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IS THERE INCOME POVERTY IN WESTERN EUROPE? METHODOLOGICAL PITFALLS IN THE MEASUREMENT OF POVERTY IN A COMPARATIVE PERSPECTIVE

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Is there income poverty in Western Europe? Methodological pitfalls in the measurement of poverty in a comparative perspective

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Assessing Quality-of-life and Living Conditions to Guide National Policy: The State of the Art

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Abstract

Comparative poverty research flourishes, especially since comparable income data are easily available through the Luxembourg Income Study. However, a number of methodological pitfalls in comparative poverty research are often overlooked. There is a vast amount of literature on sensitivity of measured results to the choice of income definitions, poverty lines, and equivalence scales, but other effects have been rather neglected in comparative poverty research. How does the underlying survey design affect results and cross-national comparability? Are low-income strata adequately represented in those surveys, is there a systematic bias of response rates among those groups, and how does it vary across countries? In addition, some types of income – such as means-tested benefits, being particularly relevant for poverty research – tend to be under-reported in some surveys.

This paper uses the data available in the Luxembourg Income Study for three countries – Germany, Sweden and the United Kingdom – to exemplify the limited comparability of widely-used income data used in poverty research. In a first step, the paper summarises the available evidence on methodological problems caused by differing data sources and survey designs, household definitions, and flawed reporting of some income components. Especially means-tested benefits tend to be under-reported in income surveys; so income for poverty-prone groups of the population may be underestimated, and, by this token, income poverty may possibly be overestimated. In a second step, this issue is illustrated by a simple simulation exercise: Entitlements to means-tested benefits are imputed for each household in the sample, based on the institutional regulations in each country. Compared to actual poverty rates in the original sample, imputed poverty rates are markedly smaller, if not reduced to zero. Even if one accounts for an incomplete take-up of benefits, a large gap between actual and simulated poverty rates still remains, largely caused by problems in survey design. The paper concludes with a number of recommendations for improving income surveys from the perspective of comparative poverty research.

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1 Introduction

Comparative poverty research flourishes, especially since comparable income data are easily available through the Luxembourg Income Study. However, the measurement of poverty is unavoidably coupled with a number of methodological choices that may influence the results. Small differences in research strategies can have a large impact on measured results (cf. Atkinson et al. 1998), and widely-used measures of poverty, such as poverty rates, are not very robust. Although there is a growing body of literature on methodological problems in comparative poverty research, some methodological pitfalls are often overlooked. How does the underlying survey design affect results and cross-national comparability? Are low-income strata adequately represented in those surveys, is there a systematic bias of response rates among those groups, and how do these issues vary across countries? In addition, some types of income – such as means-tested benefits, being particularly relevant for poverty research – tend to be under-reported in some surveys.

Drawing from a larger research project on the relationship between social assistance and income poverty (Behrendt 2000b), this paper uses the data available in the Luxembourg Income Study for three countries – Germany, Sweden and the United Kingdom – to exemplify the limited comparability of widely-used income data used in poverty research, and to explore the question of why is there still poverty in highly-developed welfare states. It starts with one particular conundrum in poverty research that has been addressed in a number of studies: why do measures of income poverty and the receipt of social assistance overlap to a suspiciously small degree? This issue has often been interpreted as an indicator for the flaws of income as a measure of economic well-being. Next, the paper summarises the available evidence on methodological problems caused by differing data sources and survey designs, and deficient reporting of some income components. Especially means-tested benefits tend to be under-reported in income surveys; so income for poverty-prone groups of the population may be underestimated, and, by this token, income poverty may possibly be overestimated. In a third step, this issue is illustrated by a simple simulation exercise: Entitlements to means-tested benefits are imputed for each household in the sample, based on the institutional regulations in each country. Compared to actual poverty rates in the original sample, imputed poverty rates are markedly smaller, if not reduced to zero. Even if one accounts for an incomplete take-up of benefits, a large gap between actual and simulated poverty rates still remains, largely caused by problems in survey design. The paper concludes with a number of recommendations for improving income surveys from the perspective of comparative poverty research.

2 Why do low income and the receipt of social assistance hardly coincide?

One of the major puzzles in poverty research is that income poverty and the receipt of social assistance coincide to a surprisingly small degree. Only a small proportion of the poor claim social assistance, and only a small group of claimants are poor. Critics of the income poverty concept have repeatedly pointed to this fact to demonstrate the flaws of income as an indicator for poverty. Halleröd (1991) has shown for a Swedish sample that only one in sixteen respondents living in income poverty received social assistance, while only a sixth of recipients were considered as poor.[1] Similar results were found by Kangas and Ritakallio (1998) for Finland, indicating that only 18% of respondents who were poor by relative income measures have also received social assistance, and only 17% of recipients of social assistance lived in income poverty (Kangas/Ritakallio 1998: 187). A similar pattern is found in Germany, Sweden and the United Kingdom.[2] Table 1 shows the overlapping of income poverty and the receipt of social assistance benefits and means-tested benefits in general for these three countries.[3]

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1 Cf. Halleröd (1991: 111, 220-221), own calculations. Income poverty was defined by a political standard, referring to the Swedish national social assistance recommendations.

2 The LIS data referring to the United Kingdom is subject to Crown Copyright; has been made available by the Office for National Statistics through the ESRC Data Archive; and has been used by permission. Neither the Office for National Statistics nor the ESRC Data Archive bear any responsibility for the analysis or the interpretation of the data reported here. This disclaimer also applies to all following charts and tables based on LIS data.

3 Whereas social assistance mainly refers to the programmes of *Sozialhilfe* in Germany, *socialbidrag* in Sweden and income support in the United Kingdom, "any means-tested benefit" offers a broader definition of means-tested benefits, encompassing cash and near cash means-tested benefits. It includes housing benefits and similar schemes.

Table 1: Income poverty and the receipt of social assistance in Germany, Sweden and the United Kingdom: Percentage of poor households who receive social assistance benefits

	Germany 1994	Sweden 1995	United Kingdom 1995
Social assistance			
percentage of poor households in receipt of social assistance	18.5	14.9	38.3
percentage of recipient households living in poverty	40.1	20.2	22.0
Any means-tested benefit			
percentage of poor households in receipt of means-tested benefits	38.0	28.9	46.1
percentage of recipient households living in poverty	22.0	9.4	17.7

Source: LIS; own calculations based on a poverty line of 50% of national medial equivalent disposable income and the modified OECD equivalence scale. Social assistance includes cash social assistance payments (LIS variable V25S1); any means-tested benefits encompasses cash and near cash benefits (LIS variables V25 and V26).

