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Cross-national comparison of monetary and multidimensional child poverty in the European Union; puzzling with the few pieces that the EU-SILC provides

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1. Introduction

Poverty is a complex phenomenon and the debate around its measurement is longstanding and on-going. This paper links up with two active strands of academic research within the area of poverty measurement in the European context. Firstly, it addresses the tension between and the extent to which monetary and multidimensional poverty approaches capture similar groups of individuals. The majority of research in this area points towards a considerable degree of mismatch (Bradshaw & Finch, 2003; Perry, 2002; Richardson, Hoelscher, & Bradshaw, 2008; Wagle, 2009), which 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, & Neubourg de, 2009b; Ruggeri Laderchi, Saith, & Stewart, 2003). Secondly, recent years have witnessed a widespread acknowledgement in both academic and policy circles that children deserve a special focus in poverty measurement (Ben-Arieh, 2000; Minujin, A., Delamonica, E., Gonzalez,E.and Al Davidziuk, 2005; Roelen, Gassmann, & Neubourg de, 2009b). The European Union (EU) has also acknowledged the need of having child specific indicators in monitoring poverty and social exclusion (Richardson et al., 2008) and is currently in the process of developing, testing and comparing single indicators of child well-being across member states (European Commission, 2008).

In this paper, we aim to analyze 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. The monetary child poverty approach is based on the relative monetary poverty measure of 60% of median equivalent income. This is the so-called "at-risk-of-poverty" measure used in the European Union, also for children (Richardson et al., 2008). The multidimensional child poverty approach will be based on a set of deprivation indicators in areas such as financial well-being, housing, environment and access to basic services. In contrast to a number of recent cross-country comparative studies on child poverty in rich countries that are based on a diverse set of information sources (e.g. OECD, 2009; Richardson et al., 2008; UNICEF, 2007), this study uses a single source of micro-data. This allows for an analysis at the micro-level and assessment of poverty and deprivation outcomes of individual children rather than a macro analysis of average outcomes between countries. Only a micro-level perspective can inform about cumulative deprivation, i.e. the extent which children are simultaneously deprived in multiple domains. Outcomes of child poverty measures are compared for a selection of European member states with comparable living standards: Germany, France, the Netherlands and the United Kingdom. The value-added of an empirical application in cross-country comparative context is two-fold. From a methodological perspective, the analysis of cross-national variations among countries with similar living standards helps to better understand the potential and limitations of newly developed concepts and their empirical implementation. From a policy perspective, the comparison of monetary and multidimensional child poverty outcomes across EU member states is also extremely relevant: it identifies vulnerable groups in each member state and thus contributes to (re)thinking about (national) targeting practices and policy design of policy responses to child poverty and comparable numbers foster the exchange of information between member states.

The specific questions we aim to answer in this paper include the following: 1) To what extent does a monetary poverty measure identify the same children as deprivation indicators in other domains? 2) What are the most common combinations of deprivation across domains of well being for children? 3) What kind of factors are associated with identifying a child to be i.) in monetary poverty, ii). domain deprived or iii). multiple deprived? For each question we also investigate whether these findings differ systematically across countries. Although a number of studies address the first question (Dekkers, 2003; Dewilde, 2008; Förster, 2005; Moisio, 2004; Whelan, Layte, Maitre, & Nolan, 2001; Whelan, Layte, & Maitre, 2004) they primarily use latent class and consistent poverty models and do not specifically focus on child poverty. In contrast, this paper employs count poverty models (Alkire & Foster, May 2008; Atkinson, 2003) and studies child poverty in particular. Moreover, the second and third research questions allow us to focus on gaining a deeper insight into the types of deprivations suffered by different groups of children as well as the factors associated with deprivation.

The remainder of the paper is structured as follows: section 2 provides a review of the literature on both the mismatch between poverty outcomes and child poverty in the EU context. The construction of the poverty measures applied in this paper is discussed in section 3 and includes issues pertaining to data, the conceptual framework, domains and indicators and poverty measures. Section 4 analyzes the poverty measures and tests their robustness; the research questions are answered in section 5. Finally, we draw conclusions and provide recommendations for further research.

2. Literature review

In this section, we discuss the body of research on those two issues within the poverty measurement debate that form the core of this paper, namely the tension and mismatch between poverty indicators and the issue of child poverty. We focus on the EU context.

2.1 Mismatch between poverty indicators in the EU

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, & Gassmann, 2009; Sahn & Stifel, 2003). If different poverty approaches indeed capture different groups in society as poor, the policy responses to reduce poverty might differ considerably depending on the specific approach used. The misidentification of the poor is especially relevant in terms of targeting (e.g. Klasen, 2000; Sahn & Stifel, 2003) as well as design (Laderchi, 1997). Within the EU context, a number of studies have been undertaken to investigate these issues. Some of these have adopted a primarily theoretical perspective for the development of multidimensional poverty measures in relation to the income-based poverty measures (e.g. Ayala, Jurado, & Pérez-Mayo, 2009; Bossert, Chakravarty, & D'Ambrosio, 2009; Moisio, 2004; Pérez-Mayo, 2005) whilst others have focused on the empirical outcomes and their implications of using different types of poverty measures (e.g. Bradshaw & Finch, 2003; Coromaldi & Zoli, 2007; Dekkers,

2003; Richardson et al., 2008; Whelan et al., 2001). Moreover, studies have either focused on a specific country case (see e.g. Bradshaw & Finch, 2003; Coromaldi & Zoli, 2007; Pérez-Mayo, 2005), or cross-country comparisons (see Bossert et al., 2009; Dekkers, 2003; Dewilde, 2004; D'Ambrosioa, Deutsch, & Sibler, 2009; Förster, 2005; Moisio, 2004; Nolan & Whelan, 2009; Whelan et al., 2001). The majority of these studies conclude that monetary indicators versus alternative or multidimensional indicators do not identify the same groups of individuals as poor. (Bradshaw & Finch, 2003) found that the use of three different measures for poverty in the UK results in the identification of different groups of people defined as poor or socially excluded. (Coromaldi & Zoli, 2007) reach a similar conclusion in the case of Italy, stating that more comprehensive poverty measures based on multiple domains of deprivation might lead to different results compared to analyses solely based on income-based poverty measures. Findings from (Whelan et al., 2001) suggest that there is limited association between certain alternative domains of deprivation and income poverty and that a measure of combined deprivation is weakly associated with income poverty in the bottom deciles. In a comparative analysis of poverty in Belgium and Britain, (Dewilde, 2004) concludes that different poverty measures identify different groups as poor. As such, the complementary use of both monetary indicators and indicators in other areas of deprivation is widely considered to be of value-added and beneficial for our understanding of poverty in the EU (Nolan & Whelan, 2009).

Despite the range of evidence on the topic, the majority of empirical studies do not move beyond the notion that the degree of overlap in poverty outcomes is limited and biased towards different groups in society. Little analysis has been undertaken to assess the types of cumulative deprivation or factors and dynamics underlying the mismatch of poverty outcomes. In a cross-country comparison of Belgium and Britain, (Dewilde, 2004) finds that certain groups in society can be considered problematic, regardless of the poverty measure used whilst other groups are only considered as such using one specific measure. (Dekkers, 2003) finds that living in certain household types increases or decreases the probability to be multidimensionally or financially poor. Especially those individuals living in single households with or without children are more prone to be poor according to both approaches, although the size of the effect differs across countries in the EU. The profiling of consistent poverty by (Förster, 2005) for the enlarged EU suggests that those with lower levels of educational attainment are more likely to experience poverty in the income as well as multidimensional sphere. Nolan and Whelan (2009) seek to understand and explain the mismatch between monetary and non-monetary deprivation indicators primarily by questioning the methods at hand and addressing limitations inherent to data collection and the measurement of income and non-income related deprivations. Although all studies establish a poverty profile and analyze which groups in society are more or less likely to be considered poor in either monetary or multidimensional terms or both, they lack an investigation into the patterns of cumulative deprivation and the underlying factors that make these differences occur.

2.2 Child poverty in Europe

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 policy field. In recent years, a range of studies have been undertaken in the EU that focus particularly on children and provide a contribution to both the scientific and policy debate about child poverty (Bradshaw, Hoelscher, & Richardson, 2007a; Bradshaw & Richardson, 2009; OECD, 2009; Richardson et al., 2008; TARKI Social Research Institute & Applica, 2010). These recent studies investigating child poverty 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. 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 worst performers. The Child Well-being Index by Bradshaw et al. (2007b) was developed 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 same methodology was also applied in the CEE/CIS context (Richardson et al., 2008) and updated for the EU countries (Bradshaw & 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 do not allow to make any reference to individual children. TARKI & 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 cumulative deprivation. In particular, this report represents the political commitment from the EU to address the issue of child poverty and well-being and the momentum the issue has gained in the European debate on poverty and social exclusion (TARKI Social Research Institute & Applica, 2010).

In this paper, we investigate the use of monetary and non-monetary child poverty measures at the micro-level in a cross-country context from an empirical perspective. Our main focus is directed towards the application of these approaches to the data, the concurrent empirical outcomes and how these relate to those found in other studies. We aim to provide an insight into the extent to which child poverty measures and poverty risk characteristics differ systematically across domains and countries.

3. Constructing the multidimensional and monetary poverty measures

The construction of any poverty measure is a complex process that is inherently path dependent and involves many choices, each of which influences the measured poverty outcome. More often than not, these choices result from a trade off between conceptual, technical, normative and practical considerations (Alkire, 2008; Ravallion, 1994). The starting point for the development of any poverty approach is the identification of its specific purpose and rationale (Roelen, Gassmann, & Neubourg de, 2009b). In terms of

this research, our purpose is to construct and compare both monetary and multidimensional measures of child deprivation that are academically sound and that are also understandable and relevant for stakeholders using such measures in the policy sphere.

Our analysis is thus first and foremost aimed at measuring child poverty and therefore the child is the unit of analysis. This implies that we focus on the child population as opposed to the overall population (and more specifically: children in the age group 0-17 years). However, to enhance comparability between our estimates and those of non-child poverty focused studies we also include some estimates made using individuals from all age groups as the unit of analysis.[2] Although our analysis will also involve the comparison of poverty outcomes between countries, the purpose of this cross-national comparative perspective is not to rank countries in terms of child poverty outcomes (Bradshaw, Hoelscher, & Richardson, 2007b; as done in Bradshaw & Richardson, 2009; Richardson et al., 2008) but to obtain a better understanding of the potential sources of variation between monetary and multidimensional child poverty measures. In that sense, countries are not the unit of analysis.

In order to gain a better understanding of the mismatch between monetary and multidimensional poverty measures in identifying vulnerable 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 Community Statistics on Income and Living Conditions data. The EU-SILC is the key data source used for estimating and comparing the degree of monetary poverty and social inclusion across member states in the European Union. It is the only dataset that has cross nationally comparable information to estimate both monetary (i.e. income) poverty and a range of non-income deprivation indicators for every individual in the survey. It is thus also an interesting database to explore the possibilities of constructing child-focused indicators of deprivation which could be used to evaluate and compare levels of child deprivation across member states.

Working with a single data source also requires us to determine the order of aggregation when constructing a multidimensional poverty measure. The reason is that such poverty measures involve multiple indicators and multiple individuals and that one has to aggregate the information across individuals and across well-being domains to obtain a population measure of multidimensional poverty; one can thus first aggregate across domains for the same individual and then across individuals or vice versa (Alkire, 2008; Bourguignon & Chakravarty, 2003). As very few poverty measures are path independent, the order of aggregation influences the poverty measure (Alkire & Santos, 2009). Since children are the unit of analysis and we are interested in the degree to which deprivation across domains overlaps at the level of the individual, we firstly summarize deprivation

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[2] This is possible because the indicators for the monetary and multidimensional poverty analyses are measured at the household level (with the exception of one indicator) and are thus likely to affect all its household members (though not necessarily in the same way or to the same extent). The fact that the selected indicators are observed for children of all age groups in our sample also facilitates the construction of one-dimensional and multidimensional child poverty indicators. Both issues are discussed at length in section 3.2 but at this point it should be noted that the availability of information for all child age brackets has not been a key consideration in our search for child relevant indicators in the EU-SILC.

across domains for each child and then to child population levels. In fact, given the diversity of domains included in multidimensional approaches in the mismatch literature (as discussed in section 2), comparison of our results to those of other studies also requires analyzing the mismatch after the first stage of aggregation (i.e between domains) in order to explain differences in the mismatch between an income poverty measure and a composite multidimensional poverty measure.

The remainder of this section is structured as follows: section 3.1 shortly introduces the EU-SILC data and explains the rationales behind our selection of countries while sections 3.2 and 3.3 discuss the methodological choices concerning the construction of our multidimensional and monetary poverty measures.

3.1 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, March 2009c). It was launched in 2004 and contains cross-sectional as well as panel data; the most recent wave (2007) covers data from 24 EU Member States, 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, March 2009c). 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, Atkinson, Cantillon, & Nolan, 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.[3] 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 labor market, social policies and tax systems and it is reasonable to expect that these differences also play an important role in varying child poverty outcomes between countries (e.g. Whelan & Maitre, 2010; Whelan, Nolan, & Maitre, June 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-

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[3] In addition to the above mentioned countries we also considered Denmark, Finland, Ireland, Spain and Italy but given the depth of the analysis we preferred to restrict the selection to four countries. Italy and Spain have a lower living standard than the selected countries. Denmark and Finland were excluded because the income information comes from administrative data. In comparison to survey data, administrative data tend to underestimate income at the lower income levels, which in turn can affect the overlap between monetary and multidimensional poverty measures (Rendtel, Nordberg, Jäntti, Hanisch, & Basic, January 2004)

purpose national surveys that feed into the EU-SILC[4]; 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 3.1 summarizes the sample statistics of each country.

Table 3.1 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

3.2 Multidimensional poverty measure

The construction of the multidimensional poverty measure follows the generic construction process by Roelen et al. (2009b) and is discussed in four subsections: the rationale and purpose, the conceptual framework of child poverty, the selection of domains, indicators and thresholds and finally the construction of a multidimensional poverty measure.

3.2.1 Rationale and purpose
The aim of this paper is to analyze 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. More particularly, we aim to address questions pertaining to the degree and patterns of cumulative deprivation and poverty, the differences between groups of children across and within countries and the factors underlying those differences. The study will be firmly grounded in theory and based on previous research but take a primarily empirical approach. It aims to contribute to the scientific debate about the measurement of child poverty and the use of different poverty measures as well as to the policy discussion on how to identify poor and deprived children and adequately address their problems.

3.2.2 Conceptual framework

Our multidimensional child poverty concept combines two schools of thought, namely that of child well-being and child well-becoming (Ben-Arieh, 2000; Fattore, Mason, & Watson, 2007; S. White, 2002). While the first school of thought departs from the perspective that childhood is a state in and of itself, the second perspective departs from the concern that children should be prepared for the future and adult life (Ben-Arieh, 2000). Although these two paradigms have been largely considered in isolation from each

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[4] Germany joined the EU-SILC data in the 2005 round. Ex-post quality comparisons between the 2005 rounds of Microcensus, GSOEP and EU-SILC data suggest the population groups such as very young children (age 0-4), with low education levels and certain groups of foreign residents are underrepresented in the EU-SILC (Hauser, 2008). At this point it is not clear to what extent these issues have been resolved in the 2007 survey round.

other, this dichotomy is difficult to uphold in practice. Firstly, there is widespread agreement that poverty during childhood has life-long adversary effects and damages the development of a child. For instance, Duncan and Brooks-Gunn (Duncan & Brooks-Gunn, 1997) state that certain events, environmental conditions and the contexts in which children reside influence the skills and competencies that they acquire. Thus a denial of child well-being in the present hampers a child's well-becoming in the future. Secondly, as the well-becoming paradigm views children as "becomings" that grow towards adulthood the focus is on indicators that measure progress towards this future outcome (Fattore et al., 2007). However, the focus on child well-being now is not merely justifiable on the basis of its implications for the future but also because of its intrinsic importance here and now (Ben-Arieh, 2000; Qvortrup, 1997). The intrinsic importance of child well-being also follows the concept of children's rights (Ben-Arieh, 2000) as stipulated in the Convention of the Rights of the Child (UNHCHR, 1989). Qvortrup (1999) expresses the fear that a sole focus on child well-becoming "[…] justifies any type of life for children, provided the end result – that is, the adult person – exhibits positive values on a set of success criteria". Thinking along the lines of a synergetic concept that combines the notions of well-becoming and well-being is not new. In his seminal work on the basic needs approach, Streeten (1984, pp. 976) already spelled out that "The consumption aspects and the investment aspects of human resource development thus reinforce each other". Furthermore, policy makers and those responding to and dealing with children have both their current well-being as well as their future well-becoming in mind ((Moore, Lippman, & Brown, 2004). In sum, the intrinsic value of child poverty and well-being as well as its future consequences calls for an interest in both present and future childhood (Qvortrup, 1997).

