, but the subjective poverty risk is much higher for income poor children compared to non-poor children.*



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## Introduction

Although Denmark belongs to the Nordic universal welfare state model with low inequality and poverty, there has nevertheless been repeated debate about how families in the lower part of the income distribution should be secured a reasonable standard of living and in particular assure that children in these families are not facing excessively negative effects of low income, which can be detrimental in the short run with reduced welfare and increased social exclusion, as well as long term consequences for educational attainment and success on the labour market, etc. An independent commission of experts appointed by the Danish Cabinet analysed and issued recommendations regarding reforms of the social assistance system including suggestions about how to normalize children's daily lives even when they live in households dependent on social assistance (Ydelseskommisionen 2021). According to the Commission, reported deprivation among children (subjective poverty) was not closely linked to income poverty (objective poverty), which leads to the conclusion that it is not given that children's deprivation could be reduced by increased cash benefits. This study revisits the issue by looking into the link between subjective and objective poverty among children. This is done by defining and applying income poverty and different subjective poverty concepts, and also by focusing on the relationship between income poverty and specific deprivations.

## Literature

In European nations, absolute poverty is more or less practically eliminated, e.g., the basic material requirements of individuals are fulfilled, which includes consumption related to nutrition, clothing, and shelter. Poverty is (therefore)

in these countries measured using a relative approach, where poverty is defined as lacking consumption possibilities compared to the standard of the society that surrounds an individual (UN 1998; Townsend 1979), which is also closely reflected by the EU poverty definition: “People are said to be living in poverty if their income and resources are so inadequate as to preclude them from having a standard of living considered acceptable in the society in which they live. Because of their poverty they may experience multiple disadvantage through unemployment, low income, poor housing, inadequate health care and barriers to lifelong learning, culture, sport and recreation. They are often excluded and marginalised from participating in activities (economic, social and cultural) that are the norm for other people and their access to fundamental rights may be restricted.” (Council of the EU 2004). According to this poverty definition, poverty is a much broader concept than merely a question about (in)sufficient income, and it is furthermore multi-dimensional covering unemployment, income, housing, health, education as well as cultural, sports, and recreational activities, etc.

Subjective poverty is a concept that refers to the experience of being deprived of necessities and lacking adequate resources from one’s own perspective. It is usually measured through self-reported indicators such as access to basic needs and general perceptions of economic hardship. According to the relative deprivation approach, poverty is a relative concept and is primarily based on social comparisons such that individuals may experience poverty if they perceive themselves as having less than others, regardless of their actual income or resources, which can lead to anxiety and depression, even after controlling for actual income levels, e.g., subjective perceptions of poverty can have significant psychological impacts (Schulze and Krätschmer-Hahn 2014). The capability approach (Sen 1985) emphasizes the importance of human capabilities and the ability to lead a fulfilling life, rather than just having access to basic resources. According to this approach, poverty is not only about lacking material resources, but also about lacking the capability to use these resources to achieve well-being. Studies by Alkire and Foster (2011), and Alkire and Santos (2014) used the capability approach to develop the multidimensional poverty index, which measures poverty in terms of a person’s ability to access various dimensions of well-being, such as health, education, and living standards. The approach captures the multidimensional nature of poverty and provide a more comprehensive understanding of poverty than the uni-dimensional income poverty approach. Poverty rankings based on this composite index is sensitive to the weightings of different welfare dimensions, while a weighting-free and thus robust multidimensional welfare methodology is developed and implemented in Arndt et al. (2013) and Hussain et al. (2020).

Several studies emphasize the importance of not only relying on either the objective or the subjective approach to poverty since they cover different kinds of poverty and thus both approaches are required to combat poverty (Guio et al. 2012; European Commission 2023). The emphasis in this article is on child poverty in Denmark as the case study, which is in line with the Netherlands as

a case study by Fokkema and Naderi (2017) that compares objective and subjective poverty measures in the Netherlands and examines the extent to which they overlap – although there is some overlap between the two measures, subjective poverty measures capture additional dimensions of poverty, and it is suggested that a combination of objective and subjective measures may be more effective in identifying poverty and designing policy interventions.

## Methodology and Data

All data in this analysis originates from the European Union-Survey on Income and Living Conditions (EU-SILC) 2019 microdata for Denmark in the form of csv files named UDB\_cDK19 with suffixes D, H, P and R. EU-SILC is a harmonized representative survey covering EU and some surrounding countries regarding socio-economic conditions, including demographics, labour market, income, health, social exclusion, and deprivation, etc.