As in the evidence presented above, the overlapping of poverty status and the receipt of social assistance is rather low in the countries considered here. Only roughly one in six poor households were also in receipt of social assistance in Germany and Sweden, yet more than one in three in the United Kingdom. From the perspective of recipient households, only one fifth of recipient households were poor in Sweden and the United Kingdom, but two fifths in Germany. With a broader definition of means-tested benefits in general, the overlapping of a low income status and the receipt of social assistance is higher if measured as a percentage of poor households in receipt of means-tested benefits, yet still suspiciously low.

The weak correlation of social assistance receipt and income poverty calls for an explanation. Both indicators focus on income as an indicator of poverty, either directly in the case of income poverty, or indirectly in the case of social assistance receipt. In the latter case, social assistance offices act as an intermediate instance who decide whether a person or a household is living in (politically defined) poverty or not. Although this procedure is certainly not free from flawed judgements, measured poverty should largely overlap. Remaining divergences are supposed to largely stem from the fact that these poverty lines are positioned at different levels. For example, if the relative poverty line is lower than the level of social assistance benefits, only a small share of poor will receive social assistance, but, in turn, the proportion of the poor among recipients should be close to 100%.

There are, however, two important reservations. First, a small degree of overlapping may be considered not as an indicator for the failure of measures of poverty, but rather as a proof of the effectiveness of the basic safety net of the welfare state. If social assistance schemes succeed in bringing previously poor households over the poverty line, recipients

will not be classified as poor, and social assistance receipt and poverty therefore do not coincide. If this kind of analysis is used to demonstrate deficiencies in the measurement of poverty, it would therefore be wiser to use household income before social assistance (or means-tested benefits) rather than disposable income after receipt of these benefits (cf. Behrendt 2000a), as shown in Table 2.

Table 2: Income poverty and the receipt of social assistance in Germany, Sweden and the United Kingdom: Percentage of poor households who receive social assistance benefits (poverty status calculated on the basis of income before receipt of social assistance benefits/means-tested benefits)

	Germany 1994	Sweden 1995	United Kingdom 1995
Social assistance			
percentage of poor households in receipt of social assistance	25.1	27.1	60.2
percentage of recipient households living in poverty	74.5	51.2	78.9
Any means-tested benefit			
percentage of poor households in receipt of means-tested benefits	55.5	50.7	78.6
percentage of recipient households living in poverty	44.0	22.8	69.0

Source: LIS; own calculations based on a poverty line of 50% of national medial equivalent disposable income and the modified OECD equivalence scale. Whereas the poverty line has been calculated on the basis of disposable income, the poverty status has been evaluated on the basis of equivalent household income before receipt of these benefits (disposable income minus social assistance benefits or means-tested benefits). Social assistance includes cash social assistance payments (LIS variable V25S1); any means-tested benefits encompasses cash and near cash benefits (LIS variables V25 and V26).

When the poverty status of private households is calculated from income before receipt of these benefits, the overlapping between income poverty and recipiency status becomes much better, yet it is still far from perfect.

Notwithstanding these issues, a second point indicates a more subtle methodological problem. Both incomes and social assistance receipt can vary over time, and recent evidence from dynamic poverty research shows that there is indeed a considerable variation for most countries (e.g. Duncan et al. 1995; Leisering/Walker 1998). The measurement of relative poverty usually refers to yearly income. Since persons or households are considered as poor if their yearly income falls below a certain level, they may well experience short poverty spells without being considered as poor in a yearly account of poverty, provided that their income in the remainder of the year is high enough to compensate for periods of low income. Social assistance receipt usually is evaluated in a different way in these samples. People are classified as recipients if they have received social assistance at least once during the year, irrespectively of their income status during the rest of the year. These different ways of measurement lead to a systematic bias, as the following example will show. Let us as-

sume a household living on an income below the relative poverty line during one month of the year and receiving social assistance during this month (assuming that the relative poverty line and the level of social assistance coincide), but with a income above the poverty line and not receiving social assistance during the remaining eleven months of the year. In this case, this household would be classified as non-poor, yet receiving social assistance. If the circumstances of household had been stable throughout the year, both measures would have pointed in the same direction.

Nevertheless, it is questionable whether these methodological reservations can alone explain the large divergences found in the data. Because of these (and other) problems, several observers have concluded that income is a flawed indicator of poverty that should be avoided altogether, and have argued in favour of alternative measures using expenditure (e.g. Hagenaars/de Vos 1988; Hagenaars et al. 1998) or multidimensional concepts of poverty (e.g. Townsend 1979; Deleeck et al. 1992; Nolan/Whelan 1996a, 1996b). Nonetheless, there are a number of good arguments to justify the use of income as an indicator for poverty, and indeed, most comparative studies are based on the concept of income poverty. This should not be done, however, without thoroughly scrutinising the methodical foundations of this indicator.

There has been a vast amount of literature on the sensitivity of poverty measures towards methodological choices, such as the definition of poverty lines (e.g. Blackburn 1994, 1998), equivalence scales (e.g. Buhmann et al. 1988; Burkhauser et al. 1996), the treatment of non-cash income (e.g. Smeeding et al. 1993; Radner 1997), and the time frame of analysis (e.g. Burkhauser et al. 1997; Alessie et al. 1997; Falkingham/Hills 1995). This paper will not add another discussion of these issues but will focus instead on the foundations of the data that are commonly used in poverty research, that is on the construction of income surveys. Chapter 3 will therefore summarise the available evidence on the construction of income surveys for Germany, Sweden and the United Kingdom for the mid-1990s, and discuss their consequences for poverty research.

3 Methodological puzzles and pitfalls in widely-used income surveys

In recent years, most studies in comparative poverty research draw on the data of the Luxembourg Income Study, as theses data provide a very useful and easily accessible basis for

comparative poverty research.[4] The LIS project has assembled a large number of national micro-data that contain detailed information on socio-demographic characteristics and incomes of private households. Where possible, the variables in the LIS database have been standardised in order to allow cross-national comparisons. However, as any large dataset, the LIS data operate with some definitions that impose certain restrictions on the subsequent interpretation of the data.

