

Innocenti Working Paper

**THE BREADTH OF CHILD POVERTY IN
EUROPE: AN INVESTIGATION INTO
OVERLAP AND ACCUMULATION OF
DEPRIVATIONS**

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IWP-2011-04

May 2011

Innocenti Working Papers

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ISSN: 1014-7837

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The Breadth of Child Poverty in Europe: An investigation into overlap and accumulation of deprivations

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Summary: Moral, efficiency, and rights-based arguments have sparked widespread acknowledgement in both academic and policy circles that children deserve a special focus in poverty measurement. The European Union (EU) is amongst those bodies that have recognized the need for child-focused indicators in monitoring poverty and social exclusion and is currently in the process of developing, testing and comparing single indicators of child well-being across member states. In this paper we seek to add to this debate by providing a micro-analysis of the breadth of child poverty in the European Union, considering both the degree of overlap and accumulation of deprivations across monetary and multidimensional indicators of poverty. The objective of this paper is to conduct an overlap analysis of child deprivation in the EU to gain insight into the breadth of child poverty and degree of overlap between measures of monetary and multidimensional poverty. Particular attention will be paid to investigate cross-country and cross-domain differences.

Using the 2007 wave of the EU-SILC data, we compare the European Union (EU) monetary 'at-risk-of-poverty' indicator to a range of child deprivation indicators at domain level in four EU Member States (Germany, France, the Netherlands and the United Kingdom). Overall, the paper's findings provide a strong call for the need to take a multidimensional approach towards the measurement of child poverty in the EU context.

Keywords: cumulative deprivation, poverty measurement, multidimensional poverty, child poverty, European Union

Acknowledgments: This paper was prepared as part of an EU-SILC research undertaken with the affiliation of Maastricht Graduate School of Governance, Maastricht University. The research for this specific paper received the financial support of UNICEF IRC. We would like to thank Marie-Hélène L'Heureux, Jessica Breaugh, Julie Charest, Genie Wu and Kirsten Davis for their contributions to this research project. Any remaining errors and omissions are the authors' sole responsibility. The statements in this paper are the views of the authors and do not necessarily reflect the policies or the views of UNICEF and of their own respective affiliations.

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1. INTRODUCTION

Recent years have witnessed widespread acknowledgement in both academic and policy circles that children deserve a special focus in poverty measurement (Ben-Arieh, 2000; Minujin et al, 2005; Roelen, Gassmann and Neubourg de, 2009b). The case for a child focus in poverty and development debates can be made on moral, rights and efficiency based grounds. It is now widely recognized that children have different basic needs from adults and are harder hit, both in the short- and long-term, when their basic needs are not met.

Children growing up in a poor or low-income family are more likely to receive poorer health care, to obtain lower educational outcomes and to reach lower levels of attainment in the labour market (Haveman and Wolfe, 1995; Brooks-Gunn and Duncan 1997; Duncan and Brooks-Gunn, 1997; Esping-Andersen, 2002). Malnutrition, lack of health care and low levels of education during infancy and childhood have far-reaching and long-lasting detrimental consequences (Haveman and Wolfe, 1995; Brooks-Gunn and Duncan 1997; Duncan and Brooks-Gunn, 1997), which do not only impact the child as an individual but the society as a whole (Esping-Andersen, 2002). Jones and Sumner (2011) point towards the '*differential experience*' of poverty in childhood, setting their situation apart from adults as well as from other children depending on their life-stage. This distinct situation of children calls for a specific focus in policy and poverty debates as they appeal to moral obligations to provide children with basic needs, declarations of human and children's rights to secure the entitlement to basic living conditions and to efficiency arguments as childhood presents a unique window of opportunity for human capital investment.

The European Union (EU) has also acknowledged the need for such child-focused indicators in monitoring poverty and social exclusion (Bradshaw et al., 2006; European Community, 2008) and is currently in the process of developing, testing and comparing single indicators of child well-being across member states (European Commission, 2008). This paper aims to add to this debate by providing a micro-analysis of the breadth of child poverty in the European Union, considering both the degree of overlap and accumulation of deprivations across monetary and multidimensional indicators of poverty. There is now widespread evidence that there is limited overlap, and thus considerable mismatch, between different measures of poverty (Bradshaw and Finch, 2003; Perry, 2002; Wagle, 2009). This notion does not merely have implications for the academic debate, but also for the use of poverty approaches in the policy sphere and the formulation of policy responses (Roelen, Gassmann and Neubourg de, 2009b; Ruggeri Laderchi, Saith and Stewart, 2003). This paper aims to investigate the extent of mismatch

with respect to monetary and multidimensional indicators of child poverty in the EU and to consequently address its implications for the policy debate.

In sum, the objective of this paper is to conduct an overlap analysis of child deprivation in the EU to gain insight into the breadth of child poverty and the degree of overlap between measures of monetary and multidimensional poverty. Particular attention will be paid to investigate cross-country and cross-domain differences. The paper will be structured as follows: firstly, we provide an overview of the remit of child poverty in the EU and larger OECD area, particularly focusing on the current debate around the formulation of appropriate child poverty indicators and the wider body of research on poverty mismatch. Secondly, we elaborate on the data used for this study as well as the underlying measures of monetary or income child poverty and the multidimensional measures of poverty. The analytical part of this paper will commence with a discussion of findings on the breadth of poverty, based on the analysis of overlap and associations between poverty indicators. This is followed by an analysis of cumulative deprivation. The remainder of the empirical analysis looks into child poverty profiles, assessing individual and household level factors underlying income and domain deprivation as well as cumulative deprivation. Finally, we provide conclusive remarks and recommendations on the way forward for child poverty measurement in the EU.

2. CHILD POVERTY IN THE EUROPEAN UNION

The widespread acknowledgment that children deserve a special focus in the poverty debate (Ben-Arieh, 2000) has led to increased attention for child poverty in both the academic as well as the policy field (Jones and Sumner, 2011). In recent years, a range of studies have been undertaken in the EU and larger European and OECD region that focus particularly on children and provide a contribution to both the scientific and policy debate about child poverty or, in more positive terms, child well-being (Bradshaw, Hoelscher and Richardson, 2006; Bradshaw and Richardson, 2009; OECD, 2009; Richardson et al., 2008; Menchini and Redmond, 2009; TARKI Social Research Institute and Applica, 2010).

These recent studies investigating child poverty in the EU and rich countries emphasize the need for a diversified picture on the basis of a set of indicators, which includes measures of both material and non-material deprivation (e.g. UNICEF, 2007; OECD, 2009; Richardson et al., 2008). These conclusions, however, are drawn on the basis of a macro analysis at country-level, rather than at the micro-level. The majority of studies focus primarily on the investigation of differences across countries and identifying the best versus the worst performers. The Child Well-being Index was developed by Bradshaw et al. (2007) to enable a ranking of EU countries and assess their relative performance with respect to a range of different domains of child well-being, thereby

using a wide array of available data sources at the country level. The publication of its results in the *UNICEF Innocenti Report Card 7* (UNICEF, 2007) sparked extensive debate across the EU, and particularly in the UK, on the situation of children. The same methodology was also applied in the CEE/CIS context (Richardson et al., 2008) and updated for the EU countries (Bradshaw and Richardson, 2009). OECD's *Doing Better for Children* report (2009) employs a similar strategy and focuses on the country as the unit of analysis, using data that are collected at the country level, but that do not allow to make any reference to individual children. TARKI and Applica (2010) do consider the issues of child well-being at a micro-level by using the EU-SILC data to analyze child poverty and well-being on the basis of both monetary and non-monetary indicators, but fail to investigate the degree or patterns of overlap in deprivation. The importance of the analysis of different poverty approaches and their degree of overlap or mismatch in terms of outcomes has been acknowledged and emphasized by many scholars (see e.g. Klasen, 2000; Laderchi, 1997; Neubourg de, Roelen and Gassmann, 2009; Sahn and Stifel, 2003). Within the wider EU context, a number of studies have been undertaken to assess the degree of overlap or mismatch (e.g. Bradshaw and Finch, 2003; Coromaldi and Zoli, 2007; Dekkers, 2003; Richardson et al., 2008; Whelan et al., 2001) and the majority of these studies conclude that monetary indicators versus alternative or multidimensional indicators do not identify the same groups of individuals as poor. No such studies, however, have been undertaken with a special focus on child poverty.