The one uni-dimensional measure of relative income poverty applied here is the same as the one used in many different studies of income distributions (Hussain 2020; Mussida and Sciulli 2022; Eurostat 2023). The income concept is equivalised household disposable income, e.g., gross income of the household minus total income taxes and mandatory contributions divided by the adult equivalent (the first adult has a weight of 1, subsequent adults aged 14+ years each have a weight of 0.5, and children 0-13 years each have a weight of 0.3). The poverty line is fifty percent of the contemporaneous national (equivalized) income median. People below the poverty line are denoted as “poor”, while in an EU context (using the 60 % poverty line) they are classified as people “at risk of monetary poverty”. In the Danish debate, the poverty line is called a low-income threshold (lavindkomstgrænse), but we here follow the tradition in the literature and call it the poverty line. Results applying the 60 % EU poverty line instead of the Danish 50 % poverty line are available from the author upon request.

A number of different subjective poverty measures are applied, including sixteen items of deprivations, which are reported by an adult in the household: Leaking roof, damp walls/floors/foundation, or rot in window frames or floor; Ability to keep the home adequately warm; Arrears on mortgage or rental payments; Arrears on utility bills; Arrears on hire purchase instalments or other loan payments; No capacity to afford paying for one week annual holiday away from home; No capacity to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day; No capacity to face unexpected financial expenses; Do not have a computer because cannot afford it; Do not have a car because cannot afford it; Cannot replace worn-out furniture because cannot afford it; Problems with the dwelling – too dark and/or not enough light; Noise from neighbours or from the street; Pollution, grime or other environment problems; Crime, violence or vandalism in the area; Unmet need for dental examination or treatment because cannot afford it. Less than 1 % in

Denmark: lacked bath or shower in dwelling; lacked indoor flushing toilet for sole use of the household; lived in an over-crowded accommodation (more than 2 persons per room – own definition); or, had unmet need for medical examination or treatment because it was unaffordable. Therefore, these four deprivations were not included in the analysis. Further details regarding the different deprivations can be found in European Commission (2019).

The number of deprivations was used as a summary measure of deprivations. Even experiencing one of the listed sixteen deprivations must be serious enough for any individual or family, nevertheless we define a measure of accumulated deprivations requiring that a household is experiencing at least four out of the sixteen deprivations, which means the household is undoubtedly seriously deprived. Other cut-offs than at least 4 deprivations could also have been used.

Finally, we present two other subjective measures such that a household is subjectively poor: if its income is below a self-stated required amount (lowest monthly income to make ends meet); if it has great difficulty or difficult to make ends meet (another less severe form is “some difficulty”).

## Results

### Summary measures of poverty

Among children aged 0-17 years in Denmark in 2019, 4.1 % lives in households, where the equivalized disposable income is below 50 % of the Danish national median income, and in that sense around 4 % of Danish children experience income poverty (Table 1). The 95 % confidence interval for this estimate is 3.2-4.9 %, which also contains Eurostat's estimate for child poverty in Denmark.

The relative income poverty measure is close to one of the three applied subjective measures of poverty. According to households themselves, 6.6 % have an income below what is required to make ends meet. Around one out of ten children (10.1 %) are in families where they make ends meet with difficulty or great difficulty. And 12.1 % of children are in families with an accumulation of deprivations. Only the make ends meet and deprivation accumulation subjective poverty measures have overlapping confidence intervals. Income poor and own threshold subjective poverty children nearly have overlapping confidence intervals, but this does not tell us anything about whether there is also an overlap of children experiencing objective and subjective poverty.

Table 1. Child poverty rates in Denmark.

	Share	SE	95 % confidence interval	
	%	% point	Lower	Upper
Income poor	4,1	0,44	3,2	4,9
Subjectively poor, own threshold	6,6	0,56	5,5	7,7
Subjectively poor, make ends meet	10,1	0,68	8,8	11,4
Poor, at least 4 deprivations	12,1	0,73	10,7	13,6

Note: All poverty definitions are explained in the Methodology section. The sample size is n=1996.

Source: Own calculations based on EU-SILC 2019 for Denmark.

### Overlap between poverty measures

Although the correlation coefficients are all highly significant, the correlations between the objective poverty measure and the subjective poverty measures are not high (Table 2). The maximum correlation coefficient is 0.46 (own threshold poverty) and the minimum correlation is down at 0.08 (at least 4 deprivations). Even the subjective measures among themselves only reaches a maximum of 0.53 (make ends meet and deprivation accumulation).