The adoption of a conceptual framework combining the notions of well-being and well-becoming also allows for the use of another, otherwise separated, conceptual pair in poverty measurement. The division between opportunity- and outcome based poverty approaches is one of such conceptual pairs (see Robeyns, 2003). The first approach focuses on the capabilities, opportunities or instruments that an individual has to his or her disposal to create favourable outcomes (see Robeyns, 2003; Sen, 1999; Wagle, 2002). These instrumental approaches thus carry the notion of responsibility to turn opportunities into outcomes. The second type of approaches focuses on the situation as it is presents itself to the individual at a given point in time, representing an ex-post rather than ex-ante poverty approach (Thorbecke, 2008). With respect to the measurement of child poverty for policy purposes, a purely instrumental approach poses three key problems. Firstly, the degree to which instruments can be transformed into outcomes is dependent on different factors, one of them being age (Sen, 1999; Wagle, 2002). Children are highly dependent on their direct environment for the materialization of their opportunities (H. White, Leavy, & Masters, 2003). Secondly, the use of a purely instrumental approach is problematic as policy makers are not merely interested in the instruments that people have but also in the extent to which these instruments result in better outcomes. Thirdly, considering the high dependence of children on their direct environment for the realization of favorable outcomes, this link is even more difficult to observe and thus measure. Adopting a hybrid theoretical framework based on the concepts of both well-being and well-becoming allows for the incorporation of

instrumental as well as outcome-based indicators, thereby overcoming conceptual shortcomings inherent to the exclusive adherence to a single concept and creating the possibility to exploit the scarcely available data to the fullest.

Though largely a consequence of a limited availability of child-specific indicators in the EU-SILC data (as is explained in more detail in the next section), this child poverty analysis uses similar indicators as those used by other, non-child focused, multidimensional poverty studies. It is important, however, to mention that a conceptual framework combining the notions of child well-being and well-becoming affects the interpretation of these deprivation indicators (in comparison to adults) because the consequences of deprivation are potentially more severe for children (as deprivation affects current well-being and future well-becoming), society and, as emphasized by rights approaches, the high dependency of children on their environment also justifies a larger responsibility for governments to intervene.

3.2.3 Choice of domains, indicators and poverty thresholds

The selection of poverty domains and poverty indicators is an important next step in the development of multidimensional (child) poverty approaches (see Alkire, 2008; Roelen, Gassmann, & Neubourg de, 2009b; Roelen, Gassmann, & Neubourg de, 2009a). The choices made reflect implicit assumptions and value judgments, which should be made as explicit as possible to prevent the outcomes of the poverty approach to be misunderstood and misinterpreted (Roelen, Gassmann, & Neubourg de, 2009b). The selection of domains and indicators is an iterative process (Moore et al., 2004), which includes initial identification, clarification and selection on the basis of expert opinions, participatory processes, consensus documents and data assessment (Alkire, 2008).

The purpose of our analysis, and the selected conceptual framework (discussion in section 3.1 and 3.2.2), have implications for the scope of selection of domains and indicators. In the first place, our selection is grounded in the conceptual framework which requires that the selected domains and indicators should be informative in terms or child well-being, child well-becoming or both. Secondly, our aim to compare the outcomes of a multidimensional and monetary approach to child poverty constrains the pool of potential domains and indicators to one micro-dataset (the EU-SILC).

In an ideal world, the choices of domains, indicators and poverty thresholds represent separate and consecutive methodological steps that researchers take when constructing of a multidimensional poverty measure (Alkire & Santos, 2009). However, the practice of working with secondary data means that these choices are highly interdependent; particularly when the information is stored in ordinal variables. For instance, respondents to the survey question "[Can] the household can afford a meal with meat, chicken or fish (or equivalent vegetarian) every second day" reflects a possible outcome that could result from insufficient financial means (European Commission, March 2009a). Respondents can either answer the question with "yes", "no" or they can refuse to answer. In the extreme, this implies that the choice on whether or not to include this information means that one considers all three methodological steps simultaneously: the choice of domain

(financial means); the choice of indicator (capacity to afford meat, chicken or fish) and the choice of threshold (deprived if household responds affirmative, deprivation in the sense of financial strain).

Table 3.2 domains and deprivation indicators

Domains – Deprivation indicators
Housing conditions
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
Neighborhood conditions
Pollution, grime or other environmental problems
Crime violence or vandalism in the area
Access to basic services
Accessibility of primary health care services
Accessibility of compulsory school
Financial means
Household has payment arrears on mortgage/ rent, utility bills, installments/loan payments
Household cannot afford a meal with meat, chicken, fish (or vegetarian equivalent) every second 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 (very difficult)

The selection of indicators in this paper has been guided by a number of principles and checks. Given the inherent normative nature underlying any poverty concept a key principle is that "an indicator should identify the essence of the problem and have a clear and accepted normative interpretation" (Atkinson et al., 2002, p. 21). This principle reflects they idea that poverty is generally considered a problem of and in our societies and that policy, to some degree, is aimed at reducing this phenomenon and is evaluated accordingly. In practice this means, all other things being equal, that a reduction in a poverty indicator would be considered an improvement. The cross-national perspective of our analysis and the role of policy within a European Union context[5] in particular further direct towards using a universal approach towards measuring poverty and deprivation in these countries (Ruggeri Laderchi et al., 2003, p. 244). Universality, in this case, implies that an indicator should be relevant across the societies included in the poverty comparison. Our assessment on whether a potential indicator complies with these principles (or not) is based on whether the indicator can be interpreted in the light of the Convention of the Rights of the Child (CRC) and whether the indicator has been used / considered by other scholars or authorities (Bradshaw, Hoelscher, & Richardson, 2007b;

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[5] This also reflects the EU approach to social indicators in general as "policies to achieve social inclusion are the responsibility of the member states, under the subsidiarity principle [and] social inclusion is to be promoted through the method of open coordination" (Atkinson, Cantillon, Marlier, & Nolan, 2002, p. 20). Given that social policies can be very different, it is thus important to make cross-national comparisons on the basis of common indicators or indicators that have been constructed using a common method.

Bradshaw & Richardson, 2009; European Commission, 2008; OECD, 2009; OECD, 2009).[6]

In addition to the above discussed principles, the selection process of indicators was also influenced by a more practical consideration: the cross-national comparability of the measured information. Comparability has been assessed by means of comparison of the countries' questionnaires (in their original language) and the analysis of descriptive statistics of the variables used to construct indicators.

Table 3.2 presents the selected indicators within their respective domains while Table A1 in the appendix lists the EU-SILC variables that were considered for inclusion in the multidimensional child poverty measure and Table A2 lists the exact definitions of the various indicators. The data allows for the identification of four domains: housing conditions, neighborhood conditions, access to basic services and financial means. The definition of these domains is based on an intuitive grouping of indicators rather than the identification of latent domains of poverty using tools such as factor analysis or latent class modeling (see Dewilde, 2004; Whelan et al., 2001). We acknowledge the tension between "[…] the power of sophisticated methods […] and the transparency required to serve the needs of policy-makers and inform public debate" (Nolan & Whelan, 2009) but value the transparency of an intuitive approach for the policy debate over a purely scientific and theoretical discussion, as also in reference to the rationale and purpose of this paper. Nevertheless, the domains identified on the basis of an intuitive approach overlap with those considered contributing to greater social cohesion within the European Union (Atkinson et al., 2002).[7] Moreover, the importance of well-being in these domains for children has been widely recognized. The Convention on the Rights of the Child (CRC), among others, touches upon all the aforementioned domains and also points towards the dual role of children reflecting the well-being and well-becoming discourse (UNHCHR, 1989).[8] On the one hand, children are citizens in their own right and on the

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[6] When discussing methods for selection of dimensions, Alkire and Santos (2009) label the first rationale as 'legitimacy' while the second rationale reflects 'convention'.

[7] The indicator in this study has considerable overlap with those used in other European studies (DeWilde, 2004; Whelan, Layte and Nolan, 2001; Bradshaw & Richardson, 2009). The definition of domains differs between studies. DeWilde (2004) has similar indicators in financial strain domain but her latent variable analysis for the UK and Belgium (1994-1999 panels) suggests that these indicators should be divided over two domains which she labels as 'limited financial means' and 'financial stress'. Using factor analysis, Whelan, Layte and Nolan, (2001, p.361) find five domains that seem to work for all countries in the European Community Household Panel (1994-2000). Their two lifestyle domains overlap with our financial strain domain and the authors sometimes also group both domains in one. Their environment domain overlaps with our neighborhood domain while our housing indicators are spread between their housing and environment domain. Bradshaw and Richardson (2009) use in part the same indicators and data as this article (in addition to other data sources). These authors group monetary poverty, economic strain and lack of consumer durables in one 'material domain'. They also group the housing and neighborhood indicators in one domain (labeled 'housing and environment').

[8] These domains are particularly touched upon in the CRC's section that stipulates children's rights to survival and development: "these are rights to the resources, skills and contributions necessary for the survival and full development of the child. They include rights to adequate food, shelter, clean water, formal education, primary health care, leisure and recreation, cultural activities and information about their rights". Retrieved on 28 January 2010 from UNICEF's website on the Convention of the Rights of the Child (http://www.unicef.org/crc/index_30177.html).

other hand, they are dependant on their families (Bradshaw, Hoelscher, & Richardson, 2007b). The CRC also places responsibility on (national) governments "to protect and assist families in fulfilling their essential role as nurturers of children" (UNHCHR, 1989, article 4).

Clearly, the tables show that the EU-SILC only covers a limited number of the pieces that one would ideally want to include in a multidimensional analysis of child poverty. While there is quite some information on housing conditions, material and financial resources, the information in well-being domains such as health, school, play and parental care is much more limited or not collected at all. Moreover, in its current format, the EU-SILC contains very little information at the level of the child. There is some information on child care and schooling for children in the age bracket 0-12 years (European Commission, March 2009c) but the potential indicators that could be constructed do not satisfy the principle that the indicator has a clear and well-accepted normative interpretation.[9] As a consequence, all selected indicators are measured at the household level but this, however, does not imply that they are not relevant indicators of child poverty (Gordon, Nandy, Pantazis, Pemberton, & Townsend, 2003). The required assumption is that household level conditions affect all individuals living in the household, including children.[10]

Within the housing domain there are three indicators of inadequate shelter: overcrowding, inability to keep dwelling comfortably warm during winter and poor conditions of the household's dwelling. The overcrowding indicator is based upon the number of rooms in the dwelling and the age, number of and relationships between household members. The latter two indicators reflect the subjective assessment of the respondent answering the housing questions of the survey (answer options: yes, no or refuses to answer). Given our concept to child poverty, these indicators can be interpreted as indicators of inadequate shelter reflecting an undesirable outcome in itself and, at the same time, these conditions can play a more instrumental role affecting a child's health, privacy as well as her ability to play and do homework. A number of other housing indicators were considered but not included for various reasons. The questions whether the dwelling has heating and air conditioning facilities were excluded because the absence of air conditioning is not considered a serious problem in all member states (thus conflicting the universality principle) and the presence / absence of such facilities is only indirectly related to whether the temperature in dwelling can be kept at comfortable levels or not (thus not reflecting the essence of a problem). Other housing characteristics such as the availability of an indoor flushing toilet and bath or shower had very low to zero incidence rates suggesting that such indicators have lost their salience as deprivation indicators in these countries. Finally, the indicator on whether the household has the financial means to keep the dwelling adequately warm has not been included in this domain because the question refers to financial obstacles only.

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[9] The 2009 EU-SILC also includes a child module but the data for this survey round have not yet been released.
[10] Of course, the ways in which and degree to which those conditions affect individual members of the household can differ but this information problem cannot be resolved with these data.

The domain neighborhood condition captures a number of aspects in the physical environment of children directly or indirectly affecting well-being aspects such as security, health (mentally and physically) and children's ability to play outside. Both indicators are based on whether the respondent feels that neighborhood problems such as crime or pollution are a problem for the household. A third indicator on whether the household experiences problems with noise from the neighbors / street has been excluded because the incidence of the problem was rather high[11] and raised the issue whether the indicator reflects an accepted normative interpretation of deprivation / poverty. From a more technical perspective and without further information it is also not possible to assess whether the noise originates from poor housing (and should thus be included under housing conditions) and/or noisy neighbors / streets.

The domain access to basic services captures the degree to which the household has access to primary health care services (household members) and schooling (children in compulsory school going age). The concept accessibility refers to "physical and technical access, and opening hours, but not in terms of quality, price and similar aspects" (European Commission, March 2009b, p. 13). Children in the household are deprived in each of these indicators when the respondent indicated that access was very difficult or difficult.[12] From a child's rights perspective difficult access to these services is considered a violation of rights, thus an inacceptable outcome and one where the government also has a responsibility. From a child well-becoming perspective, difficult access can be seen as a potential obstacle to child development in terms of health and education. Notwithstanding, these indicators do not capture important aspects such as the quality of these services and / or the consequences of inadequate access. This is information that one would want to include in a multidimensional analysis of child poverty but that is not available within the EU-SILC data. Within this domain we considered including an indicator on accessibility of transport (public transport and / or car) but the questions were too different to ensure comparability across countries.

The domain financial means refers to the monetary resources of the household and deprivation in this domain is defined as financial strain. Financial resources are instrumental to a child's well-being or well-becoming and a lack thereof can affect many domains. Each of the selected deprivation indicators in this domain expresses one way in which financial strain could manifest itself: inability to afford balanced nutrition (fish, meat or a vegetarian equivalent), inability to pay bills in time (utility, loans, rent,

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[11] Affecting between 18 and 31 % of the children in each of the countries: France: 18%, United Kingdom: 20%, Germany: 25% and the Netherlands: 31%.

[12] There are four response categories: very easy, easy, difficult and very difficult. This is a household level indicator: if the household has several children who are each going to different schools the indicator reflects the most difficult school to access. The sensitivity analysis for the use of different thresholds is reported in the Appendix in Tables A4 and A5. Changing the threshold from 'difficult' to 'very difficult' will reduce deprivation rates to around 1% of the population; the declines in Germany are very large. One would expect that a more austere threshold would also reduce domain level deprivation rates to some extent; for Germany it could also affect the mismatch / overlap patterns. Missing values due to non-use of school services are associated with household having only children of very young age or age 16 and 17 (thus children under and above compulsory school going age). We recoded these missing values as non-deprived. The age distribution of missing values due to non-use is reported in Table A6 in the appendix.

mortgage), an inability to afford assets or engage in activities that are considered 'normal' in affluent societies (car, computer, one week holiday away from home) and the ability to make ends meet.[13] In addition to the above-mentioned indicators which are also used as social inclusion indicators in the European Union, the EU-SILC has more information on financial resources which we did not include for various reasons. For methodological reasons, the indicator on income poverty has explicitly been excluded from the financial means domain as we want to make a clear comparison between that the use of that indicator, reflecting monetary poverty, and the multidimensional poverty indicator. The indicator regarding the capacity to face unexpected financial expenses has been excluded because the phrasing of the question implicitly departs from the view that it is more desirable to finance unforeseen expenses with savings than with debt.[14] Though this may be an interpretation that has general support in the European Union there are likely to be groups that rely on loans to cover unforeseen expenses but there is no corresponding question that provides information on household's perceived access to loans. Other indicators that were initially identified but are not selected include the possession of assets such as a washing machine or TV; the incidence of the population who are unable to afford such assets is very small to zero (i.e. the embedded threshold is too low to be of relevance in these countries). The inability to keep the house comfortably warm (for financial reasons) has also been excluded because of the high overlap with the housing indicator.