There are many other reasons for studying mismatch patterns (for an excellent overview, see Nolan and Whelan, 2009). Some financial poverty analyses might focus only on the overlap between the income poverty and financial strain domain labelling individuals with 'overlapping deprivations' as 'consistent-poor' (Förster, 2005; Nolan and Whelan, 2009), possibly serving as a proxy for chronic poverty patterns in the absence of panel data (Clark and Hulme, 2005; Hulme and McKay, 2008). Mismatch patterns could help to provide insight into the size of specific measurement errors or to gauge the differences between objective and subjective indicators of deprivation. Moreover, depending on the policy domain and audience, one (set of) indicators could be more pertinent: indicators reflecting neighbourhood conditions and access to services are relevant from an urban planning perspective whilst issues of financial strain, housing problems and income poverty are more closely linked to social (protection) policy. In sum, there are strong grounds on which to analyze the different domains of child poverty in conjunction with each other to get a comprehensive and diversified picture. This paper takes a micro-perspective to analyze the degree of overlap across indicators of both monetary and multidimensional child poverty, thereby combining the debates on child poverty and those on overlap of poverty.

3. METHODOLOGY

a. Data

In order to gain a better understanding of the multiple and simultaneous deprivation patterns of children, it is essential to have the information on all domains for each child available in a single dataset. This requirement is fulfilled by the EU Statistics on Income and Living Conditions (EU-SILC) data. The EU-SILC dataset has been constructed with the aim of collecting timely and comparable cross-sectional and longitudinal multidimensional micro data on income poverty and social exclusion (European Commission, 2009a). It was launched in 2004 and contains cross-sectional as well as panel data; the 2007 wave covers data from 24 EU Member States, plus Norway and Iceland. All current households and their members residing in the territories are part of the reference population. Those individuals living in collective households and institutions as well as small parts of national territories are not included (European Commission, 2009a). Variables include both household and personal level indicators on income and a range of other issues that allow for the construction of monetary and multidimensional poverty measures, including the EU's benchmark poverty indicators, so-called 'at-risk-of-poverty' rates (Marlier et al 2007). In this paper we use the 2007 wave.

The analysis focuses on a subgroup of Member States having comparable living standards, namely Germany, France, the Netherlands and the United Kingdom. In spite of this, there are quite some differences in the organization and structure of the societies in these countries, in areas such as demographics, the economy and labour market, social policies and tax systems. It is reasonable to expect that these differences also play an important role in varying child poverty outcomes between countries (e.g. Whelan and Maître, 2010; Whelan, Nolan and Maître, 2008). At this point we would like to emphasize that it is not the objective of this paper to explain why and how much of the differences in child poverty outcomes can be related to each of these potential country-specific factors. Another consideration driving the selection of countries has been the comparability of the measured information across countries. The variables in the EU-SILC data are constructed *ex post* by harmonizing the information from the multi-purpose national surveys that feed into the EU-SILC; thus differences between variables across countries may also arise due to differences in the formulation of questions and data collection processes in general. It has been our aim to minimize this potential source of variation; we established this selection of countries after comparison of the questionnaires and analysis of descriptive statistics for our (pre)selection of indicators. Table 1 summarizes the sample statistics of each country.

Table 1: Sample statistics

	DE	FR	NL	UK
	Total	Total	Total	total
Households	14,153	10,498	10,219	9,275
Individuals	31,709	25,907	25,905	21,942
Children 0-17	6,185	6,314	6,948	4,927

Source: authors' calculations with EU-SILC, wave 2007

b. Monetary child poverty indicator

This paper employs the European Union financial poverty indicator, which is constructed comparing a household's adult equivalent income to a relative poverty line that is set at 60 per cent of national median disposable income (European Commission, 2009). It is important to note that the monetary poverty indicator is based on a nationally specified poverty threshold; whilst the thresholds for the multidimensional deprivation indicators are the same across all EU member states (i.e. the reference community for establishing the poverty thresholds is different).

Disposable household income includes income from wages and salary, earnings from self-employment, capital, private transfers and a wide range of social protection benefits during the income reference period preceding the timing of the survey. Like all variables in the EU-SILC data, the household income variables are harmonised through a series of post data collection methods. Eurostat considers that the income variables in this study are either fully comparable (the Netherlands) or largely comparable to other EU member states (United Kingdom, Germany and France). To arrive at equivalent adult income, a household's disposable income is subsequently adjusted for the demographic composition of the household using the modified OECD equivalence scales.¹ A household and all its members are considered 'at-risk-of-poverty' if the household's adult equivalent income falls below the poverty line; a child is poor when she lives in an income-poor household. Although various aggregate measures for income poverty exist, the nature of the multidimensional poverty indicators and underlying data implies that we can only make a comparison on the basis of the headcount poverty measure.

c. Multidimensional poverty indicators

The multidimensional poverty indicators for this study were especially selected and formulated to appropriately reflect child poverty in the EU. A number of steps are inherent to the construction of a multidimensional child poverty approach, all of which are subject to value judgments and carry a degree of arbitrariness (Roelen et al, 2009a). The various steps involved in developing a tailor-made and context-specific approach

¹ The modified OECD equivalence scale gives a weight of 1 to the first adult in the household, a weight of 0.5 to other members aged over 14 years and a weight of 0.3 for children under age 14.

include the clear identification of the approach’s rationale and purpose, the formulation of its conceptual framework, the selection and formulation of domains and indicators, and the construction of outcome measures. The construction process for the multidimensional child poverty approach for the specific purposes of this study has been extensively discussed in Notten and Roelen (2010). The rationale and purpose of the approach was identified as pertaining to the analysis of the degree of overlap for groups of children captured by monetary and multidimensional poverty measures at a micro-level and in a cross-country comparative context. As such, the initial development of the approach was very much inspired by similar motivations for this present study. The conceptual framework of the multidimensional child poverty approach reflects the notions of both child well-being and well-becoming, thereby stressing the importance of both current quality of life for children as well as their opportunities to prepare for adulthood. This combination of, usually, distinct theoretical concepts also allows for the use of both outcome- and opportunity-based indicators for the operationalization of the conceptual framework. Against the backdrop of this conceptual framework and the available data, domains and indicators were consequently selected on the basis of the extent to which they offer a clear and widely accepted normative interpretation, comply with universality and rights principles and allow for cross-country comparisons. Table 2 presents the selected indicators within their domains.

Table 2: Domains and indicators

Housing	Dwelling has leaking roof, damp walls/floors/foundation, or rot in window frames or floor
	Dwelling is not comfortably warm during winter time
	Dwelling is overcrowded (threshold: see note to this table)
Neighbourhood	Pollution, grime or other environmental problems
	Crime violence or vandalism in the area
Basic services	Accessibility of primary health care services (threshold: with some or great difficulty)
	Accessibility of compulsory school (threshold: with some or great difficulty)
Financial resources	Household has payment arrears on mortgage/rent, utility bills, instalments/loan payments
	Household cannot afford meal with meat, chicken, fish, vegetarian equivalent every 2 nd day
	Household cannot afford paying for one week annual holiday away from home
	Household cannot afford a computer for financial reasons
	Household cannot afford a car for financial reasons
	Ability to make ends meet (threshold: with difficulty or great difficulty)

Note: The threshold for the overcrowding indicator is based upon the number of rooms in the dwelling and the age, number of and relationships between household members (following TARKI Social Research Institute, 2010).

The indicators selected for the purposes of this study include both opportunity- and outcome-related indicators, such as accessibility of services versus crime or violence in

area. It also has to be noted that the indicators included in the multidimensional poverty measure reflect the situation at the time of the survey. The poverty measures employed in this paper constitute poverty headcount rates at domain level (referred to as domain poverty rates), which builds on the poverty headcount rates at the level of individual indicators (indicator poverty rates). The indicator poverty rate simply reflects the proportion of children that does not meet the established threshold for the particular indicator. The domain poverty rate is consequently constructed along the lines of the union approach as aggregation procedure, considering a child to be poor in a particular domain when they are poor with respect to at least one of the individual indicators within that domain (Atkinson, 2003; Alkire and Foster, 2008). Consequently, the domain poverty rate represents the proportion of children that is poor within that domain, given the union approach. Before proceeding with the empirical analysis, it has to be noted that domain indicators are subject to sensitivity in terms of the underlying choice and inclusion of indicators and their thresholds. Nevertheless, we consider the domain poverty rates to be crucial to provide insights into alternative and multiple dimensions of child poverty in the EU. A full sensitivity analysis assessing the robustness of domain outcomes against changes in underlying indicator thresholds and inclusion or exclusion of indicators can be found in Notten and Roelen (2010). Although it calls for caution when interpreting domain poverty outcomes, it also points towards the largely consistent results in terms of financial resources despite the comparatively large number of indicators included.

4. BREADTH AND ACCUMULATION OF POVERTY AND DEPRIVATION

In this section we discuss the findings of a non-parametric analysis with respect to the breadth of poverty, the accumulation of poverty and the characteristics/determinants underlying these patterns.

a. Breadth of poverty

Estimates in Table 3 present the domain deprivation rates for children in four different EU countries and their respective standard errors.