The methodological flaws of each of the national datasets unavoidably spill over to the LIS datasets, yet in different ways and to a different degree. Although LIS has gone a long way to make the national datasets comparable to each other, the data unavoidably retain some characteristics of their national "parent study". These national studies are the Family Expenditure Survey (FES) for Britain, the Socio-Economic Panel (GSOEP) for Germany, and the Household Survey (Inkomstfördelningsundersokningen, HINK) for Sweden. The Family Expenditure Survey was established by the British government in 1953-54 and includes a broad variety of income as well as expenditure variables. It has been principally intended for the computation of the Retail Price Index (Office for National Statistics 1998b), but has been used for a broad range of applications. Other than the British data, the German data stem from a large panel survey that was launched in 1984. The German Socio-Economic Panel covers a large spectrum of the living conditions of private households, including household composition, income, labour market status, health, social attitudes, and their change over time.[5] The Swedish data originate from a sample of tax records, with specific implications for the quality of the data. The income data from the tax files is supplemented by additional information drawn from a telephone survey (cf. Jansson 1994, 1998).

Income surveys are not an ideal source for the assessment of poverty for three reasons. First, low-income strata of the population tend to be poorly represented in surveys, and second, they often have lower response rates than the middle classes. In addition, some types of income – some of which are in particular relevant for this study – tend to be under-reported in some surveys.

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4 For a detailed description of the database, cf. Smeeding/Schmaus (1990) and Atkinson et al. (1995). Some basic information on the LIS datasets used in this paper is provided in Table A.1 and Table A.2 in the appendix. A more detailed description of this database can be found at http://www.lis.ceps.lu.

5 This survey has been initiated by a group of researchers at the University of Frankfurt/Main and is administered by the German Institute for Economic Research (*Deutsches Institut für Wirtschaftsforschung, DIW*). For a more detailed description of the German Socio-Economic Panel, cf. Hanefeld (1987); Wagner (1991), Wagner et al. (1994); Rendtel (1995); GSOEP (1996); Pannenberg/Rendtel (1996).

The following sections will provide a discussion of methodological problems of poverty research based on datasets to be used in this study (cf. Smeeding/Schmaus 1990; Atkinson et al. 1995). These problems are supposed to be partly counterbalanced by the use of sample weights and other data editing procedures, yet some of these problems unavoidably will go uncorrected. Nevertheless, in spite of all flaws, there are hardly any alternatives to the use of these data for quantitative analyses of income poverty. The LIS data still provide the best available evidence for comparative studies. However, as with any data, we must be aware of the limitations of the data in order to be able to execute a thorough analysis of the data and interpret the results carefully. For this purpose, the following sections will summarise the available evidence on methodological limitations of the data used in this study.

3.1 Undercoverage

For quantitative poverty research, it is critical that low-income groups are adequately represented in the sample. Yet, this is not always the case, as these groups often are not covered to a sufficient degree. This problem largely is determined by the sample design of the survey.[6] Many surveys exclude some relevant groups of the population from the sampling frame altogether. These sampling errors may occur at different stages of the sampling process. First, some groups of the population may be *a priori* formally excluded from the sampling frame, as e.g. persons living in institutions, the homeless or some categories of foreigners (see Table 3).[7]

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6 For a discussion of sampling effects in poverty research, cf. Howes/Lanjouw (1998); for a general discussion of survey errors, cf. Groves (1989). Sampling methods used for the surveys in this study are summarised in Table A-5 in the Appendix.

7 For a very careful and comprehensive analysis of undercoverage effects cf. Schnell (1991); also Hanefeld (1987: 162-168) for a description of these effects in the German Socio-Economic Panel.

Table 3: Undercoverage of groups of the population

	Britain 1995	Germany 1994	Sweden 1995
Persons living in institutions			
People living in residences for students, apprentices, etc.	excluded	Included	excluded
Soldiers	excluded	excluded if not living in private households	excluded
People in care or nursing homes	excluded	partly included	Largely included if under age 74
Hospitals	excluded	Excluded	excluded
Prisoners	excluded	Excluded	mostly included
Private households within institutions (e.g. caretaker)	excluded?	Included	excluded?
Foreigners and ethnic minorities			
Permanently resident foreigners	included	included	included*
Refugees and asylum seekers	included	included?	included*
Members of the diplomatic service	excluded	included?	some excluded
Foreign soldiers	excluded	included?	some excluded
Other groups			
Homeless	largely excluded	largely excluded	largely excluded
Roman catholic priests	excluded	included	included
People over the age of 74	included	included	excluded
People living in remote geographic areas	Scilly and Scottish offshore islands excluded	included?	included

Source: Based on LIS country-specific documentation of datasets; Office for National Statistics (1998b); Harris (1998); Hanefeld (1987: 162-201); Wagner (1994: 75-78); Jansson (1998; 1994).
For the SOEP: sample members remain in the sample if the move into an institution during the course of the panel survey.
* *People who have not been resident in Sweden for an entire calendar year will not have any annual income recorded (missing) (Jansson 1998).*

As Table 3 illustrates, none of the three datasets perfectly covers the resident population, but every one entails some degree of undercoverage. Many groups with high poverty risks are indeed *a priori* excluded from the sample, such as the homeless or persons living in institutions. Sampling errors for poverty-prone groups of the population may lead to underestimating poverty, yet this bias may at least be partly compensated by sampling errors for the better-off. For the three countries covered in this study, sampling errors do not perfectly coincide, so the comparability of the data is limited. Possibly, the magnitude of sampling effects is broadly similar, but there are important differences for some groups of the population. Especially, the exclusion of very old people from the Swedish sample is important in this respect.

Second, the procedure of selecting potential respondents from the sampling frame may also contribute to the undercoverage of some groups of the population. For example, the selection of respondents from telephone registers will systematically exclude people who do not possess a phone; similar selection effects apply for electoral registers or administra-

tive registration records. In addition to these sampling errors, a number of non-sampling errors further reduce the quality of survey data for poverty research.

3.2 Non-response

The poor representation of some low-income groups in surveys is reinforced by a certain non-response bias. Non-response may occur either as a failure to be included in the survey at all (unit non-response) or may be confined to certain survey questions (item non-response).

Although being included in the sampling frame, low-income households may not be included in the sample for a number of reasons. Some groups tend to be disregarded because their life circumstances make it unlikely to be included in the sample. This applies in particular to homeless and very mobile people (e.g. construction workers, travellers), but also to the self-employed (Foster 1996; Groves/Couper 1998: 79-118).[8] Although most surveys operate with strict rules for the selection of sample households, compliance on the part of the interviewers is hard to control (cf. Schnell 1991, 1997). In addition, some parts of the sampled population are not able to take part in an interview, such as people with a serious illness or handicaps. Although these non-response effects do not exclusively affect people at the lower end of the income scale, some groups of the population with high poverty risks tend to be poorly represented in these surveys.