3.2.4 Construction multidimensional poverty measure

The previous section established the rationale for the choice and interpretation of deprivation indicators within their corresponding domains of child well-being and well-becoming (13 indicators covering 4 domains). In this section the focus is on how to aggregate this information from a single indicator level to a domain and multi-dimensional level to reflect poverty levels in a population. The construction of such poverty measures involves choosing an identification criterion (i.e. when is someone poor in a given domain and overall), setting weights (i.e. the contribution of a particular domain to overall ill-being) and selecting poverty measures (i.e. what aspects of poverty the aggregate statistics convey) (see Alkire, 2008).

The debate concerning appropriate methods for the identification and quantification of poverty is one of all times (see e.g. Chakravarty, 2006; Dekkers, 2003; Dewilde, 2008).

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[13] Except for the ability to make ends meet, all financial strain indicators as based on questions requiring a yes / no response and thus the deprivation threshold is embedded in the question. As for the ability to make ends meet question, the respondent had 6 response categories ranging from very difficult to very easy and we set the deprivation threshold at "difficult". The sensitivity analysis for the use of different thresholds is reported in the Appendix in Table A7. Changing the threshold from 'difficult' to 'very difficult' will reduce deprivation rates considerably for all countries; for the UK and France the difference between child and population deprivation rates will be less pronounced. The more austere threshold would also reduce domain level deprivation rates to some extent.

[14] Incidence of children living in households that are unable to face unexpected financial expenses (of approximately 800-850 Euro) without lending: Germany (41%), France (39%), The Netherlands (23%) and the United Kingdom (35%).

The choice of methodology for the measurement of multidimensional poverty in many studies responds to the notion that setting thresholds to separate the poor from the non-poor is an inherently arbitrary one. Consequently, many scholars opt for methodologies that avoid the establishment of cut-off points by using latent class models or fuzzy sets (see e.g. Chakravarty, 2006; Dekkers, 2003; Dewilde, 2008; Duclos, Sahn, & Younger, 2006). Within these models, the poverty frontier is considered to be a latent concept that is unknown and unobservable (Dekkers, 2003; Duclos et al., 2006) but can be approximated by the observable indicators. Poverty is an inherently ambiguous concept (Chakravarty, 2006) and it is widely acknowledged that the establishment of thresholds and poverty lines, albeit at the level of the individual indicators or the aggregate indicator, is a normative process (Duclos et al., 2006) that is subject to value judgments (Alkire, 2008; Roelen, Gassmann, & Neubourg de, 2009b). Methods such as latent class models and fuzzy sets are not susceptible to this shortcoming as the distinction between poverty and non-poverty is derived from underlying structures in the data. Although this is a large advantage from a scientific perspective, it is a disadvantage when one considers the ways in which the information stemming from multidimensional poverty analyses is used beyond academic circles. The use of latent class models might remove subjectivity and value judgments about the classification of poverty but it also introduces a loss of intuitive understanding (Nolan & Whelan, 2009) and, more importantly, it does not resolve the fact that poverty intrinsically is a normative concept that attempts to capture a situation that is deemed as unacceptable by society itself. Not surprisingly, a review of studies on multidimensional poverty measurement used in the policy area indicates that none of these approaches are based on technically sophisticated methods such as latent class models or fuzzy sets (see for instance Bradshaw & Richardson, 2009; European Commission, 2008; UNICEF, 2005). We therefore opt for an approach that classifies a child's poverty status on the basis of observable indicators and the explicit definition poverty thresholds within and across domains of deprivation. We thereby follow the set of 'counting' approaches to multidimensional poverty measurement that has recently been synthesized and further developed by (Alkire & Foster, May 2008).

Within Alkire and Foster's counting approach there are three ways to establish whether an individual is poor in a multidimensional sense. On the extremes, the union approach deems that a person is poor if he/she is poor in at least one domain while the intersection approach requires that a person is poor only if he/she is deprived in every domain. The dual-cut off approach is a hybrid that consists of the establishment of a second threshold determining the minimum number of domains in which an individual should be deprived in order to be considered poor in a multidimensional sense. Since the information in the EU-SILC at best only captures a handful of the domains deemed relevant for child well-being and well-becoming, this paper illustrates the results for the multidimensional poverty measures using all three approaches. The remainder of the analysis focuses on the overlap between domains and the monetary poverty indicator. Further, since there are several deprivation indicators per domain it is also necessary to specify an identification criterion that establishes when a child is considered poor in a particular domain. In our analysis a child is domain deprived when he/she is found deprived according to at least one indicator. The main rationale underlying this choice is that deprivation in a particular

domain can manifest itself in various ways and that a person deprived according to one indicator may not necessarily be deprived according to another indicator.

The weights choice essentially involves making an assessment of the degree to which a particular domain contributes to overall well-being. If one deems that each domain has equal importance, this implies that each domain should have an equal weight in determining the value of the poverty measure. If this is not the case, one should assess how much more or less relevant this domain is. As our conceptual framework emphasizes the difficulty of disentangling the effects of deprivation on current child well-being and future child well-becoming, we opt for equal weighting of domains.

Alkire and Foster (2008) adapted the widely used Foster Greer Thorbecke monetary poverty indices (Foster, Greer, & Thorbecke, 1984) to the measurement of multidimensional poverty. These so-called Alkire Foster measures can be calculated from ordinal data while still capturing various aspects of multidimensional poverty including the multidimensional poverty rate (i.e. headcount rate), the breadth of poverty (i.e. headcount adjusted for the average number of domains in which people a deprived), the depth of poverty (additionally taking into account the depth of deprivation in each dimension) and inequality among the poor (attributing higher values to larger poverty gaps)(Alkire & Santos, 2009, p. 148-149). We focus on the headcount and adjusted headcount poverty measures. Being the most frequently used measure, the headcount measure allows comparison of our results regarding the mismatch between the monetary and multidimensional poverty indicators to those of other studies. The adjusted headcount measure is a better measure because it is sensitive to the number of domains in which persons are deprived; it satisfies the dimensional monotonicity principle which states that if an individual becomes deprived in one more domain, the multidimensional poverty measure should increase.[15]

3.3 Monetary poverty measure

In market based economies monetary poverty measures capture an important component of household's financial means, namely their income. This paper uses 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% of national median disposable income (European Commission, January 2009). It is important to note that the monetary poverty indicator is based on a nationally specified poverty threshold while 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. Like all variables in the EU-SILC data, the household income variables are harmonized

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[15] Both poverty measures satisfy a number of desirable properties (anonymity, replication invariance, focus, subgroup consistency and decomposability) but they do no not satisfy the monotonicity and transfer principles (Alkire & Foster, May 2008).

through a series of post data collection methods. Eurostat considers that the income variable in this study are either fully comparable (The Netherlands) or largely comparable to other EU member states (United Kingdom, Germany and France). Table A3 in the appendix summarizes comparability issues for the countries in our study.

To arrive at equivalent adult income, household's disposable income is subsequently adjusted for the demographic composition of the household using the modified OECD equivalence scales.[16] 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.

4. Poverty results and sensitivity analyses

This section discusses poverty estimates at indicator and domain levels and performs tests of their sensitivity. The latter is crucial for any poverty analysis as it tests the robustness of results to key methodological choices. The analysis takes us through three levels of aggregation; starting with indicator deprivation rates, followed by domain deprivation rates and ending with cumulative deprivation across domains. At every level we examine three perspectives: comparison between deprivation indicators/domains, comparison of deprivation between countries and comparison of child deprivation to population deprivation. Only when confidence intervals are not overlapping, differences in deprivation are pointed out.[17]

Indicator level (Table 4.1)

Starting at the indicator level, a first observation is that deprivation rates differ considerably across indicators.[18] Indicators referring to the affordability of a holiday, the experience of pollution or environmental problems and the presence of leaks or damp in the house display relatively high deprivation rates (13-32 percent for children) while indicators referring to the affordability of assets such as a computer or car are considerably lower (2-7 percent for children). Monetary poverty rates lie between those two sets of indicators.

In terms of differences across countries, indicator deprivation rates tend to be the lowest for the Netherlands and highest for Germany and France. Monetary poverty is highest in the UK. A closer look into the patterns of indicator deprivations across indicators and across countries shows considerable variation. For example, whilst the UK portrays the

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[16] 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.

[17] All point estimates and confidence intervals have been estimated taking the specific sampling design of each country into account (individual survey weights and primary sampling units).

[18] Tables A8 to A11 in the appendix report the pair wise correlations between all deprivation indicators at the level of the child.

highest crime deprivation rates (28 percent for children) and the lowest deprivation rate with respect to pollution (13 percent for children), this picture is completely opposite for Germany (12 versus 21 percent for children). Furthermore, the problem of being unable to afford a holiday is almost twice as high as crime deprivation in Germany and France, whilst crime presents a larger problem in the Netherlands than the ability to afford a holiday. Findings by TARKI and Applica (TARKI Social Research Institute & Applica, 2010) also point to cross-country variation in deprivation rates when considering overcrowding and the affordability of assets.

Comparing the total population to children, we also find a diversified picture with different patterns across indicators and countries. This is in contrast to the widely accepted assumption that children are generally at a higher risk to be deprived than adults are (see, for example, TARKI Social Research Institute & Applica, 2010)[19]. Whilst children across counties tend to be more disadvantaged in the overcrowding, arrears and monetary poverty indicators, we can not observe such a systematic disadvantaged position with respect to other indicators. In a number of cases the disadvantaged position of children for specific indicators is different for different countries. For instance in France and the UK children have a higher risk of living in a household that experiences difficulties making ends meet, UK and German children have a higher risk of living in households that cannot afford a one week holiday and German children have a higher risk of living in a house with leaks/damp.

Domain level (Table 4.2 and 4.3)

Moving the analysis from the indicator to the domain level makes the picture slightly more consistent. Child deprivation rates with respect to access to basic services are lowest in comparison to the other domains, ranging from 12 percent in the UK to 23 percent in Germany. With the exception of the Netherlands, the financial strain domain displays the highest child deprivation rates, ranging from 22 percent in the Netherlands to 41 percent in Germany and the UK. Monetary child poverty rates are considerably lower for all countries with lowest rates for the Netherlands and Germany closely followed by France and the highest rate for the UK. Monetary child poverty displays the lowest deprivation rate in comparison to all other domains for Germany, hovers around the lowest domain deprivation rate of accessibility to services for France and the Netherlands but is considerably higher in the UK.

Country rankings across child deprivation domains are less consistent and do not point towards a specific country as best or worst performer. DeWilde (2008) already pointed out that the use of a broader set of indicators and domains, including both monetary and non-monetary aspects, leads to conflicting patterns. Whilst one country might rank high with respect one aspect, it might be amongst the worse performing countries concerning another aspect. This finding is confirmed here. Confidence intervals are quite wide indicating that many of the differences in rates between countries are not statistically significant, thereby limiting the scope of a robust ranking of countries. Estimates for the financial strain domain, however, clearly indicate that the Netherlands has the lowest

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[19] Reminder: check if the UNICEF, EU and OECD report make such claims.

deprivation rates, followed by Germany, the UK and France at roughly similar levels of deprivation. Whelan *et al* (June 2008) also found that countries with a Social Democratic welfare regime, which represents the Netherlands, experience the smallest degree of consumption deprivation. The ranking of countries within the financial strain domain is also remarkably robust to changes in the selection of deprivation indicators. By contrast, results are less robust in the neighborhood domain, where the UK ranks last when the crime indicator is included but first when this indicator is disregarded. Finally, when differences in domain deprivation rates across countries are significant, they are also considerable. Whilst the child deprivation rate for the access to services domain is 12 percent in the UK, it is almost twice as high in Germany at 23 percent. The financial strain domain shows a similar discrepancy with a domain deprivation rate of 22 percent for the Netherlands and levels that are almost twice as high in the UK and France. Finally, the inclusion or exclusion of a deprivation indicator in a domain has considerable influence on the consequent domain deprivation rate. The indicator referring to the affordability of a holiday is most sensitive as its exclusion reduces domain deprivation for children by 10 percentage points in France, Germany and the UK[20]. Although we did not investigate this issue in our sensitivity analyses, the definition of domains also affects deprivation rates and country rankings. For instance, Bradshaw and Richardson define one material deprivation domain that includes income poverty together with the financial strain indicators. As a consequence of the inclusion of income poverty, the unfavorable position of the UK is exacerbated in their country ranking (the UK performs much worse than Germany and France while our studies shows that without income poverty France is the worst performer in financial strain). A similar effect takes place in the housing and neighborhood dimensions which are grouped as one in Bradshaw and Richardson (2009).

In terms of the comparison between the total population and children, we find that the picture now points more firmly to children as a disadvantaged group: children are more likely to be deprived in the housing and financial strain domains. In the neighborhood and access to basic services domains higher point estimates for children typically have partially overlapping confidence intervals for those of the population. These results are relatively robust to changes in the definition of domains (i.e. inclusion or exclusion of deprivation indicators). This pattern is less strong in the Netherlands though; Dutch children are only more at risk according to two definitions of the housing domain. There is further an interesting cross-national pattern between monetary poverty and the housing / financial strain domains. Dutch children are more at risk in terms of monetary poverty but not in the financial strain domain; British children are more at risk of monetary poverty and in the housing and financial strain domain; French children have a slightly higher monetary poverty risk but clearly a higher deprivation risk in housing and financial strain domain; while German children have a lower monetary poverty risk but a higher deprivation risk in housing and financial strain domains. This finding complements DeWilde's (2008)finding in the sense that when using a broader set of

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[20] The sensitivity of domain deprivation rates is highly dependent on the size of the indicator deprivation rates that are in-or excluded due to the use of the union approach as method of aggregation. The ex- or inclusion of indicators with high deprivation rates are likely to de- or increase domain deprivation rates, especially if indicators are weakly correlated.

domains than income poverty, conflicting patterns arise not only between country rankings but also between population groups within a country.

Table 4.1A Indicator deprivation rates (in percentages, confidence intervals between brackets[21])

	DE		FR		NL		UK	
	total	children 0-17	total	children 0-17	total	children 0-17	total	children 0-17
	%	%	%	%	%	%	%	%
Housing problems								
leaks/damp present in house	13.0	16.1	14.2	15.7	18.3	20.1	14.7	17.3
	[12.4,13.7]	[14.7,17.6]	[13.4,15.1]	[14.2,17.4]	[17.2,19.5]	[18.2,22.2]	[13.7,15.7]	[15.5,19.2]
unable to keep house warm	5.4	6.4	4.7	4.6	1.6	1.9	4.6	5.2
	[5.0,5.8]	[5.5,7.4]	[4.1,5.3]	[3.8,5.5]	[1.3,2.1]	[1.2,3.0]	[4.0,5.3]	[4.0,6.6]
overcrowding	6.7	9.1	10.3	14.9	2.7	4.7	6.5	12.0
	[6.2,7.2]	[7.9,10.4]	[9.2,11.6]	[13.2,16.9]	[2.2,3.4]	[3.6,6.2]	[5.6,7.4]	[10.3,13.9]
Neighborhood problems								
experienced pollution/environmental problems	21.7	20.9	16.6	15.4	13.8	13.4	13.1	13.1
	[20.9,22.5]	[19.3,22.5]	[15.4,18.0]	[13.6,17.4]	[12.9,14.8]	[11.9,15.0]	[12.2,14.1]	[11.6,14.6]
experienced crime/violence/vandalism	12.2	12.3	16.4	15.5	17.7	17.7	27.1	28.3
	[11.6,12.9]	[11.1,13.7]	[15.3,17.6]	[13.9,17.3]	[16.6,18.7]	[16.1,19.5]	[25.8,28.4]	[26.3,30.4]
Difficult access to basic services								
difficult to access primary health care	11.3	12.5	5.9	7.6	9.0	8.8	6.3	4.7
	[10.7,11.9]	[11.2,13.9]	[5.3,6.6]	[6.5,8.9]	[8.3,9.7]	[7.7,10.1]	[5.7,7.0]	[3.7,5.8]
difficult to access compulsory school	nc	16.4	nc	6.8	nc	7.2	nc	8.1
		[15.0,17.9]		[5.8,7.9]		[5.9,8.7]		[6.8,9.7]

Source: own calculations with EU-SILC, wave 2007. Standard errors are calculated taking into account the survey sampling design. The label 'nc' means not comparable between total population and children.