Table 3: Domain deprivation rates and standard errors for children

Domain	DE	FR	NL	UK
Housing problems	25.7 [24.0,27.5]	29.0 [26.8,31.2]	24.3 [22.2,26.5]	28.5 [26.4,30.8]
Neighbourhood problems	26.4 [24.6,28.1]	25.3 [23.1,27.7]	26.7 [24.7,28.7]	35.2 [33.0,37.3]
Difficult access to basic services	22.7 [21.1,24.5]	13.6 [12.2,15.2]	14.4 [12.8,16.2]	12.0 [10.4,13.8]
Financial strain	37.5 [35.5,39.4]	41.4 [39.2,43.5]	21.5 [19.4,23.9]	41.3 [39.0,43.5]
Monetary poverty	13.9 [12.6,15.4]	15.7 [14.0,17.5]	13.9 [11.7,16.5]	23.0 [20.9,25.1]

Source: authors' calculations with EU-SILC, wave 2007. Standard errors are calculated taking into account the survey sampling design.

The picture with respect to monetary and dimensional poverty (i.e. incidence rates across different dimensions of child poverty) across the four countries is varied and does not point towards a country that consistently has the lowest or highest incidence rates across all domains. Levels of dimensional and monetary poverty are generally highest for UK, although deprivation with respect to access to basic services is smallest in this country. The Netherlands has the lowest incidence rates in terms of monetary poverty, financial strain and housing problems but slightly higher proportions of children experiencing neighbourhood problems or difficult access to basic services than other countries. Deprivation patterns in Germany and France are also mixed with their ranking vis-a-vis other countries being very dependent on the domain under consideration.

Deprivation patterns across domains are slightly more consistent. Financial strain is the most prevalent problem in all countries with incidence rates ranging from 22 per cent in the Netherlands to 41 per cent in France and the UK. Domains in which deprivation rates are also high in all countries are neighbourhood and housing problems whilst incidence of deprivation is lowest with respect to access to services and monetary poverty. The magnitude of incidence differs considerably by country, however. Whilst monetary poverty amounts to 14 per cent in Germany and the Netherlands, it is 10 percentage points higher in the UK at 23 per cent. Similarly, 12 per cent of all children in the UK experience difficult access to basic services whilst this amounts to 23 per cent in Germany.

In sum, the analysis of deprivation levels across countries and domains does not point towards obvious hypotheses with respect to overlap patterns or combined deprivations either between monetary and domain poverty or across the various domains of poverty. Nevertheless, it is important to keep these levels of domain poverty in mind as they have important implications for the consequent analysis of overlap and combined deprivations.

Figure 1: Overlap patterns

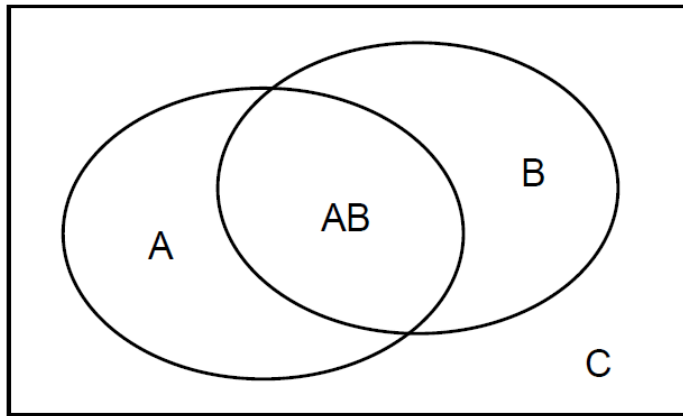


Table 4 summarizes the degree of mismatch between monetary and non-monetary poverty domains when using the union approach on the basis of monetary poverty and domain deprivation. In other words, a child is considered deprived when either domain poor (A), monetary poor (B) or both (AB). The Venn diagram in Figure 1 illustrates the union approach and the concurrent ‘poverty groups’. The second column in Table 4 presents the proportions of the child population that are union poor and belong to either groups A, B or AB. Depending on the country and the domain under consideration, this percentage varies between 27 per cent and 49 per cent. The subsequent columns point towards the degree of mismatch between monetary poverty and domain poverty by presenting estimates for the groups of children identified by either one or both of the indicators as a proportion of the total group of children identified as deprived on the basis of the union approach. In conjunction with the overlaps analysis on the basis of the union approach, we also consider the odds ratios that indicate the extent to which children that are monetary poor are also more likely to be deprived in the specific domain.²

² It should be noted that the reference periods for monetary and multidimensional poverty indicators (i.e. reference period preceding the survey vs. current situation at time of the survey) and that the overlap analysis between both measures de facto compares outcomes between two different periods. However, given the nature of the underlying indicators and their limited fluidity, we do not expect this to have a significant impact on the outcomes of the overlap analysis.

Table 4: Union poverty and mismatch patterns

	A, B or AB (as % of total population)	A - deprived but not income poor (as % of A+B+AB)	B- income poor but not deprived (as % of A+B+AB)	AB - deprived and income poor (as % of A+B+AB)	odds
Housing problems					
DE	32.9 [31.0,34.8]	57.8	21.9	20.4	3.30*
FR	35.9 [33.7,38.1]	56.1	19.2	24.7	4.03*
NL	32.4 [30.0,34.9]	57.1	25	17.9	2.59*
UK	40.4 [38.1,42.6]	43.2	29.3	27.5	3.23*
Neighbourhood problems					
DE	35.1 [33.2,37.0]	60.4	24.8	14.8	1.84*
FR	35.8 [33.4,38.2]	56.1	29.1	14.8	1.61*
NL	37.6 [35.2,40.0]	63.2	29.1	7.7	0.71
UK	49.3 [47.1,51.6]	53.4	28.7	17.8	1.18
Difficult access to basic services					
DE	32.7 [30.9,34.6]	32.5	62.1	5.3	1.43*
FR	27.0 [25.0,29.1]	7.1	89.9	3	1.1
NL	26.2 [23.9,28.6]	24.9	70.3	4.9	1.1
UK	31.1 [28.9,33.3]	3	95.4	1.7	1.75*
Financial strain					
DE	41.4 [39.4,43.3]	66.3	9.4	24.2	5.48*
FR	45.0 [42.8,47.1]	65.1	8	26.9	6.30*
NL	28.5 [26.1,31.0]	51.2	24.2	24.6	4.92*
UK	47.3 [45.1,49.6]	51.5	12.9	35.7	5.99*

Source: authors' calculations with EU-SILC, wave 2007. * means significant at a 99% level.

Levels of union poverty, overlap, and the odds across domains are highest when considering monetary poverty in tandem with financial strain. In other words, being monetary poor increases a child's chance of experiencing financial strain as well. Having

said that, it should also be noted that the level of financial strain deprivation without being monetary poor is considerable; respectively 51 and 52 per cent in the Netherlands and UK and respectively 66 and 65 per cent of all children in Germany and France that experience union poverty (i.e. are monetary or dimensionally poor or both) are only financially strained but not monetary poor (i.e. belong to group A). In other words, the greater possibility of being financially strained when in monetary poverty does not preclude financial strain without monetary poverty. As such, neither monetary poverty nor financial strain can be considered as a proxy for one another. A similar degree of mismatch can also be observed with respect to neighbourhood problems vis-a-vis monetary poverty and, to a lesser extent, between housing problems and monetary poverty. With respect to access to basic services, the proportions of children experiencing dimensional poverty without monetary poverty or combined deprivation are a lot lower, although this finding can be largely attributed to the low proportions of children having difficulty to access basic services (see Table 3). In fact, the odds ratios point out that although only 2 per cent of all children in the UK in union poverty experience combined deprivation (i.e. belong to group AB), their chances of facing difficulties in accessing basic services increase significantly when monetary poor.