Some observers believe that surveys are an unsuitable instrument for assessing the life situation of these groups: complex questionnaires would exceed their intellectual or communicative skills, and fear of stigmatisation or administrative sanctions prevents people to uncover their precarious life situation to interviewers (cf. Goyder 1985, 1987; Schnell 1997: 204-205; Andreß 1999: 29). For the British Family Expenditure Survey, the demands upon respondents are particularly high since respondents are required to keep a two-week diary in order to record their incomes and expenditures (Foster 1996: 9).[9] Although non-response rates cannot associated with a general "middle class bias" (cf. Goyder 1985: 80-88;

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8 The under-representation of married prime-age men in many surveys can possibly also be explained by this effect (Schnell 1997: 200-201).

9 In the 1994/1995 FES, non-response amounted to some 30% of the sampled population (Central Statistical Office 1999).

Schnell 1997: 198-209), there is some evidence for a correlation with the level of education and unemployment.[10]

People with very low and very high incomes are also more likely to drop out of a panel study than others (panel attrition). For the German SOEP, this was the case for the transition from the first to the second wave of the panel (1984 to 1985), but panel attrition for the poor has been similar to the average panel attrition in subsequent waves (Habich et al. 1991: 493; cf. Rendtel 1990). However, Riphahn (1998) could show for the years 1984-1996 that panel attrition is associated with a low level of education, unemployment and female headship of the household. For foreign nationals, the risk of moving abroad is one additional factor that may lead to dropping out of the panel. In addition, the probability of non-response tends to be higher for immigrant or ethnic minority households and households with more than two adults, at least in the British context.[11] Although there is hardly any evidence that low income as such prevents people from taking part in these surveys, the factors that have been found to foster problems of non-response are strongly correlated to low income and poverty. Therefore, even if a general middle class bias is not supported in the data, problems of non-response for low-income groups tend to limit the quality of survey data for poverty research. However, systematic evidence on the effects of this non-response bias on the quality of the measurement of poverty is very sparse (Andreß 1999: 30).

Other than the British and German surveys, the Swedish data are partly based on tax files and are supposed to be less sensitive to biased non-response. Although the latter uses telephone surveys to supplement the income data from the tax files by additional socio-demographic information, non-response in these interviews does not lead to the exclusion of the household from the sample since some information on household composition, housing and employment can also be derived from the tax files.[12] The Swedish data are therefore supposed to be more reliable in this respect.

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10 Cf. Foster (1996) for the British 1991 FES; Rendtel (1995) and Berntsen (1992) for the German SOEP. For the latter, Rendtel et al. (1995) could show in response to Lipsmeier (1993) that persons in households receiving social assistance indeed were more likely to leave the panel survey (panel attrition) than the average over all households, whereas the effect of unemployment was ambiguous.

11 Cf. Foster (1996); Hansbro/Foster (1997), quoted in Office for National Statistics (1998a: section 1 part 4).

12 Kjell Jansson, Statistiska Centralbyrån, personal communication, March 11, 1999.

Generally, these errors can be partly accounted for by the use of sample weights.[13] These weights are supposed to balance the under- or over-representation of certain socio-demographic groups, yet the effect of this procedure is fairly limited since these weights can only achieve a partial correction of errors on certain variables (e.g. family type), but cannot reflect the full complexity of sampling and non-sampling errors (cf. {Schnell, 1993 #4312}).

3.3 Quality of the income data

Income data on the basis of surveys also suffer from the problem that not all income is reported properly, especially for the lower and higher ends of the income strata, as the evidence compiled by Atkinson, Rainwater and Smeeding shows (1995: 142-154). The under- or overreporting of certain types of income is partly a function of specific patterns of general non-response (unit non-response), as discussed above. In addition, people may refuse to indicate their income (item non-response); indeed, income is considered as a very sensitive issue in surveys. Respondents may either not know the exact amount of their household income, or hesitate to disclose it to the interviewer (cf. Ross/Reynolds 1996). In addition, the answers given by respondents may be incorrect for any reason.[14] Respondents may "forget" some types of income because they do not consider it as income (e.g. some types of social transfers) (Habich et al. 1991: 494). Moreover, if several social security benefits are paid out together, respondents may not be able to distinguish them in the survey (Fry/Stark 1993: 11-13).[15] People give flawed answers if they either do not know the exact value of a certain income component, or if they want to conceal certain types of incomes. The latter is most probable to affect incomes from illegal activities and some transfer incomes that may be regarded as stigmatising, such as some means-tested benefits. Missing data due to item non-response is not distributed equally in the population, but tends to be

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13 These sample weights are supposed to account for different probabilities of selection (cf. Atkinson et al. 1995: 21; Krause 1997b: 54); for a critical discussion of survey weights cf. Schnell (1993).

14 An earlier analysis of this issue reported for the German *Einkommens- und Verbrauchsstichprobe (EVS)* that only one third of all households had classified themselves in the same income category when the reported amounts given in an unspecified income question and the results of the much more specific income questions of the income and expenditure diary were compared. A full 58% of respondents underestimated, but only 8% of households overestimated their income (Euler 1983). A similar bias was found not only for the EVS, but also for the GSOEP and the *Mikrozensus* in a more recent study (Bedau/Krause 1998).

15 Fry and Stark report that there has been a large problem of under-reporting of income support for pensioners in Britain, since state pensions and income support are paid out in the same order book. For 1989, the data of the Family Expenditure Survey reflected less than half of the number of income support recipients among pensioners. For other groups of the population, such as the sick, the unemployed and single parents, this problem is less virulent and there has also been a overestimation of income support in some years (Fry/Stark 1993: 11-13).

most marked for very low and very high incomes (Atkinson et al. 1995). There is also some variation with household types and age (cf. Johnson/McCrae 1998; Rendtel et al. 1995).

The extent of this bias appears to vary across countries, however. For the German data, there were concerns that means-tested benefits were subject to under-reporting. There is some evidence that low-income households are slightly under-represented in the German Socio-Economic Panel (SOEP) (cf. Berntsen 1989: 21; Lipsmeier 1993). It is not clear, however, which portion of the under-reported income must be accounted to sampling errors, and which portion is due to under-reporting in a narrower sense (item non-response and incorrect data). Eventually, concerns on under-reporting led to the decision to use a synthetic estimate of the amount of social assistance for the 1994 wave.[16] In the United Kingdom, the under-reporting of transfers seems to be less problematic (Atkinson/Micklewright 1983: 43-48), although still existent. There is some evidence that income from employment (especially part-time employment), self-employment, investment and occupational pensions is under-reported. Generally, the data provided by the FES do not markedly deviate from other national statistics (Office for National Statistics 1998b: section 1 part 5). For the Swedish data, we would expect a markedly smaller bias, as the data are based on tax files rather than on survey data. Tax files are generally assumed to provide more reliable data than surveys since reporting errors may be minimised. However, there are some typical potential errors associated with administrative data, such as tax evasion in the case of tax records (Atkinson et al. 1995: 25-30). In addition, coverage of income components is dependent on the national tax rules. For example, realised capital gains from capital are only included in if this type of income has to be included in income tax assessments, and if it actually is declared (cf. Björklund 1998: 45).