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[21] Standard errors are calculated taking into account the survey sampling design.

Table 4.1B Indicator deprivation rates (in percentages, confidence intervals between brackets)

	DE		FR		NL		UK	
	total	children 0-17	total	children 0-17	total	children 0-17	total	children 0-17
	%	%	%	%	%	%	%	%
Financial strain								
combined arrears indicator	6.0	7.7	9.3	12.9	4.3	5.1	8.5	14.0
	[5.5,6.5]	[6.7,8.9]	[8.5,10.1]	[11.4,14.4]	[3.7,5.0]	[4.1,6.4]	[7.7,9.4]	[12.3,15.9]
not able to afford holiday	24.4	30.1	30.0	32.5	14.2	13.7	21.4	30.4
	[23.5,25.2]	[28.2,31.9]	[28.8,31.2]	[30.5,34.6]	[13.2,15.3]	[11.9,15.9]	[20.2,22.6]	[28.2,32.7]
cannot afford meat etc every second day	10.4	11.2	6.2	6.4	1.5	1.1	3.9	4.8
	[9.9,11.0]	[9.9,12.5]	[5.6,6.9]	[5.4,7.6]	[1.2,1.8]	[0.8,1.6]	[3.4,4.6]	[3.8,6.0]
cannot afford a computer	3.4	2.2	6.4	7.0	1.6	0.6	4.1	5.5
	[3.2,3.8]	[1.7,2.8]	[5.8,7.0]	[6.0,8.1]	[1.2,2.0]	[0.2,1.6]	[3.6,4.6]	[4.5,6.7]
cannot afford a car	5.0	4.1	3.3	3.5	5.5	4.6	4.9	6.7
	[4.7,5.4]	[3.4,4.8]	[2.6,4.0]	[2.7,4.6]	[4.7,6.3]	[3.4,6.2]	[4.2,5.6]	[5.5,8.3]
difficult to make ends meet	6.0	6.7	15.5	20.3	10.4	12.1	13.6	20.2
	[5.6,6.5]	[5.8,7.7]	[14.6,16.5]	[18.5,22.2]	[9.5,11.4]	[10.4,14.2]	[12.7,14.7]	[18.3,22.3]
Monetary poverty								
income poor	15.2	13.9	13.1	15.7	10.2	13.9	19.1	23.0
	[14.5,15.9]	[12.6,15.4]	[12.3,14.1]	[14.0,17.5]	[9.1,11.4]	[11.7,16.5]	[18.1,20.2]	[20.9,25.1]

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

Table 4.2A Domain incidence rates (in percentages, confidence intervals between brackets)

Domain incidence	total	children 0-17		total	children 0-17		total	children 0-17		total	children 0-17	
Housing problems	DE			FR			NL			UK		
All indicators	21.2	25.7		24.4	29.0		21.2	24.3		22.3	28.5	
	[20.4,22.0]	[24.0,27.5]		[23.2,25.6]	[26.8,31.2]		[20.0,22.5]	[22.2,26.5]		[21.1,23.6]	[26.4,30.8]	
Excluding 'leak'	11.2	14.2		14.1	18.4		4.2	6.3		10.5	16.0	
	[10.6,11.9]	[12.8,15.7]		[12.9,15.3]	[16.5,20.5]		[3.6,5.0]	[5.0,8.0]		[9.5,11.6]	[14.1,18.1]	
Excluding 'warm'	18.2	22.8		21.8	26.5		20.4	23.9		19.7	26.1	
	[17.5,19.0]	[21.1,24.5]		[20.7,23.0]	[24.4,28.7]		[19.3,21.7]	[21.8,26.2]		[18.5,20.9]	[23.9,28.3]	
Excluding 'overcrowding'	16.5	19.7		17.3	18.7		19.1	20.7		17.7	20.6	
	[15.8,17.2]	[18.2,21.3]		[16.3,18.3]	[17.1,20.5]		[18.0,20.3]	[18.7,22.8]		[16.6,18.8]	[18.7,22.6]	
Neighborhood problems	DE			FR			NL			UK		
All indicators	27.4	26.4		27.2	25.3		27.3	26.7		34.0	35.2	
	[26.5,28.3]	[24.6,28.1]		[25.6,28.8]	[23.1,27.7]		[26.0,28.6]	[24.7,28.7]		[32.7,35.4]	[33.0,37.3]	
Excluding 'pollution'	12.2	12.3		16.4	15.5		17.7	17.7		27.1	28.3	
	[11.6,12.9]	[11.1,13.7]		[15.3,17.6]	[13.9,17.3]		[16.6,18.7]	[16.1,19.5]		[25.8,28.4]	[26.3,30.4]	
Excluding 'crime'	21.7	20.9		16.6	15.4		13.8	13.4		13.1	13.1	
	[20.9,22.5]	[19.3,22.5]		[15.4,18.0]	[13.6,17.4]		[12.9,14.8]	[11.9,15.0]		[12.2,14.1]	[11.6,14.6]	
Difficult access to basic services	DE			FR			NL			UK		
All indicators	nc	22.7		nc	13.6		nc	14.4		nc	12.0	
		[21.1,24.5]			[12.2,15.2]			[12.8,16.2]			[10.4,13.8]	
Excluding 'health'	nc	16.4		nc	6.8		nc	7.2		nc	8.1	
		[15.0,17.9]			[5.8,7.9]			[5.9,8.7]			[6.8,9.7]	
Excluding 'school'	11.3	12.5		5.9	7.6		9.0	8.8		6.3	4.7	
	[10.7,11.9]	[11.2,13.9]		[5.3,6.6]	[6.5,8.9]		[8.3,9.7]	[7.7,10.1]		[5.7,7.0]	[3.7,5.8]	

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

The label 'nc' means not comparable between total population and children.

Table 4.2A Domain incidence rates (in percentages, confidence intervals between brackets)

Domain incidence	total	children 0-17		total	children 0-17		total	children 0-17		total	children 0-17	
Financial strain	**DE**			**FR**			**NL**			**UK**		
All indicators	32.7	37.5		37.7	41.4		22.3	21.5		30.7	41.3	
	[31.8,33.6]	[35.5,39.4]		[36.4,38.9]	[39.2,43.5]		[21.0,23.6]	[19.4,23.9]		[29.4,32.0]	[39.0,43.5]	
Excluding 'arrears'	31.0	35.8		36.1	39.8		20.9	19.9		28.9	38.8	
	[30.1,31.9]	[33.9,37.7]		[34.9,37.4]	[37.7,42.0]		[19.7,22.2]	[17.8,22.2]		[27.6,30.2]	[36.5,41.0]	
Excluding 'holiday'	20.9	21.7		24.2	29.1		17.2	17.4		22.8	31.4	
	[20.1,21.7]	[20.1,23.4]		[23.1,25.4]	[27.1,31.2]		[16.1,18.4]	[15.4,19.6]		[21.6,24.0]	[29.2,33.6]	
Excluding 'meal'	30.3	34.6		37.1	40.9		21.9	21.2		30.3	41.1	
	[29.4,31.2]	[32.7,36.5]		[35.8,38.3]	[38.8,43.1]		[20.7,23.2]	[19.1,23.5]		[29.0,31.7]	[38.8,43.3]	
Excluding 'computer'	31.8	37.2		36.6	40.5		22.0	21.3		29.7	40.6	
	[30.9,32.8]	[35.3,39.2]		[35.4,37.8]	[38.4,42.7]		[20.7,23.2]	[19.2,23.5]		[28.4,31.0]	[38.4,42.9]	
Excluding 'car'	31.5	36.8		37.2	41.0		20.3	20.8		29.8	40.7	
	[30.6,32.4]	[34.9,38.8]		[35.9,38.4]	[38.9,43.2]		[19.1,21.5]	[18.7,23.1]		[28.5,31.2]	[38.5,43.0]	
Excluding 'ends meet'	31.9	36.5		35.7	38.6		19.1	17.8		27.0	36.5	
	[31.0,32.9]	[34.6,38.4]		[34.5,37.0]	[36.5,40.7]		[17.9,20.4]	[15.7,20.0]		[25.7,28.3]	[34.2,38.9]	
Monetary poverty	**DE**			**FR**			**NL**			**UK**		
Income poor	15.2	13.9		13.1	15.7		10.2	13.9		19.1	23.0	
	[14.5,15.9]	[12.6,15.4]		[12.3,14.1]	[14.0,17.5]		[9.1,11.4]	[11.7,16.5]		[18.1,20.2]	[20.9,25.1]	

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

Table 4.3 Domain country rankings (rankings by total population and children)[22]

Domain incidence	rank total	rank children	rank total	rank children	rank total	rank children	rank total	rank children
Housing problems	DE		FR		NL		UK	
All indicators	1	2	3	4	1	1	2	3
Excluding 'leak'	3	2	4	4	1	1	2	3
Excluding 'warm'	1	1	4	4	3	2	2	3
Excluding 'overcrowding'	1	2	2	1	4	4	3	3
Neighborhood problems	DE		FR		NL		UK	
All indicators	3	2	1	1	2	3	4	4
Excluding 'pollution'	1	1	2	2	3	3	4	4
Excluding 'crime'	4	4	3	3	2	2	1	1
Difficult access to basic services	DE		FR		NL		UK	
All indicators	nc	4	nc	2	nc	3	nc	1
Excluding 'health'	nc	4	nc	1	nc	2	nc	3
Excluding 'school'	4	4	1	2	2	3	1	1
Financial strain	DE		FR		NL		UK	
All indicators	3	2	4	4	1	1	2	3
Excluding 'arrears'	3	2	4	4	1	1	2	3
Excluding 'holiday'	2	2	4	3	1	1	3	4
Excluding 'meal'	2	2	3	3	1	1	2	4
Excluding 'computer'	3	2	4	3	1	1	2	4
Excluding 'car'	3	2	4	4	1	1	2	3
Excluding 'ends meet'	3	2	4	3	1	1	2	2

Source: own calculations with EU-SILC, wave 2007. The label 'nc' means not comparable between total population and children.

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[22] Reminder: country rankings have been made on the basis of the point estimates and did not take into account overlapping confidence intervals between countries.

(Aggregating) across domains (Figure 1, Table 4.4 and 4.5)

Figure 4.1 and Tables 4.4 and 4.5 present the domain score for children by country and the number of domain deprivations in normal and cumulative percentages for both the total population and children. As such, it provides a first insight into the degree of cumulative deprivations experienced by children. Cumulative deprivation rates far exceed the levels of monetary poverty: monetary poverty ranges from 10 to 23 percent while 57 to 69 percent of the total population and children suffer from at least one deprivation. In line with the previous analyses, children in the Netherlands have the lowest deprivation levels, whilst Germany, France and the UK follow similar patterns of deprivation (also in a cumulative sense).

A comparison between the total population and children indicates that children more at risk of being deprived in at least one domain; in Germany and the UK children are also more at risk of multiple deprivations (confirming findings of TARKI Social Research Institute & Applica, 2010).

Table 4.4 Number of domain deprivations (in percentages, confidence intervals between brackets)

	DE		FR		NL		UK	
Number of domain deprivations	total	child	total	child	total	child	total	child
0	38.1	34.0	38.4	34.8	44.6	42.8	38.9	31.4
	[37.2,39.1]	[32.1,35.8]	[37.1,39.7]	[32.8,37.0]	[43.2,45.9]	[40.6,45.0]	[37.6,40.3]	[29.5,33.4]
1	34.6	33.9	34.3	33.3	34.5	35.1	34.9	34.3
	[33.7,35.5]	[32.0,35.8]	[33.2,35.5]	[31.4,35.3]	[33.3,35.7]	[33.0,37.3]	[33.7,36.1]	[32.2,36.4]
2	18.6	20.2	19.0	21.1	15.6	15.4	18.0	22.0
	[17.8,19.3]	[18.7,21.8]	[18.0,20.0]	[19.3,23.0]	[14.6,16.7]	[13.8,17.3]	[16.9,19.1]	[20.1,24.0]
3	7.5	9.9	7.5	9.3	4.8	5.8	7.2	10.7
	[7.0,8.1]	[8.8,11.2]	[6.7,8.3]	[8.0,10.7]	[4.1,5.6]	[4.5,7.4]	[6.4,8.1]	[9.1,12.4]
4	1.2	2.0	0.9	1.5	0.6	0.9	1.0	1.7
	[1.0,1.4]	[1.5,2.8]	[0.7,1.2]	[1.0,2.1]	[0.4,0.8]	[0.5,1.5]	[0.8,1.4]	[1.1,2.6]

Source: own calculations with EU-SILC, wave 2007.

The cumulative percentages in Table 4.5 also allow for an insight into multidimensional poverty headcount ratios if we were to use count poverty (Alkire & Foster, May 2008; Atkinson, 2003) as a method of aggregation. The union approach, defining multidimensional poverty by deprivation in at least one domain, would result in headcount ratios ranging from 56 to 69 percent. The dual cut-off intersection method, defining multidimensional poverty on the basis of deprivation in at least two domains, would result in deprivation rates ranging from 21 percent in the Netherlands to 34 percent in the UK. Finally, the intersection method, defining someone to be poor when poor in all domains, points towards headcount ratios of 2 percent in Germany to 0.6 percent in the Netherlands. These results do not only point to the large extent of multidimensional poverty if one were to aggregate across domains but also suggests that headcount rates are highly sensitive to the specific aggregation threshold under consideration.

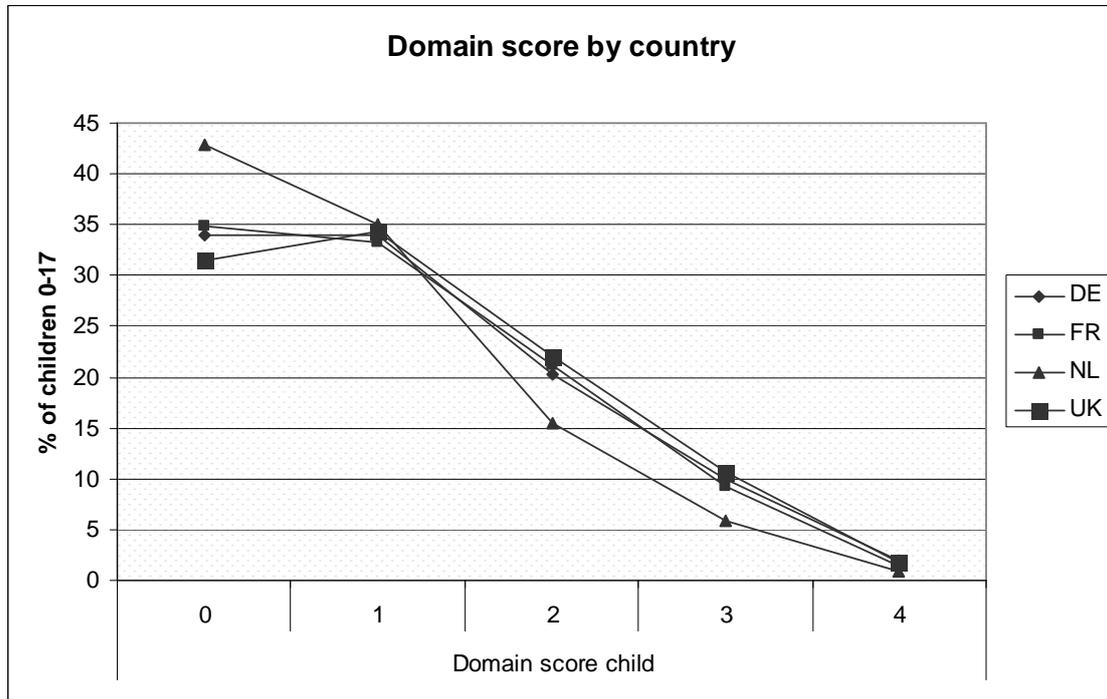**Figure 4.1: Number of domain deprivations (% of children)**

Table 4.5 Number of domain deprivations (in cumulative percentages)

	DE		FR		NL		UK	
Number of domain deprivations	total	child	total	child	total	child	total	child
1	61.9	66.0	61.6	65.2	55.5	57.2	61.0	68.6
2	27.3	32.1	27.3	31.9	21.0	22.1	26.1	34.3
3	8.7	11.9	8.3	10.8	5.4	6.7	8.2	12.3
4	1.2	2.0	0.9	1.5	0.6	0.9	1.0	1.7

Source: own calculations with EU-SILC, wave 2007.