Comparing overlap of monetary and domain deprivation across countries indicates that the Netherlands generally holds the lowest levels of union poverty; a result that can be largely attributed to the comparably low levels of domain poverty. In addition, when monetary poor, the odds for experiencing multidimensional types of deprivation are lowest (and less likely to be significant) in the Netherlands. In Germany, being monetary poor increases the odds for experiencing deprivation in any other dimension, ranging from 1.43 with respect to access to services to 5.48 in terms of financial strain. The analysis of monetary poverty and financial strain in France suggests that these children face a relatively small monetary poverty risk (with poverty rate of 16 per cent) but a high chance of being financially strained (with an incidence rate of 41 per cent). Looking at these two types of deprivation in tandem suggests that French children who are monetary poor are also considerably more likely to be financially strained. However, it should also be noted that 65 per cent of children experiencing union poverty are financially strained but not monetary poor. Finally, children living in the UK are more likely to be either monetary poor, domain deprived or both with relatively high rates of union poverty. This higher poverty risk, however, is not necessarily matched with comparatively higher odds ratios than in other countries. Hence, a child that is monetary poor in the UK does not necessarily have a higher chance of being deprived in other domains than a child living in Germany, France or the Netherlands. An overlaps analysis of monetary poverty and neighbourhood problems, for example, points towards high union poverty at 49 per cent (i.e. almost half of all children in the UK are either monetary poor, experience neighbourhood problems or both) but does not provide any evidence of increased odds for experiencing neighbourhood problems when monetary poor. By contrast, union

poverty in Germany is 14 percentage points lower at 35 per cent but German children that are monetary poor do have an increased chance of experiencing neighbourhood problems. In other words, monetary poverty cannot generally be considered ‘contagious’ across all domains as being monetary poor does not necessarily increase chances of deprivation in other domains, especially with respect to neighbourhood problems and access to services.

The overlaps analysis of monetary and domain poverty on the basis of incidence rates, union poverty and odds ratios reveals that gaining insight from different perspectives is important for gaining a full picture of child poverty across these four countries. The main underlying finding to support this claim is that overlap between monetary poverty and different types of domain poverty is strikingly low. Regardless of whether underlying domain deprivation rates are high or low, the mismatch between groups of children experiencing monetary and domain poverty (i.e. the proportions of children belonging to either group A or B rather than AB) are considerable. High rates of union poverty do not always go hand-in-hand with increased odds of experiencing domain and monetary poverty jointly. By the same token, being monetary poor might increase a child’s odds of being domain poor but this does not necessarily suggest that all children in domain poverty are also monetary poor. There are a number of hypotheses that could explain the lack of overlap between poverty outcomes based on different types of indicators (see Bradshaw and Finch, 2003) but we do not wish to examine this discussion further here. Rather, it is important to highlight that this analysis shows that a monetary indicator of child poverty cannot be used as a proxy indicator for deprivation in other areas and that doing so would result in excluding large groups of vulnerable children from the identification process.

A discussion of overlap percentages and odds ratios presented in Table 5 extends our analysis by considering the degree of association across the range of domain poverty indicators.

Table 5: Overlap percentages and odds ratios

	Neighbourhood Problems		Difficult access to basic services		Financial strain	
	Overlap (%)	Odds	Overlap (%)	Odds	Overlap (%)	Odds
Housing problems						
DE	9.5 [8.4,10.8]	2.02* [1.66,2.46]	7.1 [6.2,8.3]	1.45* [1.18,1.79]	15.9 [14.5,17.4]	4.00* [3.29,4.85]
FR	10.5 [9.0,12.2]	2.14* [1.74,2.64]	4.7 [3.7,5.8]	1.33 [1.00,1.77]	19.4 [17.6,21.3]	4.53* [3.69,5.56]
NL	8.5 [7.2,10.0]	1.71* [1.33,2.19]	3.9 [2.9,5.2]	1.17 [0.82,1.66]	9.1 [7.4,11.1]	3.02* [2.29,4.00]
UK	11.4 [10.0,13.0]	1.34* [1.09,1.66]	5.3 [4.0,6.8]	2.17* [1.56,3.01]	18.2 [16.2,20.4]	3.70* [2.99,4.57]
Neighbourhood problems						
DE			6.5 [5.5,7.7]	1.17 [0.93,1.46]	12.4 [11.1,13.8]	1.72* [1.43,2.07]
FR			3.8 [3.1,4.6]	1.14 [0.87,1.51]	13.3 [11.7,15.0]	1.83* [1.51,2.22]
NL			4.4 [3.6,5.3]	1.24 [0.94,1.64]	7.9 [6.6,9.4]	1.83* [1.41,2.38]
UK			5.7 [4.6,7.0]	1.80* [1.32,2.46]	16.5 [14.8,18.4]	1.44* [1.19,1.74]
Difficult access to basic services						
DE					10.7 [9.5,12.0]	1.67* [1.38,2.03]
FR					6.3 [5.2,7.5]	1.24 [0.96,1.61]
NL					4.4 [3.4,5.9]	1.78* [1.26,2.52]
UK					7.0 [5.6,8.6]	2.17* [1.61,2.92]

Source: authors' calculations with EU-SILC, wave 2007. * means significant at a 1% level.

A first observation suggests that the proportions of children experiencing double deprivation are highest for the combination of financial strain and housing problems, which can be partly attributed to high incidence levels of financial strain across all countries. When controlling for incidence levels by means of the odds ratio, findings show that children that are financially strained are considerably more 'susceptible' to facing housing problems with odds ratios ranging between 3.06 and 4.53 for respectively the Netherlands and France. A significant association can also be observed between financial strain and neighbourhood problems as well as difficulties of access to basic services. Although odds ratios are lower, they do point towards the general 'contagiousness' of financial strain with an increased chance of being deprived in any other domain when financially strained. Deprivation with respect to housing can also be considered 'contagious', especially vis-à-vis neighbourhood problems. Odds ratios range between 1.34 in the UK and 2.14 in France. Higher odds ratios are not necessarily

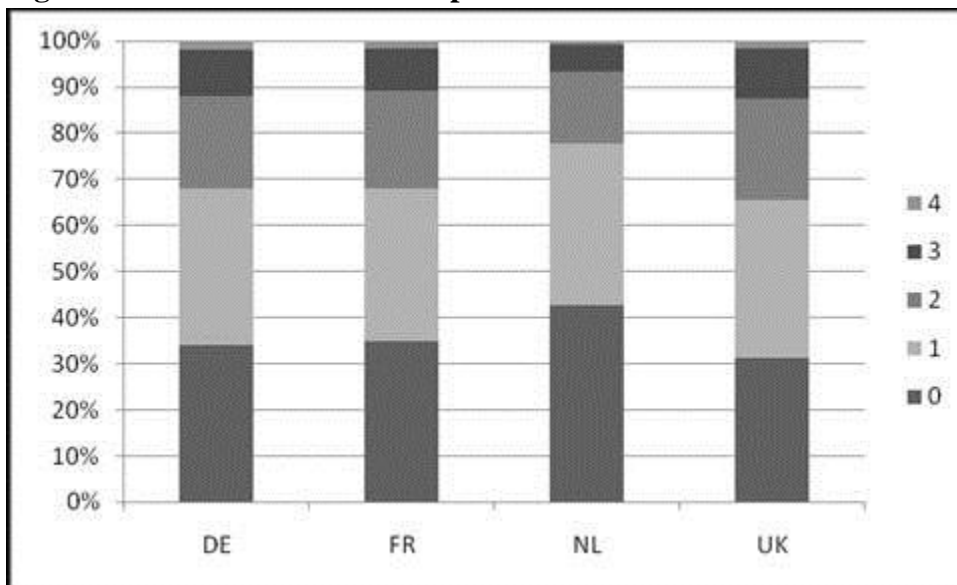
matched with higher proportions of overlap; the proportion of children experiencing both housing and neighbourhood problems is highest in the UK at 11 per cent but the odds ratio is lowest. In other words, the proportion of overlap in itself does not provide a solid indication of risks towards double deprivation in any given country. Finally, deprivation of access to basic services appears to be least associated with deprivation in other domains. Only in the case of the UK, children are consistently at higher odds of experiencing housing or neighbourhood problems or financial strain when being deprived of access to basic services.

In sum, this analysis points towards the strong need for an analysis of child poverty which is multidimensional in nature and builds on different perspectives. Whilst incidence rates at domain level (including the income domain) provide a first indication of the magnitude of the separate issues, they do not provide any insight into the degree of combined deprivation or answer to the question whether deprivation with respect to one domain also increases a child’s risk to deprivation in another domain.

b. Cumulative deprivation

A more cumulative perspective of multidimensional deprivation adds an additional perspective to the analysis by providing insight into the depth of poverty in a given country. A simple count of domain deprivations by child is presented in Figure 2 to depict the proportions of children that suffer from multiple domain deprivations (including income poverty).

Figure 2: Cumulative domain deprivation



Source: authors’ calculations with EU-SILC, wave 2007.