The quality of reported income data is usually evaluated by comparing the reported amounts of income to aggregate data from national accounts or expenditure on social transfers. The use of this method is not unproblematic since it is based on a number of assumptions that tend to limit the quality of the comparison. Moreover, the quality of external data is not necessarily superior to survey data (Atkinson et al. 1995: 34-37), so the evidence on the quality of income data in Britain, Germany, and Sweden for the mid-1990s summarised in Table 4 below should be treated with caution. Where available, older results

16 Means-tested benefits were estimated on the basis of the legal entitlements, but only for households who have reported the receipt of social assistance payments (Krause 1997a; Krause et al. 1996). Some earlier studies on the basis of the SOEP have also used simulated amounts of social assistance (Berntsen 1992).

are also reported if they provide a more detailed account of the quality of the income data. The external validation of survey data is based the national accounts, the "Blue Book" and administrative statistics in the British case, the "Volkswirtschaftliche Gesamtrechnung" (VGR) in the German case, and the Nationalräkenskaper series for Sweden.

Table 4: Quality of the income data in LIS (estimates based on survey data as a percentage of aggregated data in national accounts)

	United Kingdom				Germany		Sweden
	1977		1992	1995/96	1983	1993	1995
Wages and salaries	93.7		96.2	94	108.8	92.4	98
Self-employment income	75.7		74.1	67	} 36.3	} 52.4	40
Property/investment income	50.6		60.3	52			96
Occupational pension income	74.5		98.7	49	..	..	110
Government transfers	88.6	(90.9)	96.4	82	50.6	62.1	101
-- public pensions	95.8	(108.4)	..	..	56.6	..	..
-- unemployment benefits	103.1	(101.4)	..	..	37.4	..	..
-- social assistance	92.9	(95.0)	72.0/93.3*		38.4	..	..
-- housing benefits	..		..	..	84.8	..	..
Total	89.0		92.9	..	76.9	89.5	..

Source: Atkinson et al. (1995: 34); Atkinson/Micklewright (1983: 43-48); Stuttard (1996); Johnson/McCrae (1998); Harris (1998); Berntsen (1989: 21); Kassella/Hochmuth (1989); Bedau/Krause (1998: 232); Jansson (1998). The data for Sweden do not include property income from capital gains, and transfer incomes from private pension schemes and student loans since these types of income are not available in the national accounts. Values in brackets are age-weighted (Atkinson/Micklewright 1983).

** For Britain 1992, social assistance benefits have been validated on the basis of administrative data for the 1991/92 fiscal year, for all other types of income the national accounts. The second figure relates to administrative statistics for the household population only.*

The data assembled in Table 4 above show a divergent pattern of data quality in Britain, Germany and Sweden, especially for government transfers. Whereas the British Family Expenditure Survey and the Swedish tax files come close to the national account data, the German Socio-Economic Panel seems to produce a flawed estimate of social transfers, notably for unemployment benefits and social assistance (Berntsen 1989; Kassella/Hochmuth 1989).[17] Notably social assistance benefits tend to be underestimated in survey data, along with property income and income from self-employment. One source of error for this type of transfer income is the fact that a relatively large share of social assistance benefits are claimed by persons living in institutions, and this group of the population is not, or only poorly, represented in the surveys considered here (Johnson/McCrae 1998: 26-27). Johnson and McCrae could show for the 1992 data on Britain that once the institutionalised population is excluded from the aggregate expenditure figures, the FES produces a

17 For the British data for 1977, data were adjusted for differing age distributions in the FES sample and the total population (Atkinson/Micklewright 1983).

much better result (Johnson/McCrae 1998: 29-31).[18] Moreover, they could also demonstrate that under-reporting of social assistance benefits does not occur at random: social assistance expenditure on pensioners was much less probable to be reflected in the FES survey than expenditure on non-pensioners (63.8% versus 98.3% for 1991/92). Many pensioners seem to have indicated their income from income support with their retirement pension (cf. Fry/Stark 1993: 11-13). Their total income would thus not be underestimated, but their income from social assistance actually is (Johnson/McCrae 1998: 29-35).

It has to be noted, however, that some of the external comparisons for the government transfers that could be presented here are fairly outdated, so more recent data may possibly have reduced the problem of under-reporting since new standards of national accounts allow a better estimate (van der Laan 1998). It appears that the quality of the income data in the SOEP has indeed improved as the less detailed data for Germany 1993 would suggest (Bedau/Krause 1998). However, as a more recent break-down by income component is not available to my knowledge, readers should be aware of this problem for the interpretation of empirical results.

These large divergences between the British and the German surveys could be found in different interview strategies that may influence the exactness of results, or in the methodology of the external comparison itself. Within the scope of this study, however, it is not possible to clarify this issue. Therefore, the results any poverty analyses should be interpreted with due respect to the limits of the survey data.

4 A preliminary evaluation of the limitations of the data: a simple simulation exercise

As the previous sections have shown, survey data suffer from a number of methodological problems that limit their suitability for poverty research and hamper cross-national comparisons, in spite of the admirable harmonisation efforts of the Luxembourg Income Study. However, before prematurely dismissing income as an indicator for poverty, we should carefully evaluate the impact of these methodological flaws.

A simple simulation exercise can help to shed some more light on this question, and to provide some external validation for the measurement of poverty rates, albeit it is not pos-

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18 Their estimate however suffers from the fact that Johnson and McCrae (1998) had to use administrative data reflecting “one day in May”, while the FES data relate to a whole year. This may lead to errors due to seasonal effects.

sible to come up with a definite estimation of the effects on poverty rates. This approach combines the quantitative data from these surveys with information on national institutional arrangements. As the quality of the income data in the surveys is doubtful, especially for social assistance benefits and other means-tested income, this approach uses entitlements to social assistance benefits as a yardstick for the quality of income data. It starts from the assumption that most poor households will be eligible for social assistance benefits. Though, many households will not properly indicate the amount of benefits received, possibly leading to an overestimation of poverty. The simulation of these social assistance entitlements can therefore indicate some kind of minimum poverty rate, based on the assumption that every poor household would receive its full amount of social assistance entitlement. The actual extent of poverty probably lies between the results found in conventional analyses and in this simulation.