Synthesis sensitivity analyses

The results at an indicator level point towards a diverse picture of child deprivation across indicators, across countries and in terms of the deprivation risk of children relative to the population as a whole. One can not identify indicators that display consistently high or low deprivation rates across all countries; one can not rank countries consistently on the basis of their performance with respect to the different indicators; or consider children as consistently disadvantaged.

The analysis at the domain level points towards a more consistent picture in terms of domain rankings but not with respect to country rankings. Access to basic services displays the lowest deprivation rates for all countries whilst financial strain poses the biggest problem to all countries (except Netherlands where neighborhood deprivation is larger than that in financial strain). Country rankings across domains are less consistent and do not point to specific countries as best or worst performers. If any, the domain level deprivation rates for the UK tend to be on the higher side. Depending on the specific

domain, country rankings are more or less robust. Only in the financial strain domain are country rankings very robust to the inclusion or exclusion of financial strain indicators. The large degree of variation across country rankings has not been pointed out in previous cross-national comparative studies, which rather attempt to group countries by performance (see e.g. TARKI Social Research Institute & Applica, 2010) or social welfare regime (see e.g. Dewilde, 2008; Whelan & Maitre, 2010; Whelan et al., June 2008).[23] Once aggregating to domain and across domains, deprivation levels are much higher than monetary poverty rates. The above confirms the findings of Bossert *et al* (2009) who conclude that the ranking of countries changes when different multidimensional poverty measures are used.

In terms of the comparison between the total population and children, our results now picture more firmly to children as a disadvantaged group (at a domain level and when aggregating across domains): children are more likely to be deprived in the housing and financial strain domains and are also more likely to be suffering from one or several deprivations. The Netherlands stands out as the country with the lowest levels of cumulative deprivations whilst Germany, France and the UK follow similar patterns.

What are the implications of these results for the analysis of mismatch and overlap patterns in the next section? Given absolute levels of indicator and domain deprivations and the large differences in magnitude compared to monetary poverty one would expect quite some mismatch between monetary poverty and other domains of deprivation. In the UK, the degree of overlap between monetary poverty and other domain deprivations is likely to be highest as deprivation levels in general are higher. But whether this means that people in the UK are also disproportionately more likely to be double deprived is a priori not clear and needs to be investigated further by comparing overlap patterns at the level of the individual.

5. Cross-national comparison of child poverty

In this section we analyze patterns of child poverty across domains from a national and a cross-national comparative country perspective contrasting our findings with those from the mismatch and child poverty literature. Section 5.1 concentrates on the comparison between the traditional monetary poverty indicator and deprivation in other domains. Section 5.2 focuses on overlap patterns between all domains and the degree to which these patterns differ systematically between countries. Finally, section 5.3 examines which characteristics are associated with what type of domain deprivation and the degree to which this differs between countries; we distinguish between individual, household and neighborhood characteristics.

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[23] Bradshaw and Richardson (2009) study seven dimensions of well being and construct a composite index of child well being from a cross-national perspective but they first aggregate deprivation indicators to country level before aggregating to domain level. They find that the country rankings of the composite index are quite robust to different weighting of the domains and that the Netherlands tends to perform consistently well across dimensions while the opposite holds for the UK. Nevertheless, they also find quite some variation across country-domain rankings.

5.1 Monetary poverty and domain deprivation: (miss) identification

For a long time child poverty research in developed economies has been dominated by monetary poverty indicators but this has been changing in the past decade; many countries are now contemplating using non-monetary indicators of child poverty or are already testing such indicators and this also holds for the European Union and its member states. The first aim of this paper is to find out to what extent a monetary poverty measure identifies the same children as poor as deprivation measures in non-monetary domains? We are hereby interested in the degree of overlap as well as the degree of mismatch between these measures. From a policy perspective, both mismatch and overlap patterns in the identification of vulnerable children are of interest: mismatch patterns are important because they are an indication of the in- and exclusion errors in the identification process while overlap patterns identify multi-domain deprived children and may thus merit special attention from policy makers. Furthermore, even though the countries in our selection have comparable average living standards, (relative) income poverty statistics show considerably large cross-national differences in poverty levels and trends (see for instance (see for instance Notten & Neubourg de, 2007).[24] Our second aim is to analyze whether the overlap between monetary and non-monetary poverty measures also differs systematically across the countries in our selection.

Table 5.1 summarizes the degree of mismatch and overlap between monetary and non-monetary poverty domains. The second column shows the percentage of the child population that is income poor and / or deprived in the other domain: depending on the country and the domain this percentage varies between 27% and 49%. For most countries the percentages are highest for the financial strain domain and lowest for the access domain. As income is the main financial resource for most households in market-based economies one would expect that income poverty and financial strain are positively and rather strongly related (after all, this is the reason why income poverty is used as an indicator for financial poverty). The UK consistently scores worst while the Netherlands has the low(est) scores in three out of the four overlap domains with monetary poverty; the confidence intervals suggest that the lowest rank of the Netherlands is only statistically significant from Germany and France in the case of the financial strain – income poverty combination. These findings are consistent with those of the previous section: as the UK has a considerably higher monetary poverty headcount than the other member states and its domain deprivation rates also tend to be higher, one would thus also expect a higher overlap.[25]

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[24] The degree of income dispersion at income levels between the median and poverty threshold (defined as a % of the median) are a key factor explaining poverty differences between countries with similar living standards.

[25] Even if income poverty and domain deprivations would not be correlated one would predict higher levels of overlap in the UK. In case of positive correlations one would expect a higher overlap than in the case of zero correlation.

Table 5.1: Income poverty and domain deprivation (in percentages, confidence intervals between brackets)

		Mismatch (Share of deprived, in % out of 100)			Overlap (double deprivation)		
	Deprived (%)	deprived but not income poor	only income poor	overlapping deprivations	overlap (%)	correlation	odds
Housing problems							
DE	32.9 [31.0,34.8]	57.8	21.9	20.4	6.7	0.21*	3.30*
FR	35.9 [33.7,38.1]	56.1	19.2	24.7	8.8	0.26*	4.03*
NL	32.4 [30.0,34.9]	57.1	25.0	17.9	5.8	0.13*	2.59*
UK	40.4 [38.1,42.6]	43.2	29.3	27.5	11.1	0.21*	3.23*
Neighborhood problems							
DE	35.1 [33.2,37.0]	60.4	24.8	14.8	5.2	0.08*	1.84*
FR	35.8 [33.4,38.2]	56.1	29.1	14.8	5.3	0.09*	1.61*
NL	37.6 [35.2,40.0]	63.2	29.1	7.7	2.9	-0.02	0.71
UK	49.3 [47.1,51.6]	53.4	28.7	17.8	8.8	0.04	1.18
Difficult access to basic services							
DE	32.7 [30.9,34.6]	32.5	62.1	5.3	4.0	0.04*	1.43*
FR	27.0 [25.0,29.1]	7.1	89.9	3.0	2.3	0.01	1.10
NL	26.2 [23.9,28.6]	24.9	70.3	4.9	2.1	0.00	1.10
UK	31.1 [28.9,33.3]	3.0	95.4	1.7	3.9	0.06*	1.75*
Financial strain							
DE	41.4 [39.4,43.3]	66.3	9.4	24.2	10.0	0.29*	5.48*
FR	45.0 [42.8,47.1]	65.1	8.0	26.9	12.1	0.32*	6.30*
NL	28.5 [26.1,31.0]	51.2	24.2	24.6	7.0	0.23*	4.92*
UK	47.3 [45.1,49.6]	51.5	12.9	35.7	16.9	0.35*	5.99*

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

If this were a contest between a traditional income poverty measure and domain specific deprivation measures each competing for the identification of vulnerable children, columns three to five would show the degree of 'mismatch' between the monetary poverty measure and its domain specific 'competitor'. The shares of poor children in 'overlapping deprivations' and 'income poor only' are small (15-36%) relative to the share of 'deprived but not income poor' children (50-60%). The access to basic services domain is the exception where the 'income poor only' group is very large and the other two groups are small. There are no systematic differences in mismatch patterns between countries though some differences in certain domains arise. For instance, in Germany and the Netherlands the share of children having difficult access to health and education services is considerably higher than in France and the UK. In the financial strain domain the Netherlands has by far the highest share of 'income poor only' children. The notion of a contest obviously is an over-simplification of the identification issue. Our conceptual framework explicitly recognizes that child well being and well becoming is multidimensional; cumulative deprivations across domains are important but deprivation in one domain is also of concern. There are many other reasons for studying mismatch patterns (for an excellent overview see Nolan & 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 & Whelan, 2009). Mismatch patterns could help inform about the size of specific measurement errors, or to gauge the differences between objective and subjective indicators of deprivation. Moreover, depending on the policy domain one (set of) indicators could be more relevant: the neighbourhood and access domains are relevant from an urban planning perspective while the financial strain, housing and income poverty domains are more closely linked social (protection) policy. From a perspective of child deprivation, the mismatch columns in Table 5.1 clearly illustrate that using income poverty as a proxy for child deprivation in other domains would be a very crude tool, one that would result in large errors of exclusion.

The last columns focus on the overlap group i.e. the children living in households that are both income poor and domain deprived. The UK also has the highest share of double deprived in all income poverty – domain combinations (column six). The correlation between income poverty and domain deprivation is positive and statistically significant in the financial strain and housing problems domains; in the other domains the correlation is also positive but much lower and in half of the cases not statistically different from zero (column seven). [26] The last column shows the odds ratio which indicates how much more likely an income poor child is to be deprived in the other domain in comparison to non-income poor child: a ratio of two indicates that an income poor child is twice as likely as a non-income poor child to be deprived in that other domain. In line with the correlation coefficients, the odds ratios are highest for the housing problems and financial strain domains. The odds ratios for the Netherlands are again lowest but those for the UK are not systematically higher than those of the other countries. Thus, even though relatively more children in UK are deprived and relatively more children are double deprived; the odds ratios suggest that income poor UK children do not have higher odds to be double deprived than their counterparts France and Germany (i.e. being income poor does not put UK children at a larger disadvantage of also being domain deprived). In the next section we discuss this issue further, also incorporating the overlap between other domains.

While this paper focuses on children, our findings broadly confirm those of studies analyzing the population as a whole.[27] Whelan *et al* (2001), Bradshaw and Finch (2003), Foster (2005) and Coromaldi & Zoli (2007) find that the mismatch between income poverty and multidimensional poverty measures is large and that the group of 'consistent poor' comprises only a small share of the poor. These patterns also do not vary much between European countries of comparable living standards, though Foster (2005) finds that poorer countries tend to have a larger share of consistent poor than richer countries.

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[26] Table A11 in the appendix summarizes the three dimensional overlap patterns between income poverty and the financial strain and housing domains. While around half of the children are not deprived in any of these dimensions in Germany (51%), France (49%) and the UK (46%) this is more common for Dutch children (68%). In the former countries one in every four or five children suffers from double or triple deprivations (DE: 21%, FR: 23%, UK: 25%) while only one in 14 Dutch children suffers from multiple deprivations (NL: 7%).

[27] These studies are based on data from the predecessor of the EU-SILC, the ECHP, and focus on the overlap between income poverty and a set of non-monetary deprivation indicators (notably those we used in the housing, neighborhood and financial resources dimensions).

Country rankings or 'league tables' are also relatively robust to the use of income poverty of consistent poverty: "Broadly speaking, the rank ordering of countries remains similar to relative income lines, but the degree of overlap between income and deprivation is greater in countries with higher income poverty rates, so the disparities across countries are generally sharper" (Nolan & Whelan, 2009, p. 23). Our study confirms this observation: though Germany and France switch ranks from income poverty to consistent deprivation the differences between the UK and other become sharper (6th column Table 5.1). Our study complements the above findings in the sense that a similar observation holds for populations groups with above average deprivation rates: such groups (i.e. children) also having higher rates of overlapping deprivations.[28]

5.2 Overlap between domain deprivations

Be it from a well being or well becoming perspective, children suffering from cumulative deprivations across domains are a group of special concern to research and policy communities. The aim of this section is to find out which combinations of deprivation are common across domains of well being for children and whether these patterns of overlap differ systematically between countries. We thus broaden our focus to overlap patterns across domains but, for reasons of continuity and comparability, we include income poverty as a separate domain in the analysis. Of special interest is the cross-national relationship between *levels* of overlap and *odds ratios* that was identified in the previous section: despite considerable differences in the levels overlap will odds ratios be similar across countries? For each domain combination and country, Table 5.2 shows the levels of overlap in percentages and the odds ratio which have been estimated by means of a bivariate logistic regression. The confidence intervals are indicated below each estimate in squared brackets and have been estimated taking account of the specific multi-stage sampling design of each national survey.

Levels of overlap are higher for the domain combinations with financial strain. The Netherlands has the lowest levels of overlap across all domains while the ranking of the other countries varies by the domain combination. The confidence intervals suggest that not all country rankings would pass a statistical significance test: though in most domain combinations a partial ranking can be made, the overlap levels between the housing and access to basic services domains suggests that there is no ranking possible between countries. The Netherlands has the lowest overlap levels in four domain combinations (housing-financial strain, neighbourhood-financial strain, neighbourhood-income poverty, financial strain-income poverty). The UK has the highest overlap levels in four domain combinations (housing-neighbourhood, housing-income poverty, neighbourhood-income poverty, financial strain-income poverty) while Germany has the highest overlap levels in two domain combinations (neighbourhood-access to basic services, financial strain-access to basic services). For the other domain combinations the confidence intervals of the UK, Germany and France overlap.

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[28] Reminder: this is a valid point and builds on our observation in section 4 but we need to include a table like that of 5.1 for the population as a whole to make this point more convincing.

The *odds ratios* are highest for the domain combinations between housing, financial strain and income poverty (ranging from 2.59 to 6.30), smaller for combinations with the neighbourhood domain (in general significantly higher than one but smaller than or around two) and small for the access to basic services domain (in general not significant, sometimes significant but smaller than one or around two). In comparison to a non-deprived child, a child deprived in one domain thus has a higher chance of being deprived in the other domain as well. Deprivation is 'contagious' across domains and this holds for all countries in our study. However, as the confidence intervals of the odds ratios overlap for every country, there appears to be no difference in the 'degree of contagion' between countries.[29] Thus, even though a Dutch child is less likely to be double deprived than a UK child, once deprived in one domain a Dutch child has an equally high risk of deprivation in another domain.[30]

These results complement those of the macro perspective taken by studies such as that of Bradshaw and Richardson (2009) that compare national averages in child well being domains between (27) countries. Since we compare overlap at the level of the child we are thus able to look at the individuals behind national-averages of domain scores. Using various data sources (among which the EU-SILC), Bradshaw and Richardson (2009) compare child well being across seven well being domains[31] and construct a composite child well being index. The Netherlands are performing best in terms of child well being while the UK performs badly (in the lower half of the 27 country ranking and well below Germany and France). The ranking of these four countries in their study also tends to be reflected in the domain specific country rankings and are thus consistent with our findings. What our research adds is that, despite higher average deprivation levels in the UK, the likelihood of being deprived in yet another domain is similar to that of countries with lower average deprivation levels.

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[29] With on exception: The Netherlands has the lowest odds for the income poverty – neighbourhood combination.