The stacked bars depict the proportions of children experiencing a particular number of domain deprivations in each country in a cumulative manner. For example, 31 per cent of all children in the UK experience no deprivation whilst 66 per cent of all children experience either no or one domain deprivation. Estimates clearly suggest that children in the Netherlands are least likely to experience any type of deprivation or combined deprivation. The proportion of children in the Netherlands not suffering from any kind of deprivation amounts to 43 per cent, which compares to 31 per cent in the UK. Consequently, the inverse of these numbers suggest that respectively 57 and 69 per cent of all children in the Netherlands and the UK are deprived in at least one domain. These proportions greatly outnumber any domain incidence rate, including monetary poverty and financial strain, and underline the degree of mismatch when identifying poor children on the basis of single domain indicators. Low proportions of cumulative deprivation in the Netherlands hold across all levels of accumulation. In the UK, however, children are more likely to experience 1 or 2 deprivations compared to children in the other three countries but this result no longer holds for higher levels of accumulation. Given the above analysis of odds ratios, it can also be observed that even though a Dutch child is less likely to experience double deprivation than a UK child, once deprived in one domain a Dutch child is not more or less likely of deprivation in another domain than a UK child.

In tandem, the analyses above allow us to draw a number of lessons learned about multidimensional child poverty in Germany, France, the Netherlands and the UK. Firstly, at domain level, financial strain is the most prevalent problem across all countries. As a result of the relatively high incidence rates of financial strain, the proportions of children experiencing overlap between financial strain and any other domain are also higher. The combined deprivation of monetary poverty and financial strain is most prevalent across all countries. Secondly, monetary poverty is strongly associated with financial strain and housing problems, leading to increased odds of being deprived in those domains when being monetary poor. Despite this strong association, identification of poor children merely on the basis of the monetary indicator would exclude a considerable proportion of children deprived in the other domain. Given this mismatch and the limited degree of association between monetary poverty and deprivation in other domains, monetary poverty cannot be assumed to capture other dimensions of poverty. Thirdly, deprivation with respect to financial strain appears to be most ‘contagious’ or make children ‘susceptible’ to deprivation in all other domains. Effects are strongest with respect to monetary poverty and housing problems but also hold in terms of neighbourhood problems and access to basic services. Children experiencing housing problems are also found to be especially prone to facing neighbourhood problems. Difficulties in access to basic services are least ‘contagious’ for deprivation in other domains. Fourthly, high proportions of overlap (i.e. percentages of children suffering both types of deprivation) do not go hand-in-hand with higher odds for experiencing deprivation in another domain

when already deprived in one. The lesson learned is largely methodological; overlap proportions are dependent on the level of underlying domain incidence rates whilst odds ratios control for the level of incidence. Finally, a comparison across countries at domain levels does not point towards one country that consistently holds bottom or top rank. The more diversified analysis on the basis of overlap, odds ratios and cumulative deprivation suggests that children in the Netherlands are least likely to experience any type of poverty. Children in the UK, however, are most likely to experience at least one type of deprivation or a combination of two types.

5. CHILD POVERTY PROFILES

In this section, we use logistic regression techniques to explore which characteristics are associated with identifying a child to be i) in income poverty, ii) domain deprived or iii) experience multiple deprivations. As part of the analysis, we also investigate to what extent these factors differ across countries. These so-called poverty profiles give more insight into the underlying dynamics of child poverty and may serve as an entry point for more thorough investigations into the reasons for and patterns of deprivation, including countries' employment, taxation and welfare policies. In each regression, the domain deprivation indicator is the binary dependent variable which is regressed against a set of explanatory variables. These include characteristics that are child-specific, pertain to the household at large, children's parents or carers and the household's environmental characteristics. We also estimate an ordered logistic regression model on the same explanatory variables using the cumulative number of deprivations as a dependent variable. Children are the unit of analysis and the models are estimated for each country separately.

The child-specific characteristics are gender and age variables (years and squared years). Included as household characteristics are household size (and squared size), household demographic composition, tenure status of dwelling (owned or rented), work intensity status of the household and the household's income poverty status (for indicators of multidimensional poverty only). The work intensity status of a household summarises the work status over the past year for all work age household members (aged 18 to 64). It is obtained by computing the ratio of worked months over workable months, averaged over all work age household members and subsequently divided into four categories ($WI=0$, $0 < WI < 0.5$, $0.5 \leq WI < 1$, $WI=1$). Characteristics of the child's parents or carers refer to unemployment spells during the survey reference period, their country of birth and level of educational attainment. The variable for spells of unemployment denotes a spell of unemployment for at least one parent lasting for at least one month during the income reference period. The country of birth variable refers to both parents being born in a country other than the current country of residence, whilst low educational levels

indicates that neither of the parents has followed secondary education. Finally, the environment characteristic takes into account the population density of the local area in which the household lives (dense, intermediate and low). The definition of local area corresponds to that of wards in the UK and municipalities in France and Germany; this variable is not available for the Netherlands. Table 6 in the Annex summarises the population shares of the characteristics.³

a. Income and domain poverty profiles

Analysis of the impact of various types of characteristics on income and domain poverty points towards a number of characteristics that add to the vulnerability of a child's position. However, the significance and magnitude of the effect of these characteristics depends on the particular domain under consideration. In this section, we pay particular attention to factors underlying domain vis-a-vis income poverty and the role of income poverty in predicting a child's risk to domain deprivation. Tables 7 to 11 in the Annex present the regression results for the different estimation models and report marginal effects and standard errors.

With respect to child-specific characteristics, we generally find little to no impact on either income or domain poverty. The interpretation of these outcomes has to be undertaken with caution, however, as all the outcome indicators are measured at the household rather than the individual level. The models at hand might not be equipped to adequately capture the impact of individual characteristics such as a child's gender and age on child poverty and, as a result, present us with underestimations of the actual effect that these factors have.

In terms of household characteristics, family type does point towards a recurring risk for children. In particular, children who live with single parents experience a considerably higher risk to being domain and income poor than their peers in households headed by two parents. The significance and magnitude of the effect, however, depends on the particular domain under consideration. Findings suggest that this factor plays a significant and considerable role in terms of income poverty and, especially, financial strain. In Germany, France and the UK, a child's probability of being financially strained is respectively 32 to 37 percentage points higher than for a child living with both parents (the reference category is a two-parent / one-child family). No significant impact,

³ A few categories have a very low population share (the category 'other' under household types, the category 'thinly populated' for the UK under level of urbanization); although included in the estimations, we do not focus on these groups in the analysis. The work intensity category between zero and 0.5 is also rather small, but we include this category in our analysis as the parameter estimates are consistent with the other lower work intensity categories.

however, was found in terms of the environment and access to basic services domains. An increase in poverty risk in terms of housing was only found in Germany and France. A second household characteristic with considerable impact on a child's domain and income poverty risk pertains to living in rented rather than owned dwellings. Apart from the access to basic services domain, living in a rented dwelling increases a child's probability of being poor across the board, albeit to a different degree. Effects are strongest with respect to financial strain and in the housing domain. In terms of housing, the risk of domain poverty is 15 to 22 percentage points higher for children living in rented dwellings across the four different countries. The impact is less pronounced with respect to income poverty; a child's income poverty risk increases by respectively 9 percentage points in the UK and 4 percentage points in the Netherlands. A third household factor that has great implications for a child's risk to poverty refers to the level of work intensity. In comparison to the reference category of full work intensity, children living in households where no one has worked in the reference period are particularly vulnerable. They are more likely to be housing deprived, financially strained and income poor. In France, a child in a workless household faces a risk of financial strain that is 40 percentage points higher than for his or her peers in fully employed households. With respect to income poverty, findings suggest that not merely children in workless households experience a higher poverty risk but all children living in households with lower than full employment. Finally, household income poverty was found to increase a child's likelihood of being deprived in the housing and financial strain domains. Results in terms of the environment and access to basic services were less conclusive; income poverty significantly increases a child's poverty risk in Germany for both domains but reduces the risk to domain deprivation in the Netherlands.

In terms of characteristics of the parents, educational attainment appears to be the most important factor to influence a child's risk to domain and income poverty. Children of whom both parents have not finished secondary education are more likely to be income poor and financially strained. With respect to the latter domain, poverty risks increase by 25 and 23 percentage points respectively in Germany and France. In these two countries, low levels of educational attainment also increase a child's poverty risk in terms of housing and environment deprivation. Other household characteristics under consideration pertain to an unemployment spell in the reference period and where the country of birth is different from the current country of residence. The impact of these factors is mixed and does not lead to conclusive findings. Children whose parents are both born in a different country only leads to a consistently higher poverty risk across all four countries in terms of income poverty, increasing risks by respectively 2 to 6 percentage points. The impact in other domains is small and only significant in a few cases. The unemployment spell only has a (mildly) significant effect in all four countries with respect to financial strain and increases the risk of deprivation of access to basic services in Germany and the UK.