Again, it should be emphasised that this section will assess entitlements to social assistance, not the amount of money people actually have received.[19] The notion of entitlement refers to the amount of money a specific household should receive as stipulated in the social assistance regulations on the basis of the individual needs of the household.[20]

The assessment of social assistance entitlements must take into account that minimum income benefits are dependent on the specific needs of the individual household. Benefits are determined by the type and the composition of the household, the age of household members, entitlements to one-off benefits, the cost of housing as well as a bundle of other characteristics that may trigger eligibility to additional premiums or other social assistance benefits (as for example disability or pregnancy of household members). The analysis of the adequacy of social assistance entitlements is therefore not as straightforward as it may seem. The possibility of large variations of social assistance entitlements across household types precludes a simple measurement of adequacy in the form of absolute levels or wage replacement rates. The evaluation of social assistance entitlements should therefore allow for different household need levels. A comparative analysis of social assistance entitlements can follow two strategies. A relatively easy and exact method of analysis is the use of model

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19 Imputation and simulation techniques have been increasingly used in social policy analysis in order to overcome limitations of the data or to assess the effects of policy reforms. Examples are Andreß et al. (1995); Andreß (1999); Berntsen (1992); Breuer / Engels (1994); Rainwater / Smeeding (1998); Atkinson / Sutherland (1998); cf. Harding (1996); Bradshaw (1995).

20 The simulation of social assistance entitlements only focuses on the general minimum income level in the respective country, as stipulated in the social assistance regulations, but does not take into account specific minimum income schemes for subgroups of the population (e.g. asylum seekers or refugees) that may also be available in come countries.

households. Social assistance entitlements are calculated on the basis of the legal regulations of each country for a number of pre-defined model families (e.g. Eardley et al. 1996a, 1996b). This methodology produces a relatively easy and exact measure of adequacy, yet its results are not necessarily representative for the entire population. More comprehensive results are yielded by a simulation of social assistance entitlements on the basis of household micro-data. This method allows us to gain a thorough picture of social assistance entitlements among the sampled population.

4.1 Methodology

The simulation of social assistance entitlements uses the information of the composition of the household[21] and the age of the household members found in the LIS datsets.[22] Combined with information on national entitlement rules, social assistance entitlements can be calculated for each household in the sample, under the assumption that all households are eligible for general social assistance.[23]

Social assistance entitlements are calculated on the basis of the institutional regulations in each country.[24] It is assumed that households do not have any income from employment or financial assets and do not receive any contributory social security benefits.[25] Since benefit rates may considerably vary across municipalities in Sweden, the recommended

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21 It is assumed that benefit units are equal to the households as defined in LIS.

22 For a detailed description of the institutional framework of social assistance schemes in the three countries and a description of the method used for the simulation cf. Behrendt (2000b).

23 In each of the three countries, some subgroups of the population are not fully eligible for social assistance. Restrictions apply notably to refugees, asylum seekers, and other foreign nationals with an insecure residency status. However, as these groups tend to be under-represented in the LIS datasets anyway, these groups can be neglected in this analysis.

24 Since standard benefit rates have been uprated during the observation year in Britain and Germany, a weighted average of benefit rates has been used. (Benefit rates were uprated in April 1995 in Britain, and in July 1994 in Germany.) Regional variations in the benefit rate could be considered for Germany (including East Germany) , but not for Sweden. In the British case, the head of household and spouse are assumed to be 18 or older while neglecting the special rates for young people.

25 Therefore, no income disregards and special premiums for working claimants are to be considered. In addition, it is assumed that these families do not have any entitlement to social insurance benefits that require previous contributions or the fulfilment of other conditions, such as unemployment benefit or minimum pensions. The calculation of social assistance entitlements should however consider universal social security benefits that are not dependent on previous contributions and are fully disregarded in the calculation of social assistance, because this type of benefits actually increases the amount of disposable income for the claimant population. The German parent allowance (*Erziehungsgeld*) fits into this category. One could argue that the Swedish basic pension would also meet these criteria, but benefits are conditional upon previous long-standing residency in Sweden. Since many recipients of social assistance in Sweden are refugees, they cannot meet these criteria and thus have to fully rely on social assistance anyway. For the calculation of social assistance entitlements, the basic pension is therefore not considered.

rates are used here as a guideline, yet the benefits actually paid out may deviate from these values. For Germany, regional variation of benefit rates could be taken into account on the level of federal states.[26]

In addition to the standard benefit rate, people may be entitled to special premiums that are supposed to meet additional needs of specific claimant categories. The calculations include family premiums (Britain), single parent premiums (Britain and Germany), as well as additions in case of old age (Britain and Germany). Other premiums, such as premiums in case of disability or pregnancy, were not taken into account since since the information on life circumstances of the households available in the Luxembourg Income Study is not detailed enough to reflect entitlements in a satisfactory way. Since the Swedish recommended benefit rates lack any fixed premiums for special needs, there are no additions taken into account for Sweden.

Standard benefit rates are further complemented by the value of one-off benefits for specific, irregularly occurring needs, as e.g. for large household amenities. One-off benefits can make up a considerable share of the total amount of social assistance benefits people receive, but it is difficult to gauge the exact amount of one-off benefits received since these benefits are – by definition – based on individual needs that cannot easily be standardised. The assessment of social assistance entitlements can therefore only be based on broad estimates of the value of one-off benefits. In the German case, the social assistance benefit level has been augmented by 16% based on the evidence on average expenditure on one-off benefits. For the United Kingdom, the amount of one-off benefits from the social fund has assumed to be equal to the average net expenditure of the social fund per recipient of income support. For Sweden, there is no systematic evidence available on the amount of one-off benefits actually paid, therefore this income component could not be considered in this calculation. However, since some of the items covered by one-off benefits in Germany and Britain are covered by the standard benefit rate in Sweden, the level of the social assistance package should be roughly comparable.

The final major component of recipients' households total income is made up by benefits to cover the cost of housing. Since rent levels vary strongly within countries and also across countries, this calculation has to rely on a broad estimation of housing cost, as the LIS data allowed to consider the actual housing cost only in the British case.[27] For Sweden, calcula-

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26 In Bavaria and Saxony, municipalities have a certain scope of discretion in determining standard benefit rates. For these federal states, average benefit rates were used as a proxy.