[30] Reminder: in statistical jargon this is the difference between the probability of deprivation and the conditional probability of deprivation (conditional on the state of deprivation in another dimension). Is there a statistical explanation for this result? If not, what 'real' factors could explain this (welfare state: universal or broader coverage of social programs versus more welfare / targeted coverage, other?)?

[31] These dimensions are health, subjective well being, personal relationships, material resources, education, behavior and risks and housing and environment.

Table 5.2: Overlap between domain deprivations (in percentages, confidence intervals between brackets)

	Neighborhood Problems		Difficult access to basic services		Financial strain		Income poverty	
	Overlap (%)	Odds	Overlap (%)	Odds	Overlap (%)	Odds	Overlap (%)	Odds
Housing problems								
DE	9.5	2.02*	7.1	1.45*	15.9	4.00*	6.7	3.30*
	[8.4,10.8]	[1.66,2.46]	[6.2,8.3]	[1.18,1.79]	[14.5,17.4]	[3.29,4.85]	[5.8,7.8]	[2.61,4.19]
FR	10.5	2.14*	4.7	1.33	19.4	4.53*	8.8	4.03*
	[9.0,12.2]	[1.74,2.64]	[3.7,5.8]	[1.00,1.77]	[17.6,21.3]	[3.69,5.56]	[7.5,10.3]	[3.07,5.28]
NL	8.5	1.71*	3.9	1.17	9.1	3.02*	5.8	2.59*
	[7.2,10.0]	[1.33,2.19]	[2.9,5.2]	[0.82,1.66]	[7.4,11.1]	[2.29,4.00]	[4.3,7.7]	[1.71,3.93]
UK	11.4	1.34*	5.3	2.17*	18.2	3.70*	11.1	3.23*
	[10.0,13.0]	[1.09,1.66]	[4.0,6.8]	[1.56,3.01]	[16.2,20.4]	[2.99,4.57]	[9.5,13.1]	[2.54,4.12]
Neighborhood problems								
DE			6.5	1.17	12.4	1.72*	5.2	1.84*
			[5.5,7.7]	[0.93,1.46]	[11.1,13.8]	[1.43,2.07]	[4.3,6.3]	[1.43,2.36]
FR			3.8	1.14	13.3	1.83*	5.3	1.61*
			[3.1,4.6]	[0.87,1.51]	[11.7,15.0]	[1.51,2.22]	[4.4,6.3]	[1.23,2.11]
NL			4.4	1.24	7.9	1.83*	2.9	0.71
			[3.6,5.3]	[0.94,1.64]	[6.6,9.4]	[1.41,2.38]	[2.1,4.1]	[0.46,1.09]
UK			5.7	1.80*	16.5	1.44*	8.8	1.18
			[4.6,7.0]	[1.32,2.46]	[14.8,18.4]	[1.19,1.74]	[7.5,10.2]	[0.94,1.50]
Difficult access to basic services								
DE					10.7	1.67*	4.0	1.43*
					[9.5,12.0]	[1.38,2.03]	[3.2,5.0]	[1.09,1.89]
FR					6.3	1.24	2.3	1.10
					[5.2,7.5]	[0.96,1.61]	[1.6,3.2]	[0.75,1.63]
NL					4.4	1.78*	2.1	1.10
					[3.4,5.9]	[1.26,2.52]	[1.2,3.8]	[0.58,2.07]
UK					7.0	2.17*	3.9	1.75*
					[5.6,8.6]	[1.61,2.92]	[2.8,5.4]	[1.18,2.57]
Financial strain								
DE							10.0	5.48*
							[8.9,11.3]	[4.28,7.03]
FR							12.1	6.30*
							[10.6,13.8]	[4.73,8.39]
NL							7.0	4.92*
							[5.3,9.0]	[3.26,7.43]
UK							16.9	5.99*
							[15.0,18.9]	[4.64,7.73]

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

5.3 Profile: Comparing 'at risk of deprivation' characteristics between domains

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) multiple deprived. As part of the analysis we also investigate to what extent these factors differ across countries. These so-called poverty profiles give a 'face' to deprived children and may serve as an entry point into more thorough investigations into the reasons for and dynamics of deprivation.

In each regression, the domain deprivation indicator is the binary dependent variable which is regressed on a set of explanatory variables ranging from child, household to environment 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 results displayed in this section are only preliminary; a number of potentially relevant explanatory characteristics have not yet been included and the results require further robustness checks especially in terms of model and variable specification.

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) and the so-called work intensity status of the household. The work intensity status of a household summarizes 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 categorized in four categories (WI=0, 0<WI<0.5, 0.5≤WI<1, WI=1). The environment characteristic takes into account the population density of the local area in which the household lives (dense, intermediate and thin). The definition local area corresponds to that of wards in the UK and municipality in France and Germany; this variable is not available for the Netherlands. In further analyses we will include a number of variables summarizing key characteristics of the children's parents; among those considered are employment status, education level, age, country of birth, citizenship, marital status. Table A12 in the appendix summarizes the population shares of the characteristics[32].

Tables A13 to A17 summarize the results for the income poverty, financial strain, housing, neighborhood and access to basic services domains; Table A18 summarizes the results for the number of deprivations. We focus our analysis on a number of aspects: which variables are associated with a high risk of deprivation i) across domains and ii) across countries? Are the parameter values in some countries consistently higher than in others? Which variables are only associated with a high risk in one domain? Regarding the first question, the high risk variables that recur across domains and countries are

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[32] A few categories have very low population share (the category 'other' under household types, the category 'thinly populated' for the UK under level of urbanization); though 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.

single parenthood, low work intensity and rented housing. In the Netherlands the parameter estimates for rented housing are consistently higher than those in other countries in three out of five domains (income poverty, financial strain and access to basic services). In France, the parameter estimates for low work intensity households are consistently higher than those in the other countries in four out of five domains (except the neighborhood domain).

Despite these commonalities we also observe quite some difference in high risk factors and / or their magnitude across domains and countries. Differences in high risk factors across domains could point towards differences in the comparative (dis)advantage of characteristics vis-à-vis deprivation in particular domains. For instance, living in an urban area makes it likely that there is easy access to basic services while the downside could be higher rates of crime or environmental degradation. Differences between countries can potentially be explained by national differences in the labor markets, demographics and welfare states (including tax system, provision of public goods and social protection policy).[33] At this point we only identify these differences; it is beyond the scope of this paper to further investigate the underlying reasons.

For the income poverty domain, the household size variables are significant while household size does not appear to be recurring as a significant variable in other domains. It is likely that this difference can be linked to the equivalence scales used to adjust household income for differences in household size and demographic composition. In that same domain, we can see that higher magnitudes of the high risk factors associated with income poverty: low work intensity in France; rented housing in the Netherlands; and single parenthood in the United Kingdom (i.e. the confidence intervals for the parameter estimates do not overlap).

In addition to the recurring high risk factors, the factor 'two adult – two child families' is a low risk factor in the financial deprivation domain. Lower population densities are a high risk factor in Germany and France but a low risk factor in the UK. For France any category below full work intensity is a high risk factor but not in the other countries. For the Netherlands and the UK rented housing is a high risk factor but not for the other countries.

In the housing domain, the risk factors 'low work intensity' and 'single parenthood' are higher in magnitude for France and Germany than those in other countries.

In the neighborhood domain overall fewer explanatory variables are statistically significant and except for the population density dummies and different variables are significant across countries. Not surprisingly, an increased population density is associated with a higher risk of neighborhood problems.

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[33] Cross-national differences in high risk factors can also result from differences regarding data collection and the construction of variables. As explained in section three, in our country and indicator selection process we have put considerable effort in attempting to minimize the impact of these factors.

In the access to basic services domain there is again quite some difference between countries in the significance of high risk factors; while rented housing is a high risk factor for the Netherlands and the UK, intermediate and low population densities and lower work intensity are high risk factors for Germany and France. The child age variables are significant now but this is likely to be a construct of the deprivation definition of the access to education variable which is only available for children in school going age.

The comparison of tables A13 to A17 leads us to identify a number of recurring risk factors across domains (single parenthood, low work intensity and rented housing). A logical next step in the analysis is to check whether these factors are also associated with multiple deprivations. The analysis in this and previous sections (section 5.2 on overlapping deprivations) suggests that this is likely to be the case. Table A18 summarizes the results for the ordered logistic regression where the dependent variable is the sum of deprivation in the financial strain, housing and neighborhood domains. Though potentially four categories are available, we merge the categories of two and three deprivations due to a low population share of the three deprivation category. The access to basic services domain has been excluded because the patterns of overlapping deprivations suggest that this domain is least related to domain deprivation in other domains. Though having large overlaps with the other three domains, income poverty has been excluded because it is a resource-based welfare indicator while the other deprivation variables are outcome-based. The results confirm that single parenthood, low work intensity and rented housing are also high risk factors associated with cumulative deprivations and this also holds across countries. There are now also a few significant low risk characteristics: in comparison to two adults with a single child, families consisting of two adults and several children are less at risk of multiple deprivations. Lower population density now also appears as a low risk factor.

There are differences in (magnitude of) high risk characteristics across countries: while households consisting of two adults and three or more children are at higher risk of multiple deprivations in Germany, the opposite holds for France. While lower work intensity household are more at risk of multiple deprivations in France and Germany, the magnitude of high risk is lower for the Netherlands and the UK. In the latter two countries, rented housing is a high risk factor with a larger magnitude.

Our results can be linked to those found in the poverty mismatch literature. These studies find that, in comparison to other parts of the population, households with children are more likely to be multidimensional poor than income poor (Bradshaw & Finch, 2003; Dewilde, 2004). It is important to note though that our focus is on the child population while the others focus on the population as a whole. Drawing from Whelan *et al* (November 2003), Nolan and Whelan (2009) first emphasize the weak relation they found between deprivation in current consumption and income on the one hand and housing and neighborhood domains on the other hand. Nevertheless they also find that "factors such as age, household composition, urban/rural location and tenure status have been found to play an important role in predicting [deprivation in] housing and neighborhood-related dimensions" (2009, p. 20). We also find that these factors are important (the age of adult members is not yet included in our analysis) but our findings

suggest that household composition (notably single parents) and tenure status recur as high risk factors across all domains. The higher (cumulative) deprivation risk of single parents is also confirmed by other studies (Bradshaw & Finch, 2003; Dewilde, 2004). Low work intensity is also confirmed as a recurring risk factor in other studies though these studies look at slightly different variables such as labor force participation and unemployment (Bradshaw & Finch, 2003; Dewilde, 2004; Förster, 2005).

Forster (2005) finds that unemployment and lower education [of adults] are the two strongest risk factors that appear to hold for all countries (the EU-15 and Czech Republic, Hungary and Slovenia). "For all the other characteristics, results are more diverse. Especially, gender and age characteristics [of adults] often have no significant effect, or the effects have opposite signs" (2005, p. 43). Other studies find that the share of retired individuals is higher under income poverty than under a multidimensional poverty measure indicating that this group is only at high risk of income poverty (Bradshaw & Finch, 2003; Dewilde, 2004). DeWilde (2004) finds that single elderly are the exception who are also more at risk of multidimensional deprivation. Though we have not yet included variables such as adult education and the elderly are not the focus of this study, our findings complement those in the literature in the sense that some high risk poverty characteristics are not consistently high risk across domains.

From a cross-national comparative perspective, Bradshaw and Richardson(2009) find that cross-national differences in "child well being is associated with (income) inequality" (p. 29) and that higher child well being is associated with higher in-kind spending (in a non-linear fashion) but this relationship is much less stronger for cash spending (p. 30). Further investigation is needed to assess whether the differences in high risk factors between countries we find can be linked to such causes as income inequality or public spending.

6. Conclusion

This paper aimed to investigate the degree to which monetary poverty and non-monetary deprivation measures identify different groups of vulnerable children and the degree to which children suffer from multiple deprivations across well being domains. A further aim has been to investigate whether these findings differ systematically across countries with similar living standards. These research questions were formulated in the context of an EU level search for child-focused indicators of well being and an academic literature that either focuses on mismatch / overlap patterns for the population as a whole (thereby missing a child-specific focus) or studies cross-national differences in multidimensional child poverty based on national averages (thereby missing cross-national differences in multiple deprivations at the level of the child).

After a careful process this paper selected 13 deprivation indicators of child well being and child well becoming that are grouped under 4 domains (financial strain, housing, neighborhood and access to basic services) and studied in 4 countries (Germany, France, the Netherlands and UK). The 'at-risk-of-poverty' indicator of the European Union was selected as a monetary poverty indicator and is based on a relative threshold set at 60% of

(national) medium income. The empirical analysis is based on the 2007 wave of the EU-SILC data. Robustness checks were performed on the indicator level, domain level and aggregating across domains. Instead of comparing a monetary poverty index to a multi-domain index of deprivation, the analysis of mismatch and overlap patterns focused on the comparison of domains.

A number of findings stand out. Firstly, the Netherlands most often ends up as best performer while the UK most often ends up as worst performer with France and Germany in the middle. In spite of this, we find considerable variation in country rankings across domains and that the domain rankings are sensitive to the inclusion or exclusion of deprivation indicators. The exception is the financial strain domain where the country rankings are very robust.

Secondly, at an indicator level there is no consistent evidence of children being more at risk of deprivation than the population as a whole. This picture changes, however, as aggregation proceeds from an indicator level to a domain level and across domains: children become disproportionately more at risk. Thus, our research confirms that of cross-national studies that take a macro perspective at multidimensional poverty (in the aggregate children are at higher risk) but it qualifies it in the sense that this is not necessarily the case at an indicator level.

Thirdly, the analysis of mismatch between monetary poverty and domain level deprivation broadly confirms the findings in the literature: mismatch patterns are large, differ in size across domains but are rather consistent across countries. The analysis of overlap between domains further confirms that countries with higher levels of domain deprivation also have higher levels of overlapping deprivation rates (Nolan & Whelan, 2009). Our study further complements this literature in the sense that a similar observation also holds for population groups within countries. A key contribution of our analysis is that higher levels of double deprivation do not necessarily translate into significantly higher odds of double deprivation. Thus, an income deprived child in the UK is equally likely to be also deprived in another domain as an income deprived child in the Netherlands. This finding holds across other domains.

Fourthly, the analysis of factors associated with a high risk of deprivation shows that there are a number of high risk factors that recur across domains and countries; single parenthood, low work intensity and rented housing. The ordered logit regression further suggests that families consisting of two adults and several children are less at risk of multiple deprivations (in comparison to two adults with a single child). However, in a number of cases, the magnitude of these recurring high risk factors is systematically higher in one country than in another country (rented housing in the Netherlands, low work intensity in France). For other factors we observe quite some differences in high risk factors and / or their magnitude across domains and countries. Our analysis of high risk factors is only preliminary; a number of potentially relevant explanatory characteristics have not yet been included and the results require further robustness checks especially in terms of model and variable specification. Regarding the recurrent

high risk factors, our child-focused findings are consistent with those found by population-focused studies.

More generally, the sensitivity analyses emphasize that indicator and domain deprivation rates as well as consecutive country / population group rankings are very sensitive to deprivation thresholds and the inclusion or exclusion of deprivation indicators from a domain. Consistency in rankings seems to be the exception rather than the rule. This is relevant both from a methodological and policy perspective. In a methodological sense, our study contributes to a better understanding of the adaptation of the typical monetary poverty measurement tool kit to a multidimensional one. Given the nature of information used in multidimensional poverty analyses (i.e. many categorical and binary variables), it is unlikely that stochastic dominance analyses will reveal a population group / country that (weakly) performs best / worst in a multidimensional sense. Focusing on stochastic dominance in only a few combinations of domains seems more promising. (Alkire, 2002)

In the context of the search for child-focused poverty indicators in the EU our study contributes in a number of aspects. Our sensitivity analyses suggest that one should be very careful aggregating indicators to domain and multidimensional levels. From a political and policy perspective this could be even counterproductive: countries perform well in one deprivation aspect and worse in another; some population groups are better off in one country than another; and, there are many potential reasons for such findings (economic, social, policy and data). The richness of common indicators lies in its diversity and, in that respect, our study cautions against the construction of a composite index of child well being. A more promising way of taking multidimensionality into account would be, where possible, to develop common indicators that take the 'breadth' of child deprivations into account (across indicators and/or domains). Children suffering from multiple deprivations represent a group that (ought to) have the attention of policy makers. This is important both from a child well being and child well becoming perspective and it may contribute to detecting and fixing gaps in social policy.