Finally, the environmental characteristic highlights the impact of living in areas of different population density on domain and income poverty outcomes. Unsurprisingly, we find children living in an intermediately or thinly populated area to be considerably less vulnerable to environmental deprivation than their peers in densely populated areas. In terms of access to basic services, only children living in Germany are more likely to be domain deprived when living in less densely populated areas. In Germany and France, children in such areas also experience a higher risk of being financially strained or income poor.

b. Cumulative deprivation profiles

Cumulative deprivation profiles and characteristics that might increase or decrease a child's risk to experiencing multiple deprivations are analyzed on the basis of an ordered logistic regression model. We report odds ratios in Table 12 in the Annex, indicating the change in the odds of a child being deprived in multiple domains (housing, environment, access to basic services and/or financial strain). We do not take income poverty into account for cumulative deprivation but rather consider its role in predicting simultaneous deprivation across domains of non-monetary deprivation.

The cumulative poverty profiles point towards a few recurrent risks that increase a child's likelihood of experiencing multiple deprivations in all four countries. The first factor that significantly increases the odds of experiencing combined deprivations pertains to the family type that children are part of and particularly refers to those living in single-headed households. Although this particular characteristic did not significantly increase the risk of deprivation across all single domains, it does have a significant and considerable impact on cumulative experiences of deprivation in all countries. In the UK and the Netherlands, odds are respectively 1.7 and 1.9 times higher but amount to being 2.6 times higher in the cases of Germany and France. Living in a rented dwelling is also a strong predictor for a child to experience cumulative deprivation; the odds are respectively 2 times (Germany) to 3.8 times (UK) higher than for those living in an owned dwelling. Low work intensity also greatly increases children's risks of experiencing multiple deprivations, albeit with large differences across countries. A final factor that increases the odds for cumulative deprivation across all four countries is income poverty. The effect is least significant in the Netherlands but does point towards higher odds of multiple deprivation in comparison to children who are not income poor.

Results that are less consistent across countries, but point towards important underlying factors nonetheless, include unemployment spells in the household, having parents from a different country of birth, parents' level of educational attainment and population density in the area of residence. Children living in households having experienced an unemployment spell of at least one month in the reference period are more likely to

experience cumulative poverty when living in Germany, the UK and the Netherlands. Similarly, the odds of experiencing deprivation in multiple domains are 1.3 to 1.6 times higher for children with two parents from a country of birth that is different from the country of residence when living in France, Netherlands and the UK. Low levels of parents' educational attainment increase the odds for children living in Germany, France and the Netherlands whilst living in low to medium densely populated areas decreases the odds of multiple deprivations in France and the UK.

The analysis of cumulative poverty profiles vis-à-vis the characteristics that impact single domain deprivation also shows that risk factors do not necessarily overlap. In other words, factors that might make a child more prone to experiencing deprivation in a single domain might not make that child more liable to being cumulatively deprived and vice versa. Living in a less densely populated area, for example, has little impact on children's risks of domain deprivation (with the exception of Germany) and even predicts a lower probability of deprivation in the environment domain. Nevertheless, a child living in an intermediate or thinly populated area in either France or the UK faces higher odds of experiencing cumulative deprivation. The odds for being cumulatively deprived are also 1.4 times higher for children living in the UK with parents who were born in a different country, despite this factor having little impact on being deprived in single domains.

c. Cross-country differences

In this section, we pay particular attention to cross-country differences in terms of characteristics that impact a child's risk of domain deprivation, income poverty or cumulative deprivation. Some of these differences have been touched upon in the preceding discussion of regression results but are discussed in more detail here.

Firstly, it can be observed that risk factors generally have a smaller effect on children in the Netherlands in comparison to the other three countries. This finding holds particularly when considering the role of single parenthood, low work intensity and low level of educational attainment of the parents in predicting single domain deprivation or income poverty. This observation following the analysis of poverty profiles is largely in line with and confirms the previous non-parametric results. It is interesting to note, however, that although risk factors might play a less significant role in predicting single domain deprivation, they do have a considerable impact on the risk of cumulative deprivation. A second notable cross-country difference pertains to the role of unemployment spells. Although the effect is insignificant across the majority of domains in France and the Netherlands, children living in a household that has experienced an unemployment spell in the preceding period in Germany and the UK are more prone to being domain deprived. Particularly with respect to access to basic services and financial strain, an unemployment spell is a highly significant predictor of domain deprivation. In addition, it also increases a child's odds of being cumulatively deprived. Thirdly, the impact of

different degrees of work intensity varies across countries. Whilst any level of work intensity below the full level increases the risk of financial strain for children in Germany, France and the Netherlands, this only holds true in the UK with respect to the lowest level of work intensity. This finding is mirrored in the analysis of cumulative deprivation, also suggesting that only a complete lack of work intensity in the household increases a child's odds of being deprived in multiple domains. The impact of lower levels of parental educational attainment also differs across countries with a stronger impact on children's domain deprivation risk, as well as the odds of cumulative deprivation in Germany and France. A final important observation pertains to the highly significant increase in a child's risk of being deprived with respect to basic services when living in an intermediate or thinly populated area in Germany. Although access to basic services can be easily linked to the density of population, it is striking to note that this plays no significant role in France and the UK whilst it does in Germany, especially given the reversed role of this factor in determining cumulative deprivation.

6. CONCLUSION

In this paper, we presented an analysis of the breadth of child poverty in the European Union through an investigation of overlap patterns and poverty profiles for monetary and multidimensional indicators of poverty in four selected countries. Particular questions pertained to the degree of overlap between monetary and non-monetary poverty outcomes as well as across non-monetary poverty indicators, patterns of cumulative deprivation and factors impacting children's deprivation patterns. The micro-level analysis in this paper sought to add value to the current debate in the EU and OECD context on the formulation and use of child poverty indicators by combining research on child poverty and overlap of poverty. Findings point towards a number of main conclusions and implications for child poverty analysis within the EU context.

Firstly, although this was not a strong argument at the outset, this analysis provides a strong illustration for the need to take a multidimensional approach towards the measurement of child poverty in the EU context. Size and group differences between children faced with income poverty and/or deprivation in other domains are considerable and underline the need to take a broader perspective in order to identify those that are vulnerable. Domain poverty rates across countries suggest an inconsistent pattern and do not point towards countries consistently faring better or worse in comparison to other countries. In other words, the use of a single indicator of poverty would provide a biased, or at least impartial, cross-country picture. Furthermore, income poverty or any of the multidimensional poverty indicators prove inadequate to serve as a proxy for each other. Hence, the use of a single poverty indicator would fail to capture groups of children that were identified as poor or vulnerable in terms of other poverty indicators. Although one can debate the extent to which particular types of poverty indicators are adequate

reflections of child poverty, a uni-dimensional perspective can have far-reaching implications in terms of the exclusion of poor and vulnerable children.

Secondly, the analysis in this paper strongly underlines the need to investigate overlap patterns in terms of child poverty. Analysis of overlap in income and domain poverty suggests considerable mismatch across the board, regardless of the particular country under consideration. The lack of overlap between groups of deprived children in Germany, France, the Netherlands and the UK points towards a considerable breadth of child poverty in these countries. In other words, deprivation in monetary and non-monetary terms does not seem to be concentrated on a few particular groups but rather spread out across the population. Hence, instead of a small number of children experiencing deprivation in large numbers of domains, large numbers of children are likely to face deprivation in a few domains. Although we find a strong association between financial strain and income poverty and between income poverty and housing problems, the overlap analysis also points towards considerable proportions of children that experience financial strain or housing problems without being income poor.

Thirdly, an investigation of cumulative patterns of deprivation allows for the identification of more structural risks and recurrent patterns of child poverty. Although findings with respect to outcomes across countries and underlying factors increasing or decreasing a child's risk of poverty were largely inconsistent at domain level, more solid patterns emerge when considering multiple deprivations. In terms of cross-country analysis, cumulative deprivation patterns point towards the Netherlands as the country with the lowest proportions of children experiencing simultaneous deprivation in different domains. By the same token, cumulative deprivation appears most prevalent in the UK. With respect to recurrent risks of multidimensional child poverty, estimates of cumulative deprivation more firmly point towards single parenthood, living in a rented dwelling, low work intensity and income poverty as having a significant and considerable impact.

In sum, child poverty in the EU deserves a multidimensional and comprehensive analysis in order to adequately inform a policy response. The picture is immensely diverse across domains, countries and levels of analysis and a simplification of this picture would undermine the complex nature and set of problems underlying child poverty. We can point towards a number of recurrent risks and characteristics that make children more liable to live in poor and vulnerable conditions. By the same token, the extent to which these characteristics play a role in predicting poverty in particular multidimensional domains is different across countries and contexts. The better EU indicators of child poverty are able to identify and reflect the diversified pictures of child poverty, the better the response to child poverty is likely to be.