Table 2. Pearson correlation coefficients for poverty measures.

	Income poor	Subjectively poor, own threshold	Subjectively poor, make ends meet	Poor, at least 4 deprivations
Income poor	1			
Subjectively poor, own threshold	0,46	1		
Subjectively poor, make ends meet	0,11	0,21	1	
Poor, at least 4 deprivations	0,08	0,09	0,53	1

n=1996.

Source: See Table 1.

Table 3. Income poor children who are also subjectively poor, and vice versa.

	Income poor who are also subjectively poor		Subjectively poor who are also income poor	
	%	n	%	n
Income poor		37		37
Subjectively poor, own threshold	61,6	37	37,9	96
Subjectively poor, make ends meet	26,0	37	10,4	144
Poor, at least 4 deprivations	24,4	37	8,2	166

Source: See Table 1.

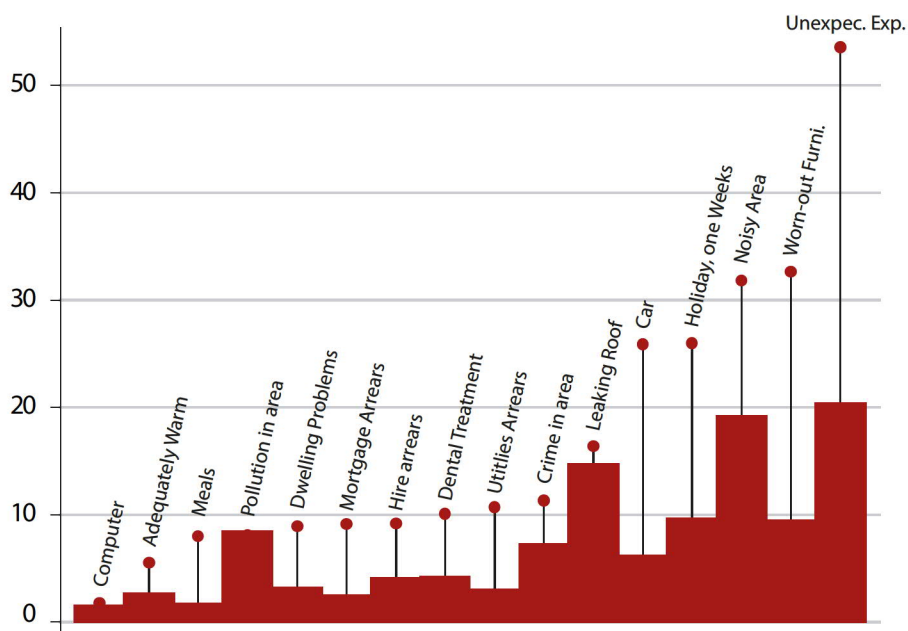
A first impression of the degree of overlap between the different poverty measures is displayed in Table 3. Between 24 and 62 % of the income poor children are also classified as subjectively poor. The highest overlap between objective poverty and subjective poverty is with respect to own threshold subjective poverty since 62 % of the income poor are also poor according to their own definition of the poverty line. Objective poverty has much less overlap with the two other subjective poverty measures (24 and 26 %). Similarly, 38 % of the subjectively poor according to own threshold are also income poor, while this is true for only 10 % of the make ends meet poor and as little as 8 % of the deprivation accumulation poor.

One might conclude that the overlap between objective poverty and subjective poverty is not large since around 24-62 % of the income poor also experienced a given type of subjective poverty, which means a rather large number did not self-report poverty (subjective poverty). On the other hand, 24-62 % of the lower part of the income distribution (below 50 % of median income) classifying themselves as poor in a developed welfare state is nevertheless a remarkable fraction. The observation that the overlap between income poverty and subjective poverty is not systematically high indicates that poverty is still a phenomenon that is difficult to encompass in one single indicator such as income poverty or subjective poverty. But moving from one welfare measure to multiple welfare measures poses methodological and expositional challenges, which requires robust methods to properly analyse multidimension welfare/poverty (Alkire and Foster 2011; Arndt et al. 2013; Hussain et al. 2020).