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Appendices

Table A1: Preliminary and final selection of indicators for multidimensional poverty analysis (Y/N)

Variable name	Code	Age	Y/N[1]
Personal file – labor information (child care)			
Education at compulsory school	RL020	0-<12	N
Age at the data of interview	RX010	all	Y
Sex	RB090	all	Y
Spouse/Partner ID	RB240	all	Y
Household file – housing			
Number of rooms available to household	HH030	all	Y
Leaking roof, damp walls/floors/foundation, or rot in window frames or floor	HH040	all	Y
Ability to keep home adequately warm	HH050	all	N
Household file – social exclusion			
Arrears on mortgage or rent payments	HS010	all	Y
Arrears on utility bills	HS020	all	Y
Arrears on hire purchase installments or other loan payments	HS030	all	Y
Capacity to afford paying a week annual holiday away from home	HS040	all	Y
Capacity to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day	HS050	all	Y
Capacity to face unexpected financial expenses	HS060	all	N
Do you have a telephone (including mobile phone)?	HS070	all	N
Do you have a color TV?	HS080	all	N
Do you have a computer?	HS090	all	Y
Do you have a washing machine?	HS100	all	N
Do you have a car?	HS110	all	Y
Ability to make ends meet	HS120	all	Y
Noise from neighbors or from the street	HS170	all	Y
Pollution, grime or other environmental problems	HS180	all	Y
Crime violence or vandalism in the area	HS190	all	Y
Household file - income (total household income)			
Equivalent disposable income	HX090	all	N
Special module 2007 – housing conditions			
Shortage of space in dwelling	MH010	all	N
Dwelling comfortably warm during winter time	MH050	all	Y
Dwelling comfortably cool during summer time	MH070	all	N
Accessibility of public transport	MH120	all	N
Accessibility of primary health care services	MH130	all	Y
Accessibility of compulsory school	MH140	school age	Y

[1] Variables labeled with 'N' were part of our preliminary selection of variables while those with 'Y' and marked in grey are included in the final selection. The reasons for inclusion are described in more detail in section 3.2.

Source: Description of EU-SILC User Database Variables (European Commission, March 2009a) and Description of secondary target variables (European Commission, March 2009b).

Table A2: List of final domains and indicators with exact definitions

Domain	Indicators	Definition	Indicator name
Housing (housingdepr1)	Whether the respondent feels the dwelling has a problem with a leaking roof, damp walls/floors/foundation, or rot in window frames or floor	deprived if answered "yes"	leak
	Whether the dwelling can be kept comfortably warm during winter time	deprived if answered "no"	warm
	Whether the dwelling is overcrowded	A dwelling is overcrowded if at least one of the following conditions does not apply: one family room, one room for each couple, one room for two children under the age of 12, one room for two boys / girls if both children are aged 12-17; two rooms are required for two children of different sex in the age group 12-17 years and one room for any other adult member.	overcrowding
Environment (environmentdepr1)	Whether pollution, grime or other environmental problems constitute a problem for the household	deprived if answered "yes"	pollution
	Whether crime, violence or vandalism constitutes a problem in the area	deprived if answered "yes"	crime
Access and mobility (mobilitydepr)	Accessibility of primary health care services	deprivation is constituted by "very difficult" or "difficult" to access	health
	Accessibility of compulsory school	deprivation is constituted by "very difficult" or "difficult" to access	school
Financial strain (financedepr1)	Whether the household has payment arrears	deprivation is constituted by deprivation with respect to either arrears on mortgage, utility bills or installments	arrears
	Capacity to afford paying for one week annual holiday away from home	deprived if answered "no"	holiday
	Capacity to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day	deprived if answered "no"	meal
	Whether the household could afford a computer?	deprived if answered "no"	computer
	Whether the household could afford a car?	deprived if answered "no"	car
	Whether the household is able to make ends meet	deprivation is constituted by "very difficult or difficult to make ends meet"	endsmeet

Table A3: Disposable income comparability

Country	Basic concepts and definitions	Household income components	Individual income components
UK	• Income reference period and Reference period for taxes on income contribution are centred around interview date (as opposed to previous year); • Reference period for taxes on wealth is the financial year (Apr 05- Mar 06; Apr07-Mar 08) (as opposed to previous calendar year)	• Total disposable household income (largely comparable);	• Other non-cash employee income (not comparable)
France		• Total disposable household income (fully comparable) • Regular inter-household cash transfers received (largely comparable); • Regular inter-household transfers paid (largely comparable)	• Cash or near-cash employee income (largely comparable); • Income from private use of company car (not collected)
Netherlands	• Fully comparable, but reference period for taxes on wealth is non-applicable.	• Most of the components included in the disposable income definition are 'largely comparable'. The total disposable household income is said to be 'largely comparable'.	• Unemployment benefits (largely comparable) • Other non-cash employee income (N/A)
Germany		• Total disposable household income (fully comparable) • Income from rental of property or land (largely comparable); • Interest, dividends, profit from capital investment in incorporated business (largely comparable);	• Other non-cash employee income (largely comparable) • Cash profits or losses from self-employment; unemployment benefits (largely comparable)

Notes: Since the 2007 round national statistics bureaus are obliged to provide information a number of new income components such as imputed rent, interest paid on mortgage, the value of goods from own consumption, employer's social insurance contributions and non-cash employee income other than a company car. It is expected that these income components will be included in an improved disposable household income definition but momentarily the calculation of income remains unchanged for the 2007 operation.
Source: European Commission (January 2009; October 2009).

Sensitivity analysis: indicator thresholds

Access and mobility domain

Accessibility of primary health care services
The primary health care services refer to the general practitioner, a primary health centre, a casualty department or similar, where first-aid treatment could be received. (With great difficulty, with some difficulty, easily, very easily)

Threshold 1: deprived if With great difficulty, not deprived if others
Threshold 2: deprived if With great difficulty or with some difficulty, not deprived if others

Table A4 Sensitivity analysis - Access to primary health care

Accessibility of primary health care services	Threshold 1		Threshold 2	
	total	children 0-17	total	children 0-17
DE	1.5	1.6	11.3	12.6
FR	1.2	1.6	5.9	7.6
NL	1.6	1.4	9.0	8.7
UK	1.2	0.6	6.3	4.6

Source: own calculations with EU-SILC, wave 2007.

Accessibility of compulsory school
The accessibility is assessed in relation to the school actually attended by the children of the household. If more than one child in the household is in compulsory school, the respondent should refer to the one with the most difficulty. This variable only concerns children whose age corresponds to the compulsory school attendance in the country, and not the other children even if the majority of them go to school.

Threshold 1: deprived if With great difficulty, not deprived if others
Threshold 2: deprived if With great difficulty or with some difficulty, not deprived if others

Table A5 Sensitivity analysis - Access to compulsory school

Accessibility of compulsory school	Threshold 1		Threshold 2	
	total	children 0-17	total	children 0-17
DE	1.4	2.2	10.3	16.4
FR	1.0	2.1	3.3	6.8
NL	0.8	1.7	3.3	7.2
UK	0.5	1.3	3.6	8.1

Source: own calculations with EU-SILC, wave 2007.

Table A6 Non-use compulsory school by age group

	missing values due to non-use
% of missing values due to non-use for all children 0-17	15.4
age group	
0-4	74,8
5-9	5,4
10-14	1,2
15-17	18,6

Source: own calculations with EU-SILC, wave 2007.

Sensitivity analysis – indicator Ability to make ends meet

The household respondent's assessment of the level of difficulty experienced by the household in making ends meet. A household may have different source of income and more than one household member may contribute to it. Thinking of the household's total monthly income, the idea is with which level of difficulty the household is able to pay its usual expenses. (With great difficulty, with difficulty, with some difficulty, fairly easily, easily, very easily)

Threshold 1: deprived if With great difficulty, not deprived if others
Threshold 2: deprived if With great difficulty or with difficulty, not deprived if others
Threshold 2: deprived if With great difficulty, with difficulty or with some difficulty, not deprived if others

Table A7 Sensitivity analysis – Ability to make ends meet

Ability to make ends meet	Threshold 1		Threshold 2		Threshold 3	
	total	children 0-17	total	children 0-17	total	children 0-17
DE	2.0	2.4	6.0	6.7	18.1	20.5
FR	2.9	4.0	15.5	20.2	52.7	55.9
NL	2.7	3.7	10.4	12.3	23.7	28.4
UK	4.9	7.3	13.6	20.1	39.3	51.4

Source: own calculations with EU-SILC, wave 2007.

Correlation between indicators within a domain (children 0-17 years)

The correlations between indicator deprivation rates within a domain are an indicator for the degree to which children are likely to be 'multiple domain deprived' (i.e. breadth of deprivation within a domain). In most cases correlations are positive with values ranging from 0.1-0.5, in some cases the correlations are insignificant; domain deprivation is a puzzle with many facets of which we observe a few. If correlation is very high between two deprivation indicators one would consider excluding one of them but this is not the case for our set of indicators. We further observe that pair wise correlations vary considerably across countries and domains. The highest correlations are found in the financial strain domain, notably between 'holiday' & 'ends meet' indicators, ranging from 0.25 to 0.42 and between 'arrears' & 'ends meet' ranging between 0.23 and 0.43. Notably, the correlation between 'computer' & 'car', 'leak' & 'warm', 'pollution' & 'crime' and 'health' & 'education' indicators is remarkably higher in Germany than in other countries. The larger association between indicators in Germany suggests that the overlap between indicator deprivations is larger than in other countries and that those living in Germany face a higher risk of experiencing cumulative deprivations within a domain (we do not further analyze this issue in this paper).

Table A8: Housing problems: correlation between indicators

		unable to keep house warm	overcrowding
DE	leaks/damp present in house	0.186*	0.091*
	unable to keep house warm	x	0.101*
FR	leaks/damp present in house	0.136*	0.145*
	unable to keep house warm	x	0.083*
NL	leaks/damp present in house	0.120*	-0.006
	unable to keep house warm	x	0.035*
UK	leaks/damp present in house	0.106*	0.093*
	unable to keep house warm	x	0.090*

Source: own calculations with EU-SILC, wave 2007.

Table A9: Environment problems: correlation between indicators

		experienced crime/violence/vandalism
DE	experienced pollution/environmental problems	0.332*
FR	experienced pollution/environmental problems	0.256*
NL	experienced pollution/environmental problems	0.129*
UK	experienced pollution/environmental problems	0.156*

Source: own calculations with EU-SILC, wave 2007.

Table A10: Difficult access to basic services: correlation between indicators

		difficult to access compulsory school
DE	difficult to access primary health care	0.335*
FR	difficult to access primary health care	0.046*
NL	difficult to access primary health care	0.137*
UK	difficult to access primary health care	0.080*

Source: own calculations with EU-SILC, wave 2007.

Table A11: Financial strain: correlation between indicators

		cannot afford holiday	cannot afford meat etc every second day	cannot afford a computer	cannot afford a car	cannot make ends meet
DE	combined arrears	0.246*	0.186*	0.084*	0.173*	0.251*
	cannot afford holiday	x	0.313*	0.159*	0.202*	0.292*
	cannot afford meat etc every second day		x	0.182*	0.186*	0.278*
	cannot afford a computer			x	0.306*	0.113*
	cannot afford a car				x	0.142*
FR	combined arrears	0.330*	0.257*	0.229*	0.192*	0.430*
	cannot afford holiday	x	0.276*	0.265*	0.188*	0.499*
	cannot afford meat etc every second day		x	0.214*	0.163*	0.327*
	cannot afford a computer			x	0.214*	0.303*
	cannot afford a car				x	0.192*
NL	combined arrears	0.301*	0.093*	0.119*	0.177*	0.235*
	cannot afford holiday	x	0.144*	0.103*	0.299*	0.462*
	cannot afford meat etc every second day		x	-0.005	0.124*	0.144*
	cannot afford a computer			x	0.113*	0.095*
	cannot afford a car				x	0.263*
UK	combined arrears	0.376*	0.206*	0.197*	0.215*	0.346*
	cannot afford holiday	x	0.279*	0.244*	0.286*	0.423*
	cannot afford meat etc every second day		x	0.131*	0.174*	0.218*
	cannot afford a computer			x	0.216*	0.173*
	cannot afford a car				x	0.206*

Source: own calculations with EU-SILC, wave 2007.

Table A11: Combinations of deprivations between highest correlation domains (unweighted, children age 0-17 years)

Combinations of deprivations: A = income poor B = housing problems C = financial strain	%			
	DE	FR	NL	UK
A	3	3	2	5
B	9	8	14	9
C	17	17	8	15
AB	1	1	1	2
AC	4	4	1	7
BC	10	11	4	8
ABC	6	7	1	8
Not deprived in A, B and C	51	49	68	46
Total	100	100	100	100

Source: own calculations with EU-SILC, wave 2007.

Table A12: Population shares explanatory variables (in percentages, children)

	DE (%)	FR (%)	NL (%)	UK (%)
Gender				
Female	55.7	51.5	51.3	51.6
Male	44.3	48.5	48.7	48.4
Age				
0-3	20.0	24.6	23.7	20.4
4-12	50.1	48.1	49.0	48.5
13-17	29.9	27.4	27.3	31.1
Household Size(People)				
2	5.9	4.7	2.4	5.1
3	23.6	19.6	18.0	21.9
4	43.5	41.9	44.3	41.5
5	17.9	22.5	22.9	21.2
6	6.4	7.2	8.1	7.0
more than 6	2.7	4.1	4.2	3.3
Household Type				
Single adult with at least 1 dep. child	14	12.1	10.1	18.2
2 adults with 1 dep. child	17.3	14.6	12.8	14.1
2 adults with 2 dep. children	40.3	38.4	40.1	34.7
2 adults with 3 or more dep. children	22.7	28.2	31.8	20.5
Other household with dep. children	5.7	6.5	5.1	8.8
Other	0.0	0.2	0.0	3.7
Work Intensity Status				
WI=0	7.8	5.8	4.8	15.6
WI<0.5	3.5	5.1	4.6	2.2
0.5<=WI>1	35.9	33.1	39.5	19.3
WI=1	52.9	56	51.2	62.8
Tenure status dwelling				
Owned [34]	62.7	63.5	77.5	69.5
Rented [35]	37.3	36.5	22.5	30.5
Degree of Urbanization				
Densely populated area	43.6	45.8	N/A	77.0
Intermediate area	38.6	36.4	N/A	18.4
Thinly populated area	17.8	17.8	N/A	4.6

Source: own calculations with EU-SILC, wave 2007.