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Annex 1 - Population shares explanatory variables - Table 6: Population shares

	Germany(%)	France (%)	Netherlands (%)	UK (%)
<i>gender</i>				
male	0.557	0.515	0.513	0.516
female	0.443	0.485	0.487	0.484
<i>age</i>				
0-3	0.2	0.246	0.237	0.204
4-12	0.501	0.481	0.49	0.485
13-17	0.299	0.274	0.273	0.311
<i>hh size</i>				
2	0.059	0.047	0.024	0.051
3	0.236	0.196	0.18	0.219
4	0.435	0.419	0.443	0.415
5	0.179	0.225	0.229	0.212
6	0.064	0.072	0.081	0.07
>6	0.027	0.041	0.042	0.033
<i>hh type</i>				
single adult with at least 1 dependent child	0.14	0.121	0.101	0.182
2 adults with 1 dep child	0.173	0.146	0.128	0.141
2 adults with 2 dep children	0.403	0.384	0.401	0.347
2 adults with 3+ dep childr.	0.227	0.282	0.318	0.205
other hh with dep children	0.057	0.065	0.051	0.088
other	0	0.002	0	0.037
<i>rented dwelling</i>				
no	0.627	0.635	0.775	0.695
yes	0.373	0.365	0.225	0.305
<i>work intensity</i>				
WI=0	0.078	0.058	0.048	0.156
WI<0.5	0.035	0.051	0.046	0.022
0.5<=WI<1	0.359	0.331	0.395	0.193
WI=1	0.529	0.56	0.512	0.628
<i>unemployment spell</i>				
no	0.863	0.82	0.884	0.94
yes	0.137	0.18	0.116	0.06
<i>different country of birth</i>				
no	0.901	0.796	0.892	0.814
yes	0.099	0.204	0.108	0.186
<i>parents' low education</i>				
no	0.745	0.522	0.592	0.599
yes	0.255	0.478	0.408	0.401
<i>income poverty</i>				
no	0.861	0.843	0.861	0.771
yes	0.139	0.157	0.139	0.229
<i>degree of urbanisation</i>				
densely populated	0.436	0.458	0.77	0.548
intermediate density	0.386	0.364	0.184	0.316
thinly populated	0.178	0.178	0.046	0.137

Source: authors' calculations with EU-SILC, wave 2007

Annex 2 - Child poverty profiles- Table 7: Logistic regression results housing deprivation (Y=0 is not deprived, Y=1 is deprived)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	0.008 -0.011	0.008 -0.012	-0.001 -0.009	-0.014 -0.013
age	-0.007 -0.004	-0.011* -0.004	-0.005 -0.004	-0.01 -0.005
agesq	0 0	0.001* 0	0 0	0 0
hhsiz	0.004 -0.033	0.049 -0.036	0.025 -0.04	0.012 -0.033
hhsizesq	0.002 -0.004	0.004 -0.003	-0.001 -0.004	0.007* -0.003
single adult with dep child(ren)	0.189*** -0.022	0.147*** -0.026	0.005 -0.024	0.036 -0.027
2 adults, 2 dep children	-0.025 -0.022	-0.078** -0.026	-0.022 -0.024	-0.109*** -0.027
2 adults, >2 dep children	0.090** -0.03	-0.038 -0.034	0.009 -0.033	-0.024 -0.033
other hh's with dep children	0.064 -0.035	0.005 -0.039	0.073 -0.039	0.046 -0.037
other		-0.007 -0.123	-1.89 -118.396	0.128** -0.045
rented dwelling	0.171*** -0.012	0.221*** -0.013	0.148*** -0.025	0.199*** -0.016
work intensity, WI=0	0.071** -0.023	0.134*** -0.028	0.091** -0.033	0.055** -0.021
work intensity, 0>WI<0.5	0.100** -0.031	0.116*** -0.03	0.041 -0.027	0.047 -0.051
work intensity, 0.5=>WI<1	0.015 -0.014	0.060*** -0.015	0.022* -0.011	0.042* -0.018
unemployment spell	0.050** -0.018	0.029 -0.017	-0.005 -0.019	0.009 -0.03
different country of birth	0.03 -0.019	0.083*** -0.015	0.056** -0.017	0.039* -0.018
parents' low education	0.057*** -0.014	0.040** -0.013	-0.023* -0.011	-0.008 -0.016
income poverty	0.089*** -0.016	0.049** -0.018	0.076*** -0.021	0.057** -0.018
intermediate populated area	-0.016 -0.013	-0.065*** -0.014		-0.007 -0.017
thinly populated area	0.007 -0.016	-0.032 -0.018		-0.015 -0.031
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.1354	0.2068	0.0484	0.1456
BIC	6145.412	6100.205	6707.213	4966.892

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%).

Source: authors' calculations with EU-SILC, wave 2007

Table 8: Logistic regression results environment deprivation (Y=0 not deprived, Y=1 deprived)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	-0.004 -0.011	0.018 -0.011	-0.007 -0.01	-0.009 -0.014
age	0.005 -0.004	0.008 -0.004	0.005 -0.004	0.008 -0.006
agesq	0 0	0 0	0 0	0 0
hhsiz	0.012 -0.04	0.050* -0.024	0.05 -0.047	-0.092** -0.03
hhsizesq	-0.005 -0.004	-0.004* -0.002	-0.005 -0.004	0.007** -0.003
single adult with dep child(ren)	0.017 -0.023	0.035 -0.024	0.006 -0.026	-0.041 -0.029
2 adults, 2 dep children	0.02 -0.022	-0.023 -0.022	-0.053* -0.026	0.043 -0.027
2 adults, >2 dep children	0.074* -0.033	-0.055 -0.031	-0.082* -0.038	0.068 -0.037
other hh's with dep children	0.098** -0.037	-0.057 -0.037	-0.01 -0.043	0.071 -0.041
other		-0.111 -0.143	-3.318*** -0.047	0.100* -0.051
rented dwelling	0.059*** -0.013	0.082*** -0.013	0.097*** -0.016	0.097*** -0.018
work intensity, WI=0	0.04 -0.025	0.075** -0.026	0.068 -0.037	0.025 -0.024
work intensity, 0>WI<0.5	0.056 -0.034	0.006 -0.03	-0.045 -0.032	-0.153* -0.061
work intensity, 0.5=>WI<1	0.023 -0.014	0.036* -0.014	0.045*** -0.012	0.004 -0.02
unemployment spell	0.024 -0.019	0.003 -0.017	0.024 -0.021	0.076* -0.035
different country of birth	-0.043* -0.02	0.013 -0.014	0.022 -0.018	0.006 -0.02
parents' low education	0.036** -0.014	0.031* -0.012	-0.041*** -0.012	0.003 -0.016
income poverty	0.052** -0.018	0.016 -0.017	-0.100*** -0.026	0.001 -0.02
intermediate populated area	-0.143*** -0.012	-0.132*** -0.012		-0.142*** -0.019
thinly populated area	-0.240*** -0.018	-0.218*** -0.018		-0.204*** -0.037
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.056	0.0626	0.018	0.0274
BIC	6777.948	6912.716	7837.948	6244.895

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%).

Source: authors' calculations with EU-SILC, wave 2007

Table 9: Regression results access to basic services deprivation (Y=0 not deprived, Y=1 deprived)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	0.01 -0.011	0.013 -0.012	0.003 -0.008	0 -0.009
age	0.014** -0.004	0.001 -0.003	0.012** -0.004	0.012** -0.004
agesq	-0.001* 0	0 0	0 0	0 0
hhsiz	0.04 -0.038	0.018 -0.022	-0.032 -0.035	-0.02 -0.017
hhsizesq	-0.006 -0.004	-0.001 -0.002	0.002 -0.003	0.003* -0.001
single adult with dep child(ren)	0.008 -0.023	-0.003 -0.02	0.051* -0.022	0.028 -0.02
2 adults, 2 dep children	-0.003 -0.021	0.004 -0.018	0.042* -0.021	0.024 -0.019
2 adults, >2 dep children	0.065* -0.032	0.011 -0.026	0.046 -0.03	0.058* -0.024
other hh's with dep children	0.025 -0.035	0.053 -0.042	0.042 -0.033	0.02 -0.027
other		-1.413 -39.814	-1.366 -71.485	0.036 -0.031
rented dwelling	-0.045*** -0.013	-0.006 -0.011	0.024 -0.013	0.02 -0.011
work intensity, WI=0	0.007 -0.026	0.041 -0.033	0 -0.029	0.018 -0.015
work intensity, 0>WI<0.5	0.041 -0.033	0.008 -0.024	0.041 -0.022	-0.055 -0.037
work intensity, 0.5=>WI<1	0.01 -0.013	0.027 -0.02	-0.008 -0.009	0.002 -0.013
unemployment spell	0.064*** -0.019	-0.003 -0.013	0 -0.017	0.054** -0.019
different country of birth	-0.014 -0.02	0.004 -0.011	0.022 -0.014	0.047*** -0.011
parents' low education	-0.004 -0.013	-0.006 -0.01	0.056*** -0.011	-0.009 -0.01
income poverty	0.046** -0.017	-0.005 -0.014	-0.021 -0.018	0.005 -0.012
intermediate populated area	0.087*** -0.012	0.027 -0.019		-0.016 -0.012
thinly populated area	0.142*** -0.015	0.035 -0.025		-0.013 -0.022
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.03	0.0183	0.0274	0.0422
BIC	6559.649	5050.056	5622.115	3530.413

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%).