27 Negative amounts of housing expenditure have been set to zero (N=2).

tions are based on the rent level in Stockholm based on the study of Eardley et al. (1996a), reduced by 5% for households living in more rural areas.[28] For Germany, the housing costs are gauged on the basis of the official statistics on the average housing costs of recipients of social assistance differentiated according to household size.

On the basis of these components, social assistance entitlements can be calculated for each household in the sample. This allows us to compute a simulated income distribution that assumes that each household has an income that is equal or higher than the minimum income level as stipulated in the social assistance regulations. Thus, the disposable income of households with an yearly income (before social assistance) of less than the social assistance level has been augmented to this minimum income level. Households with a higher income obviously do not have any entitlement to social assistance, so their actual disposable income remains unchanged. By this token, the simulation produces an income distribution that virtually cuts off the lower part of the income distribution. For the calculation of poverty lines, however, the original income distribution is used, so the simulation of social assistance entitlements does not have any effect on the level of the poverty lines.

Because of the complexity of social assistance regulations, a simulation can hardly ever reflect the exact social assistance entitlement of an individual household. The main sources for errors are different household definitions in the surveys and by the social assistance regulations, and payments that closely relate to the circumstances of an individual household. Generally speaking, the more discretionary the social assistance payments, the less exact are estimates of social assistance. By the same token, estimates are not able to exactly reflect social assistance payments (or the refusal of payments) if the underlying decisions relate to individual characteristics or behaviour that is not monitored in the LIS data (e.g. health problems or refused payments in the case of able-bodied claimants refusing to work). Nevertheless, this exercise can provide some guidance on social assistance benefit levels.

4.2 Simulated social assistance entitlements and the level of poverty

This simulation procedure allows us to assess social assistance entitlements for each household in the sample by controlling for effects caused by non-sampling and sampling errors. In the following, poverty rates will be presented for an income distribution with simulated social assistance entitlements. Poverty rates are calculated as a percentage of median

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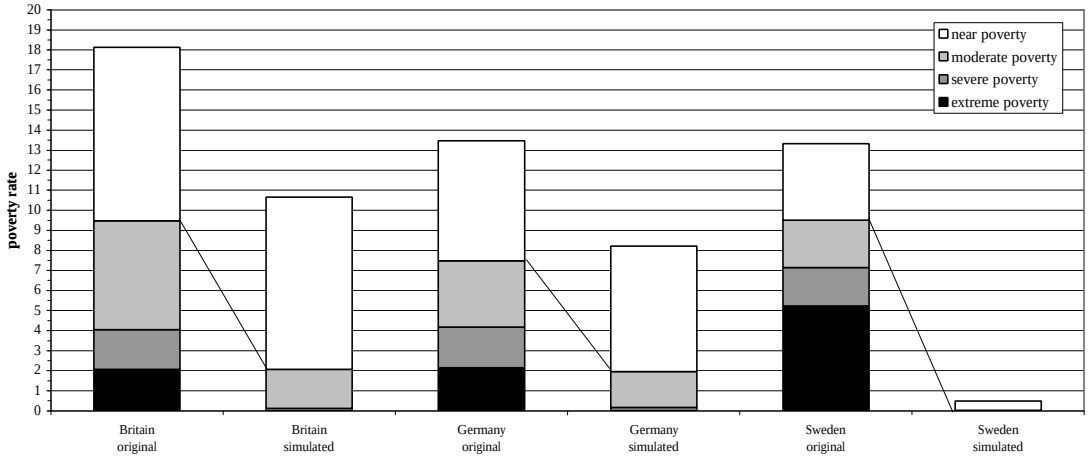
28 Households are defined as living in rural areas if they do not live in Stockholm, Gothenburg, Malmö or any other big city as defined by LIS.

equivalent income, as for the original data. The median income has been calculated from the original data, not from the simulated income distribution, in order to avoid distribution effects in the comparison of original and simulated poverty rates.[29] Chart 1 presents poverty rates for the original and the simulated income distribution in each of the three countries. The shading of the columns depicts different intensities of poverty using the four different poverty brackets of extreme poverty (less than 30% of median equivalent income), severe poverty (between 30% and 40% of median equivalent income), moderate poverty (between 40% and 50% of median equivalent income), and near poverty (between 50% and 60% of median equivalent income).[30]

Chart 1: Poverty rates based on original and simulated social assistance benefits



"Extreme poverty" refers to an income level below 30% of median equivalent income, "severe poverty" refers to a level between 30% and 40%, "moderate poverty" refers to a level between 40% and 50%, and "near poverty" refers to an income level between 50% and 60% of median equivalent income (modified OECD equivalence scale).
Source: Own calculations based on LIS. For a description of the simulation technique, see text.

The simulation demonstrates that if all households in the sample received the exact amount of social assistance entitlements as stipulated in the national social assistance regulations, poverty would be markedly reduced or even virtually eliminated. Although there are some limitations in the simulation, the simulated social assistance entitlements should provide a

29 Of course, the calculation of the median income may also be subject to a certain bias because of flawed data. However, as households with very high incomes also tend to be poorly represented in these surveys, these effects may possibly neutralise each other in the calculation of the median income.

30 Table A-6 in the Appendix presents the exact figures for original and simulated poverty rates and their reduction, and also presents the results for alternative equivalence scales.

good approximation of the minimum income level people would receive according to the legislature in each country.

The most striking effect of the simulation of social assistance entitlements is that both extreme and severe poverty would be practically wiped out in each of the three countries. Moderate poverty is also markedly reduced in Britain and Germany, while the near poverty bracket is fairly stable. Overall, poverty rates at the 50%-level would be reduced to some 2% both in Germany and Britain, given that each household would receive its full entitlement to social assistance. The effect of the simulation is thus a reduction of 7.4 and 5.5 percentage points, that is a reduction by some three quarters of the original level. The Swedish example is even more notable: poverty is virtually eradicated at the 50% level, and sharply reduced at the 60% level. Generally speaking, the poverty lines of 40% and 60% of median equivalent household income seem to delimit the scattered social assistance entitlement levels quite well – higher or lower social assistance levels appear to be fairly rare.[31]

According to these results, the evaluation of social assistance benefit levels leads to a fairly optimistic conclusion in respect to the adequacy of social assistance. In every one of the three countries – with some reservations for Britain and Germany – social assistance schemes are fairly effective in the alleviation of poverty. By and large, they provide an adequate benefit level that would allow most claimants to enjoy a decent standard of living, with only a small minority living in poverty.[32] In turn, however, the large difference between actual and simulated poverty rates suggest a less optimistic methodological conclusion, indicating that the quality of the underlying survey data is seriously flawed. It seems that these surveys are not able to reflect incomes of poor households in a correct way, as there is strong evidence for an underestimation of income in the survey data.