### **Subjective poverty and deprivation risk among income poor and non-poor**

Although, the *overlap* between various types of poverty might not be large, the difference in the *risk* of deprivation respectively subjective poverty between poor and non-poor children might still differ. The most frequent deprivation is the lack of capacity to face unexpected financial expenses, which is experienced by 54 % of poor children and by 20 % of non-poor children (Figure 1). Another frequent deprivation is the inability to afford replacing worn-out furniture which affects 33 % of poor children and 9 % of non-poor children. Also, noise from neighbours or from the street is a frequent problem, which hits 32 % of poor children and 19 % of non-poor children. The least common deprivations are: not having a computer because it was not affordable (1.7 % among the poor and 1.5 % among the non-poor); inability to keep the accommodation adequately warm (5.5 % among poor children and 2.6 % among non-poor children); lacking capacity to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day – 8.0 % among the poor and 1.7 % among the non-poor.

Figure 1. Percentage with deprivation among poor (spike/dot) and non-poor (bar).



Note: See Methodology Section for full deprivation names.

Source: See Table 1.

The biggest relative difference between poor and non-poor children's deprivation is with respect to the capacity to afford a meal with meat, chicken, fish or vegetarian equivalent every second day, where poor children have a nearly five times higher risk of deprivation than their non-poor peers. Poor children have around a four times higher deprivation risk than non-poor children regarding affording a car, or arrears on utility bills respectively arrears on mortgage or rental payments. On average, the deprivation risk is 2.6 higher for poor children compared to non-poor children. Also, on average poor children have 2.2 deprivations out of 16 possible deprivations, while non-poor children have 1.3 deprivations. More than one quarter of poor children are deprived with respect to: Affording a car; Capacity to afford paying for one-week annual holiday away from home; Noise from neighbours or from the street; Replacing worn-out furniture; Capacity to face unexpected financial expenses.

Subjective poverty risks similarly differ quite remarkably between income poor and non-poor children (Table 4), especially regarding subjective poverty using the own poverty threshold, where 4.3% of income non-poor children are subjectively poor, while this is the case for 61.6% of income poor children. A clear subjective poverty rate difference is also present between income poor and non-poor with respect to the two other types of subjective poverty, but to a lesser extent – 9% versus 26% respectively 12% vs 24%.

Table 4. Risk of subjective poverty by income poverty status. %.

	Subjectively poor, own threshold	Subjectively poor, make ends meet	Poor, at least 4 deprivations
Not income poor	4,3	9,4	11,6
Income poor	61,6	26,0	24,4
Total	6,6	10,1	12,1

Source: See Table 1.

Thus, although objective income poverty does not necessarily imply that a child is also subjectively poor, e.g., there is not a one-to-one correspondence between objective and subjective poverty, evidence clearly shows that income poverty is nevertheless a clear indicator of deprivation or subjective poverty in different dimensions of welfare. Also, the income poverty classification of children clearly reveals some patterns showing how different the living conditions are when comparing poor and non-poor children. Children below the relative poverty line in Denmark are thus much more often deprived than non-poor children.

## Sensitivity analysis

The same analysis as above were carried out separately for the years 2017 and 2018, and the conclusions remains regarding the very much higher deprivation among income poor children compared to non-poor children.

Nevertheless, some central estimates do change indicating that the overlaps between objective poverty and subjective poverty are higher in 2017 and 2018 compared to 2019. In Table 3 it is seen that respectively 62, 26 and 24 % of the objectively poor are also poor with respect to the three subjective poverty measures. In 2017 these overlap shares are 72, 34 and 46 %, and in 2018 they are 84, 33 and 35 %. These are rather large changes in structural parameters over a short period of three years (though, this might be due to small sample sizes), which could be an avenue for future research around this topic.

## Conclusion

Representative cross-sectional data from EU-SILC covering 2019 are applied to estimate income poverty as well as poverty using different definitions of subjective poverty. The results indicate that objective income poverty does not necessarily imply subjective poverty at the individual level, e.g., children with the lowest incomes are not always found to be in families who themselves report having material hardship. This means that additional income is not always enough to reduce subjectively experienced poverty. On the other hand, the importance of income should not be underestimated since income



poor children have a much higher risk of being deprived in any of the sixteen analysed welfare dimensions, and also exhibit a higher risk of subjective poverty. Income poverty is thus still a useful tool to distinguish between poor and non-poor children, but the results also shows that subjective poverty measures are important supplements as they to partly complement the headcount ratio representing the fraction of children below the national poverty line. This underscores poverty's multi-faceted nature that must methodologically be treated as such applying appropriate approaches, including a robust approach to multidimensional welfare.

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