Source: authors' calculations with EU-SILC, wave 2007

Table 10: Regression results financial strain domain (Y=0 not deprived, Y=1 deprived)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	-0.005 -0.014	0.004 -0.014	-0.013 -0.008	0.021 -0.017
age	0.001 -0.006	-0.018*** -0.005	-0.004 -0.003	-0.014* -0.007
agesq	0 0	0.001** 0	0 0	0 0
hhsiz	-0.026 -0.048	0.091** -0.034	0.051 -0.027	-0.025 -0.045
hhsizesq	0.009 -0.005	-0.007** -0.002	-0.005* -0.003	0.008* -0.004
single adult with dep child(ren)	0.315*** -0.028	0.370*** -0.031	0.167*** -0.022	0.354*** -0.035
2 adults, 2 dep children	-0.057* -0.028	-0.096** -0.03	-0.025 -0.017	0.001 -0.035
2 adults, >2 dep children	-0.014 -0.041	-0.07 -0.043	-0.023 -0.024	0.024 -0.047
other hh's with dep children	0.028 -0.045	-0.047 -0.048	-0.003 -0.027	0.069 -0.051
other		0.195 -0.152	-1.089 -35.134	0.085 -0.063
rented dwelling	0.174*** -0.016	0.240*** -0.016	0.148*** -0.015	0.399*** -0.021
work intensity, WI=0	0.270*** -0.036	0.403*** -0.045	0.114*** -0.024	0.132*** -0.03
work intensity, 0>WI<0.5	0.07 -0.042	0.302*** -0.041	0.071*** -0.019	0.037 -0.072
work intensity, 0.5=>WI<1	0.054** -0.017	0.159*** -0.018	0.038*** -0.009	0.004 -0.023
unemployment spell	0.165*** -0.025	0.057* -0.022	0.031* -0.013	0.243*** -0.047
different country of birth	-0.028 -0.025	0.056** -0.019	0.061*** -0.012	0.031 -0.023
parents' low education	0.253*** -0.016	0.233*** -0.016	0.076*** -0.01	0.072*** -0.019
income poverty	0.195*** -0.023	0.187*** -0.023	0.072*** -0.015	0.154*** -0.024
intermediate populated area	0.066*** -0.016	0.033* -0.017		-0.056* -0.022
thinly populated area	0.116*** -0.02	0.111*** -0.021		-0.069 -0.04
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.1953	0.2238	0.2216	0.2543
BIC	6616.027	6745.598	4678.057	4942.399

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%).

Source: authors' calculations with EU-SILC, wave 2007

Table 11: Regression results income poverty (Y=0 is not deprived, Y=1 is deprived)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	-0.023** -0.007	-0.005 -0.007	0.001 -0.003	0.006 -0.011
age	-0.002 -0.003	0.003 -0.003	-0.002 -0.001	-0.006 -0.004
agesq	0 0	0 0	0 0	0 0
hhsiz	0.052** -0.02	0.082*** -0.013	0.047*** -0.012	-0.012 -0.023
hhsizesq	-0.005* -0.002	-0.004*** -0.001	-0.002** -0.001	0.006** -0.002
single adult with dep child(ren)	0.110*** -0.013	0.062*** -0.017	0.055*** -0.011	0.214*** -0.023
2 adults, 2 dep children	-0.031* -0.013	-0.028 -0.016	-0.028** -0.009	0.007 -0.023
2 adults, >2 dep children	-0.006 -0.018	-0.064** -0.021	-0.019 -0.01	0.015 -0.028
other hh's with dep children	-0.043 -0.022	-0.108*** -0.024	-0.073*** -0.018	-0.186*** -0.038
other		0.162** -0.056	-0.307 -12.999	0.035 -0.038
rented dwelling	0.046*** -0.008	0.071*** -0.008	0.041*** -0.007	0.093*** -0.012
work intensity, WI=0	0.179*** -0.013	0.303*** -0.017	0.049*** -0.01	0.276*** -0.015
work intensity, 0>WI<0.5	0.140*** -0.016	0.199*** -0.015	0.025** -0.008	0.294*** -0.035
work intensity, 0.5=>WI<1	0.059*** -0.009	0.092*** -0.009	0.019*** -0.004	0.165*** -0.014
unemployment spell	0.013 -0.01	-0.01 -0.009	0.001 -0.005	0.024 -0.021
different country of birth	0.059*** -0.01	0.036*** -0.009	0.016** -0.005	0.051*** -0.014
parents' low education	0.032*** -0.009	0.045*** -0.008	0.028*** -0.005	0.052*** -0.013
intermediate populated area	0.014 -0.008	0.017* -0.008		-0.032* -0.015
thinly populated area	0.040*** -0.01	0.036*** -0.01		-0.036 -0.026
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.2235	0.306	0.2583	0.2902
BIC	3845.77	3924.134	2485.023	3705.043

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%).

Source: authors' calculations with EU-SILC, wave 2007

Table 12: Regression results cumulative deprivation (Y=1 not deprived, Y=2 one deprivation, Y=3 two or three deprivations)

	Germany	France	Netherlands	UK
	b/se	b/se	b/se	b/se
child is male	1.026 -0.05	1.112* -0.055	0.935 -0.044	0.988 -0.056
age	1.021 -0.021	0.975 -0.018	1.003 -0.018	0.994 -0.023
agesq	0.999 -0.001	1.002 -0.001	1.001 -0.001	1.001 -0.001
hhsiz	0.869 -0.14	1.914*** -0.227	1.401 -0.333	0.913 -0.138
hhsizesq	1.017 -0.016	0.966*** -0.008	0.971 -0.02	1.036* -0.014
single adult with dep child(ren)	2.575*** -0.261	2.578*** -0.289	1.943*** -0.247	1.793*** -0.207
2 adults, 2 dep children	0.98 -0.096	0.643*** -0.067	0.815 -0.104	0.794* -0.087
2 adults, >2 dep children	1.565** -0.226	0.608*** -0.091	0.863 -0.163	1.023 -0.156
other hh's with dep children	1.503* -0.243	0.825 -0.141	1.106 -0.235	1.158 -0.197
other	. .	0.756 -0.312	0.000*** 0	1.623* -0.364
rented dwelling	2.005*** -0.119	2.819*** -0.173	3.425*** -0.274	3.806*** -0.283
work intensity, WI=0	2.186*** -0.277	3.269*** -0.499	1.867*** -0.321	1.471*** -0.143
work intensity, 0>WI<0.5	1.777** -0.314	2.397*** -0.367	1.409* -0.198	1.021 -0.252
work intensity, 0.5=>WI<1	1.187** -0.071	1.698*** -0.112	1.233*** -0.065	1.105 -0.09
unemployment spell	1.667*** -0.156	1.117 -0.09	1.216* -0.121	1.859*** -0.284
different country of birth	0.964 -0.083	1.281*** -0.093	1.581*** -0.144	1.337*** -0.108
parents' low education	1.783*** -0.111	1.690*** -0.093	1.165** -0.059	1.124 -0.072
income poverty	1.791*** -0.158	1.738*** -0.138	1.297* -0.141	1.382*** -0.114
intermediate populated area	0.958 -0.054	0.709*** -0.041		0.667*** -0.048
thinly populated area	1.095 -0.078	0.817** -0.058		0.612*** -0.081
Number of observations	6096	6311	6887	4778
P-value	0	0	0	0
Pseudo R-Square	0.0865	0.1326	0.0559	0.1149
BIC	12412.662	12189.655	13504.434	9475.896

Notes: Logistic regression (marginal effects reported), significance levels: *10%, **5%, and ***1%; omitted classes: two adults – one dependent child; work intensity (WI=1); densely populated area and small population shares (<5%). Source: authors' calculations with EU-SILC, wave 2007