However, these conclusions have to be qualified, again considering the underlying methodological assumptions of this study. The simulation was based on the assumption that all households with insufficient income are eligible for social assistance benefits, and actually receive the full amount of benefit they are entitled to. Whereas the first assumption sup-

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31 There is also a marked reduction of poverty rates for subgroups of the population that are usually characterised by a high poverty risk, such as single parents, families with children, and the elderly, notably elderly women (cf. Behrendt 2000b).

32 However, this evaluation of social assistance schemes should be interpreted with due respect to the underlying methodological assumptions of this simulation. In particular, it was not possible to treat premiums for special needs, one-off benefits and housing benefits in a way that would unambiguously assess the adequacy of social assistance entitlements, and to correctly monitor regional variations in benefit levels. Although these assumptions necessarily limit the conclusions to be drawn from these data, they do not generally invalidate the results.

posedly only has a small impact on measured poverty rates, the second one is more problematic. Empirical studies show that a marked proportion of households do not claim their social assistance benefits for a number of reasons (cf. van Oorschot 1991, 1995). Although there is hardly any comparable evidence on the extent of non-take-up in the three countries considered, we can quite safely conclude that 15-20% of eligible households do not realize their claim in the United Kingdom, as do some 40-50% in Germany, and possibly as much (or even more) in Sweden where empirical evidence on non-take-up hardly available.[33]

Yet, even if the extent of non-take-up is accounted for, a considerable difference between actual and simulated poverty rates remains. This gap can only be explained by methodological problems, largely due to sampling and non-sampling errors in the underlying surveys.

5 Conclusions for the construction of income surveys

How could these income surveys be improved, especially in regard to improving their suitability in poverty research? The following practical suggestions may be helpful to minimise the effects of incomplete or flawed reported income, as far as they are not already realised in the construction of income surveys:

1. Questions on income should be ascertained as "close to the source" as possible, which means that income components that accrue at the household level (e.g. housing benefits) should be included in the household questionnaire and be reported by the household head, whereas income components with a more individual character (e.g. earnings) should be reported by the respective household member (cf. Habich et al. 1991: 494).
2. Respondents should receive a strong guarantee that their responses are treated confidentially and anonymously, and that their answers will not provoke any negative consequences whatsoever. By this token, it should be made clear that respondents do not have to fear stigmatisation or criminal prosecution when reporting any "sensitive" income.
3. Interviewers should urge respondents to look up income components in their documents in order to enhance the quality of the data. This does however take additional time that the interviewer may not be willing to allow. Tight restrictions in money or

33 For a more detailed overview on empirical studies on non-take-up in the three countries considered cf. Behrendt (2000b).

time for the interviewers and a lack of control by the research institute may result in "quick and dirty" interviews with poor results.

4. In addition, academics and statistical offices should think about alternative sources of income data besides the traditional questionnaire surveys. Would it be possible to use administrative data to complement the evidence gathered in the tradtional surveys, provided that the respondents agree (as e.g. the Swedish tax data)?

5. Even if the large-scale matching of survey data and administrative data is not possible for whatever reason, systematical small-scale studies that compare the quality of the survey with alternative data sources could help to evaluate the quality of income surveys for poverty analysis, and derive more focused recommendations for their improvement.

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7 Appendix

Table A-5: Sampling methods for the LIS datasets used in this study

	Germany 1994	**Sweden 1995**	**United Kingdom 1995**
Sampling frame	ADM (Study Group of German Market Research Institutions), based on list of registered voters, plus a subsample of immigrant households	Total Population Register	Post Office's Postcode Address File
Sampling method	Multi-stage random sample with regional clusters	Stratified sample	Multi-stage stratified random sample
Sample size	~ 4,600 households	12,532 family units	~ 6,500 households
Type of data	(Panel) Survey	Tax files plus telephone interviews	Survey
Response rate	62% (1984)	Administrative files: near 100% (1996) Interviews: 77% (1996)	60%-70%

Source:: LIS Documentation; Harris 1998; Foster 1996 for Britain; Hanefeld 1987; GSOEP 1996 for Germany; Jansson 1994, 1998 for Sweden.

Table A-6: Poverty rates for an income distribution with simulated social assistance entitlements

	Britain 1995			Germany 1994			Sweden 1995		
	E_{cl}	E_{mod}	E_{sq}	E_{cl}	E_{mod}	E_{sq}	E_{cl}	E_{mod}	E_{sq}
"Real World": Original (non-simulated) income distribution									
60%	17.2	18.1	19.8	12.1	13.5	14.1	11.9	13.3	14.2
50%	9.6	9.5	10.8	7.2	7.5	8.3	8.6	9.5	9.9
40%	4.3	4.1	4.5	3.8	4.2	4.9	6.3	7.1	7.3
Simulation: Income distribution with simulated social assistance entitlements									
60%	13.2	10.7	13.0	8.3	8.2	8.9	1.5	0.5	0.8
50%	4.3	2.1	2.9	2.5	2.0	4.2	0.3	0.0	0.1
40%	0.7	0.1	0.2	0.5	0.2	0.5	0.0	0.0	0.0
Difference between original and simulated poverty rates (in percentage points)									
60%	-4.0	-7.5	-6.8	-3.9	-5.3	-5.2	-10.4	-12.8	-13.3
50%	-5.2	-7.4	-7.9	-4.7	-5.5	-4.1	-8.4	-9.5	-9.8
40%	-3.7	-3.9	-4.4	-3.3	-4.0	-4.4	-6.3	-7.1	-7.3
Difference between original and simulated poverty rates (in percent)									
60%	-23%	-41%	-34%	-32%	-39%	-37%	-87%	-96%	-94%
50%	-55%	-78%	-73%	-66%	-74%	-49%	-97%	-100%	-99%
40%	-85%	-97%	-96%	-88%	-96%	-90%	-100%	-100%	-100%
N		6,750			5,829			16,212	

Own calculation based on the Luxembourg Income Study. Poverty lines are calculated from the original income distribution.
Equivalence Scales::
E_{cl} *"Classical OECD equivalence scale" attaching a weight of 0.7 to each additional adult in the household and 0.5 to each child*
E_{mod} *"Modified OECD equivalence scale" attaching a weight of 0.5 to each additional adult in the household and 0.3 to each child*
E_{sq} *"Square-root scale": Disposable income divided by the square root of the number of persons in the household (e = 0.5)*