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[34] Owner or accommodation is provided free (Source: DESCRIPTION OF SILC USER DATABASE VARIABLES: Cross-sectional and Longitudinal, Version 2007.1 from 01-03-09)

[35] Tenant or subtenant paying rent at prevailing or market rate or accommodation is rented at a reduced rate (lower price that the market price) (Source: DESCRIPTION OF SILC USER DATABASE VARIABLES: Cross-sectional and Longitudinal, Version 2007.1 from 01-03-09)

Table A13/5.3: Profile for income poverty (Y=1 is income poor)

	DE	FR	NL	UK
Female	0.750**	0.932	1.035	1.045
		[0.788,1.102]	[0.832,1.287]	[0.883,1.236]
Age	0.983	1.041	0.932	0.95
	[0.920,1.051]	[0.977,1.110]	[0.860,1.009]	[0.888,1.017]
Age squared	1.002	1.001	1.003	1.004*
	[0.999,1.006]	[0.997,1.004]	[0.998,1.008]	[1.000,1.008]
Household size	1.872*	2.802***	6.022***	0.931
	[1.109,3.160]	[2.011,3.903]	[3.044,11.912]	[0.650,1.335]
Household size squared	0.938*	0.954***	0.913**	1.044**
	[0.885,0.994]	[0.934,0.976]	[0.861,0.967]	[1.011,1.079]
Single adult with dep. child(ren)	2.982***	1.525*	3.874***	4.290***
	[2.188,4.066]	[1.010,2.304]	[2.212,6.786]	[3.060,6.014]
Two adults, two dep. children	0.679*	0.728	0.355***	1.061
	[0.490,0.941]	[0.501,1.057]	[0.202,0.625]	[0.745,1.512]
Two adults, three or more dep. children	0.933	0.481**	0.441*	1.172
	[0.583,1.492]	[0.292,0.793]	[0.217,0.896]	[0.746,1.840]
Other household with dep. children	0.617	0.301***	0.064***	0.236***
	[0.361,1.054]	[0.172,0.526]	[0.020,0.204]	[0.127,0.439]
Work intensity (WI=0)	11.327***	40.478***	6.452***	9.096***
	[8.707,14.736]	[29.262,55.993]	[3.891,10.696]	[7.245,11.420]
Work intensity (0>WI<0.5)	6.829***	11.323***	3.053***	12.807***
	[4.698,9.925]	[8.266,15.511]	[2.049,4.548]	[7.366,22.264]
Work intensity (0.5≥WI<1)	2.163***	3.207***	2.068***	3.962***
	[1.762,2.656]	[2.616,3.931]	[1.615,2.647]	[3.200,4.905]
Rented dwelling	2.017***	2.560***	5.656***	2.237***
	[1.668,2.439]	[2.134,3.071]	[4.408,7.258]	[1.855,2.698]
Intermediate populated area	1.202	1.155	na	0.731**
	[0.988,1.462]	[0.952,1.401]		[0.581,0.920]
Thinly populated area	1.611***	1.496**	na	0.685
	[1.268,2.046]	[1.173,1.908]		[0.451,1.040]
Number of observations	6096	6311	6945	4786
P-value	0	0	0	0
Pseudo R-Square	0.2138	0.2969	0.2319	0.2864
BIC	3865.739	3946.788	2546.564	3712.217

Notes: logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.

Table A14/5.4: Profile for financial strain (Y=1 is deprived)

	DE	FR	NL	UK
Female	0.961 [0.856,1.079]	1.005 [0.895,1.128]	0.848* [0.729,0.986]	1.084 [0.943,1.246]
Age	1.035 [0.988,1.085]	0.952* [0.911,0.995]	0.977 [0.923,1.034]	0.942* [0.890,0.997]
Age squared	0.998 [0.996,1.001]	1.003* [1.000,1.005]	1.002 [0.998,1.005]	1.002 [0.999,1.005]
Household size	1.11 [0.719,1.712]	1.643*** [1.264,2.134]	1.871* [1.093,3.202]	0.955 [0.655,1.391]
Household size squared	1.01 [0.964,1.058]	0.969*** [0.952,0.987]	0.947* [0.901,0.995]	1.033 [0.999,1.068]
Single adult with dep. child(ren)	2.907*** [2.314,3.652]	3.024*** [2.350,3.892]	3.690*** [2.661,5.116]	4.217*** [3.202,5.553]
Two adults, two dep. children	0.723** [0.574,0.912]	0.664*** [0.522,0.845]	0.682* [0.486,0.956]	0.989 [0.740,1.322]
Two adults, three or more dep. children	0.934 [0.665,1.312]	0.685* [0.485,0.968]	0.669 [0.413,1.083]	1.094 [0.736,1.624]
Other household with dep. children	1.133 [0.777,1.651]	0.738 [0.505,1.079]	0.78 [0.452,1.348]	1.125 [0.733,1.726]
Work intensity (WI=0)	7.352*** [5.593,9.665]	10.287*** [7.301,14.494]	4.454*** [2.927,6.780]	2.441*** [1.950,3.054]
Work intensity (0>WI<0.5)	2.696*** [1.952,3.723]	5.774*** [4.345,7.673]	2.856*** [1.999,4.081]	2.755*** [1.639,4.630]
Work intensity (0.5≥WI<1)	1.543*** [1.355,1.756]	2.536*** [2.225,2.890]	1.683*** [1.430,1.981]	1.346** [1.127,1.608]
Rented dwelling	2.644*** [2.320,3.014]	3.294*** [2.897,3.745]	6.166*** [5.185,7.333]	6.286*** [5.336,7.405]
Intermediate populated area	1.455*** [1.275,1.661]	1.196** [1.048,1.365]	na	0.744** [0.619,0.894]
Thinly populated area	2.051*** [1.733,2.428]	1.846*** [1.567,2.176]	na	0.677* [0.500,0.918]
Number of observations	6096	6311	6945	4786
P-value	0	0	0	0
Pseudo R-Square	0.1488	0.1861	0.1953	0.2407
BIC	6953.563	7029.779	4815.619	5005.938

Notes: logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.

Table A15/5.5: Profile for housing problems (Y=1 is deprived)

	DE	FR	NL	UK
Female	1.031	1.04	0.998	0.929
	[0.910,1.168]	[0.916,1.180]	[0.885,1.127]	[0.807,1.068]
Age	0.971	0.950*	0.963	0.944*
	[0.924,1.020]	[0.905,0.997]	[0.921,1.008]	[0.893,0.999]
Age squared	1.001	1.003*	1.002	1.002
	[0.998,1.003]	[1.000,1.006]	[0.999,1.004]	[0.999,1.005]
Household size	1.092	1.26	1.266	1.068
	[0.748,1.595]	[0.863,1.841]	[0.778,2.059]	[0.755,1.512]
Household size squared	1.002	1.03	0.998	1.040*
	[0.962,1.043]	[0.995,1.066]	[0.955,1.043]	[1.006,1.074]
Single adult with dep. child(ren)	2.714***	1.920***	1.149	1.276
	[2.137,3.448]	[1.466,2.514]	[0.851,1.552]	[0.965,1.687]
Two adults, two dep. children	0.842	0.652**	0.804	0.543***
	[0.658,1.078]	[0.493,0.864]	[0.599,1.078]	[0.409,0.720]
Two adults, three or more dep. children	1.702**	0.792	0.906	0.864
	[1.211,2.392]	[0.549,1.144]	[0.597,1.376]	[0.606,1.231]
Other household with dep. children	1.429	0.998	1.413	1.187
	[0.966,2.112]	[0.665,1.500]	[0.882,2.265]	[0.810,1.740]
Work intensity (WI=0)	2.379***	2.890***	2.134***	1.542***
	[1.899,2.980]	[2.185,3.824]	[1.483,3.071]	[1.262,1.885]
Work intensity (0>WI<0.5)	2.546***	2.646***	1.383*	1.517
	[1.821,3.560]	[2.022,3.464]	[1.001,1.910]	[0.892,2.578]
Work intensity (0.5≥WI<1)	1.215**	1.614***	1.204**	1.337**
	[1.051,1.406]	[1.394,1.869]	[1.057,1.373]	[1.112,1.608]
Rented dwelling	3.011***	3.601***	2.834***	3.090***
	[2.620,3.460]	[3.134,4.137]	[2.398,3.350]	[2.611,3.656]
Intermediate populated area	0.945	0.664***	na	0.922
	[0.818,1.091]	[0.575,0.766]		[0.763,1.113]
Thinly populated area	1.108	0.788*	na	0.896
	[0.928,1.323]	[0.657,0.946]		[0.656,1.224]
Number of observations	6096	6311	6945	4786
P-value	0	0	0	0
Pseudo R-Square	0.1263	0.1996	0.0445	0.1443
BIC	6173.368	6119.082	6770.717	4956.269

Notes: logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.

Table A16/5.6: Profile for neighborhood problems (Y=1 is deprived)

	DE	FR	NL	UK
Female	0.973 [0.865,1.095]	1.103 [0.981,1.240]	0.964 [0.864,1.075]	0.96 [0.851,1.082]
Age	1.032 [0.985,1.081]	1.048* [1.002,1.096]	1.025 [0.984,1.069]	1.031 [0.980,1.083]
Age squared	0.999 [0.996,1.001]	0.999 [0.996,1.001]	0.999 [0.996,1.001]	1 [0.997,1.003]
Household size	1.104 [0.744,1.636]	1.330* [1.049,1.686]	1.267 [0.788,2.038]	0.672** [0.530,0.853]
Household size squared	0.97 [0.930,1.011]	0.980* [0.964,0.997]	0.97 [0.929,1.013]	1.031** [1.012,1.051]
Single adult with dep. child(ren)	1.073 [0.850,1.353]	1.107 [0.867,1.414]	1.091 [0.838,1.419]	0.83 [0.656,1.049]
Two adults, two dep. children	1.097 [0.871,1.382]	0.882 [0.695,1.119]	0.807 [0.619,1.051]	1.219 [0.965,1.540]
Two adults, three or more dep. children	1.502* [1.067,2.114]	0.739 [0.530,1.030]	0.725 [0.492,1.068]	1.368 [0.999,1.874]
Other household with dep. children	1.687** [1.148,2.480]	0.737 [0.500,1.085]	1.026 [0.666,1.581]	1.405 [0.988,1.998]
Work intensity (WI=0)	1.514*** [1.205,1.902]	1.635*** [1.281,2.087]	1.382 [0.972,1.966]	1.143 [0.940,1.389]
Work intensity (0>WI<0.5)	1.564** [1.128,2.170]	1.109 [0.845,1.456]	0.788 [0.571,1.089]	0.625 [0.379,1.031]
Work intensity (0.5≥WI<1)	1.176* [1.026,1.348]	1.265*** [1.103,1.450]	1.262*** [1.123,1.419]	1.065 [0.905,1.253]
Rented dwelling	1.436*** [1.256,1.641]	1.631*** [1.432,1.856]	1.548*** [1.320,1.814]	1.564*** [1.345,1.817]
Intermediate populated area	0.475*** [0.416,0.543]	0.487*** [0.427,0.555]	na	0.532*** [0.452,0.627]
Thinly populated area	0.292*** [0.241,0.355]	0.307*** [0.252,0.372]	na	0.417*** [0.304,0.572]
Number of observations	6096	6311	6945	4786
P-value	0	0	0	0
Pseudo R-Square	0.0529	0.0614	0.0134	0.026
BIC	6764.247	6886.225	7902.103	6230.228

Notes: logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.

Table A17/5.7: Profile for access to basic services (Y=1 is deprived)

	DE	FR	NL	UK
Female	1.052	1.128	1.006	0.977
	[0.932,1.187]	[0.975,1.306]	[0.877,1.154]	[0.818,1.167]
Age	1.088**	1.006	1.117***	1.129**
	[1.034,1.144]	[0.950,1.065]	[1.055,1.183]	[1.037,1.228]
Age squared	0.997*	1.002	0.997	0.997
	[0.994,0.999]	[0.999,1.005]	[0.994,1.000]	[0.992,1.001]
Household size	1.275	1.173	0.746	0.842
	[0.841,1.932]	[0.874,1.575]	[0.426,1.305]	[0.611,1.161]
Household size squared	0.961	0.989	1.021	1.028
	[0.921,1.004]	[0.970,1.009]	[0.969,1.077]	[0.999,1.057]
Single adult with dep. child(ren)	1.085	0.996	1.158	1.304
	[0.850,1.386]	[0.716,1.388]	[0.818,1.639]	[0.889,1.912]
Two adults, two dep. children	0.978	1.033	1.451*	1.228
	[0.770,1.241]	[0.759,1.406]	[1.033,2.038]	[0.842,1.791]
Two adults, three or more dep. children	1.471*	1.107	1.475	1.795*
	[1.045,2.069]	[0.724,1.693]	[0.912,2.385]	[1.145,2.815]
Other household with dep. children	1.126	1.617*	1.501	1.138
	[0.764,1.660]	[1.033,2.531]	[0.897,2.510]	[0.690,1.875]
Work intensity (WI=0)	1.454**	1.402*	0.954	1.308
	[1.140,1.853]	[1.012,1.941]	[0.598,1.521]	[0.997,1.716]
Work intensity (0>WI<0.5)	1.706**	1.051	1.488*	0.837
	[1.216,2.392]	[0.740,1.494]	[1.057,2.094]	[0.436,1.608]
Work intensity (0.5≥WI<1)	1.171*	1.260**	0.934	1.144
	[1.019,1.345]	[1.068,1.486]	[0.802,1.086]	[0.908,1.442]
Rented dwelling	0.811**	0.94	1.349**	1.300*
	[0.701,0.939]	[0.790,1.118]	[1.098,1.658]	[1.049,1.611]
Intermediate populated area	1.669***	1.261**	na	0.781*
	[1.450,1.922]	[1.066,1.491]		[0.616,0.991]
Thinly populated area	2.346***	1.350**	na	0.824
	[1.990,2.767]	[1.099,1.657]		[0.535,1.269]
Number of observations	6096	6297	6945	4786
P-value	0	0	0	0
Pseudo R-Square	0.028	0.0174	0.0195	0.034
BIC	6546.218	5015.641	5655.699	3535.783

Notes: logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.

Table A18/5.8: Profile for multiple deprivations in domains financial strain, housing and neighborhood (Y=1 is not deprived, Y=2 is one deprivation, Y=3 is two or three deprivations)

	DE	FR	NL	UK
Female	0.979	1.072	0.93	0.971
	[0.888,1.080]	[0.972,1.183]	[0.847,1.022]	[0.869,1.085]
Age	1.018	0.977	0.983	0.977
	[0.978,1.059]	[0.941,1.014]	[0.948,1.018]	[0.932,1.023]
Age squared	0.999	1.002	1.001	1.001
	[0.997,1.001]	[1.000,1.004]	[0.999,1.003]	[0.998,1.003]
Household size	0.854	1.998***	1.579	0.834
	[0.628,1.161]	[1.586,2.519]	[0.986,2.528]	[0.611,1.138]
Household size squared	1.023	0.966***	0.967	1.049**
	[0.993,1.054]	[0.950,0.982]	[0.928,1.008]	[1.019,1.081]
Single adult with dep. child(ren)	2.398***	2.178***	1.924***	1.806***
	[1.982,2.901]	[1.758,2.698]	[1.506,2.459]	[1.456,2.241]
Two adults, two dep. children	0.924	0.604***	0.689**	0.800*
	[0.762,1.121]	[0.492,0.741]	[0.535,0.887]	[0.643,0.995]
Two adults, three or more dep. children	1.465**	0.578***	0.685*	1.034
	[1.108,1.938]	[0.430,0.778]	[0.472,0.995]	[0.765,1.399]
Other household with dep. children	1.532**	0.654*	1.056	1.202
	[1.114,2.106]	[0.467,0.917]	[0.692,1.612]	[0.861,1.679]
Work intensity (WI=0)	4.481***	5.777***	2.779***	1.730***
	[3.586,5.599]	[4.422,7.549]	[2.039,3.788]	[1.451,2.064]
Work intensity (0>WI<0.5)	2.845***	3.793***	1.597***	1.569
	[2.072,3.906]	[2.941,4.890]	[1.226,2.081]	[0.978,2.515]
Work intensity (0.5≥WI<1)	1.382***	2.059***	1.394***	1.315***
	[1.238,1.542]	[1.839,2.306]	[1.259,1.543]	[1.131,1.529]
Rented dwelling	2.884***	3.452***	4.080***	4.712***
	[2.572,3.234]	[3.069,3.883]	[3.477,4.788]	[4.076,5.447]
Intermediate populated area	0.847**	0.669***		0.598***
	[0.759,0.947]	[0.598,0.748]		[0.516,0.693]
Thinly populated area	0.915	0.817**		0.576***
	[0.796,1.051]	[0.712,0.937]		[0.445,0.745]
Number of observations	6096	6311	6947	4786
P-value	0	0	0	0
Pseudo R-Square	0.1019	0.1389	0.0625	0.1251
BIC	11889.097	11904.741	12609.651	9321.839

Notes: ordered logistic regression (robust, odds ratios reported), significance levels: * 10%, ** 5% and *** 1%, omitted classes: two adults - one dep. child, work intensity (WI=1), owns dwelling, densely populated area). Small population shares (<5%) in following characteristics: 'other household with dep. children' (NL), 'work intensity (WI=0)' (NL), 'work intensity (0>WI<0.5)' (DE, NL, UK) and 'thinly populated area' (UK).
Source: own calculations with EU-SILC, wave 2007.