

Förster, Michael

Working Paper

Comparing Poverty in 13 OECD Countries Traditional and Synthetic Approaches

LIS Working Paper Series, No. 100

Provided in Cooperation with:

Luxembourg Income Study (LIS)

Suggested Citation: Förster, Michael (1993) : Comparing Poverty in 13 OECD Countries Traditional and Synthetic Approaches, LIS Working Paper Series, No. 100, Luxembourg Income Study (LIS), Luxembourg

This Version is available at:

<https://hdl.handle.net/10419/160772>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

Luxembourg Income Study Working Paper Series

Working Paper No. 100

Comparing Poverty in 13 OECD Countries
Traditional and Synthetic Approaches

Michael Förster

July 1993

(scanned copy)



Working Paper No. 100

**COMPARING POVERTY IN 13 OECD COUNTRIES:
TRADITIONAL AND SYNTHETIC APPROACHES**

Michael F. Förster

September 1993

Michael F. Förster is an economist working with the Social Affairs Division of the OECD Directorate for Education, Employment and Social Affairs. The opinions expressed and arguments employed here are the responsibility of the author and do not necessarily represent those of the OECD.

The author would like to thank Peter Scherer and Anastasia Fetsi from the OECD, Lee Rainwater and Uwe Warner from the Luxembourg Income Study and István Tóth from the Budapest University of Economics for their most useful comments and suggestions. As usual, none of these can be blamed for the remaining content.

COMPARING POVERTY IN 13 OECD COUNTRIES - TRADITIONAL AND SYNTHETIC APPROACHES

I.	INTRODUCTION	2
II.	COMPARING POVERTY ACROSS COUNTRIES: SOME QUESTIONS AND ANSWERS AHEAD	4
	A. The 'philosophy' of cross-country comparison	4
	B. Low-income and poverty lines	4
III.	DIFFERENT APPROACHES TO DEFINING LOW INCOME AND POVERTY	7
	A. The absolute approach	7
	B. The relative approach	8
	C. The subjective approach	9
	D. The effects of choosing a particular approach	10
IV.	HOW TO ADJUST FAMILY INCOMES: EQUIVALENCE SCALES AND THE REFERENCE POPULATION	15
	A. Adjusting for family size	15
	B. Adjusting for age and other factors	16
	C. The effects of different equivalence scales	17
	D. Definition of the reference population	21
V.	SOCIO-DEMOGRAPHIC AND -ECONOMIC CHARACTERISTICS OF THE POOR POPULATION	22
	A. Persons living in families with low incomes: past and recent findings	22
	B. The socio-demographic structure of poor non-elderly families	26
VI.	ALTERNATIVE MEASURES TO ANALYSE LOW INCOMES AND TO EVALUATE ANTI-POVERTY POLICIES	34
	A. The low-income gap	34
	B. Synthetic poverty indicators: The Sen index	39
VII.	THE ROLE OF THE STATE IN ALLEVIATING POVERTY	45
	A. The Welfare State	45
	B. Analysis of tax and transfer policies towards non-elderly families	48
	B.1 Overall Sen poverty indices	48
	B.2 Components of poverty and poverty reduction	50
	C. The elements of child poverty	57
VIII.	SUMMARY AND CONCLUSIONS	61
	ANNEX.DATA QUALITY	64
	REFERENCES	73

I. INTRODUCTION

At the beginning of the nineties, economic policy in the field of social affairs and labour market is characterised by a certain ineffectiveness of traditional policy measures in combating phenomena like persistent un- and underemployment and, consequently, growing impoverishment among certain populations in industrialised Western societies. The striking phenomenon is less the appearance of 'new' poverty among marginalised and disadvantaged populations but rather the experience of situations of insufficient resources among families which have so far been protected from poverty, such as families within the working or working-age population.

The somewhat academic debate of the seventies and early eighties of how to measure poverty, deprivation and low income (cf. Sen 1983, Townsend 1985) has got a new dimension as poverty estimates also have strong political implications (for example, they affect subsidies within the European Community). Also, the question of adequacy of these poverty estimates has a growing importance for government policies in a period in which budget constraints are claimed to tighten. This is one of the reasons which led us to devote a main part of the present paper to methodological issues. Different methods to analyse poverty will be presented and applied, using micro data sets from the Luxembourg Income Study (see Annex).

The subsequent analysis covers 13 OECD countries which have quite different social regulations and provisions and different approaches towards social policy: Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Sweden, the United Kingdom and the United States. The period of observation refers to a year in the mid- to end eighties: 1984 for the earliest ones, 1987 for the most recent ones. Results reported in this paper may therefore not correspond to today's reality. In the meantime, both situations in the labour markets and country specific transfer policies may have resulted in different income distributions and levels of poverty (e.g. the introduction of the *Revenu Minimum d'Insertion* in France, or specific family policies in Australia and the United Kingdom). The aim of this paper is therefore twofold:

- i) to provide an analytical tool for analysis of poverty levels in a context of international comparison, and
- ii) to apply these instruments to analyse poverty among non-elderly families in the mid- to end eighties, and tax and transfer policies in different OECD countries.

The application of the analysis will focus on the the socio- demographic group of non-elderly families and, among them, families with many children and single parents. A separate section will investigate child poverty. These groups have been shown in further analysis (e.g. Mitchell et al. 1991, Rainwater 1988, Smeeding et al. 1991) to be particularly vulnerable to insufficient resources.

Contents of the paper

The paper is organised in the following way. Chapter II discusses some general issues of cross-country comparison and presents arguments to prefer annual disposable income as a measure of standard of living to consumption or

life time income. In chapter III, the three main concepts for defining low income and poverty - the absolute, relative and subjective approach - are discussed in detail. This chapter also includes estimates for overall poverty. Chapter IV discusses ways how to adjust disposable income for family size and other factors and presents sensitivity tests using different equivalence scales. Chapter V summarises the main results concerning poverty among non-elderly families, comparing these to past findings. Chapter VI then goes on to discussing and applying more comprehensive poverty indicators, in particular the Sen index which allows for the decomposition of poverty into incidence, intensity and distribution of low incomes. Chapter VII discusses the role of the welfare state in alleviating poverty and applies the Sen index for an analysis of tax and transfer policies to non-elderly families, families with many children, single parents and children. Finally, main conclusions are presented. An Annex discusses questions of data quality and limitations.

II. COMPARING POVERTY ACROSS COUNTRIES: SOME QUESTIONS AND ANSWERS AHEAD

A. The 'philosophy' of cross-country comparison

First, comparative cross-country analysis is not simply a matter of juxtaposing social indicators from several nations, and subsequently proceeding to derive rank orderings. It comprises, in the end, always comparisons of different systems of social regulations and interactions in which the relative position of particular groups is analysed (say, the elderly, or single parents), or else the performance of a certain branch of the social security system (e.g. pensions, unemployment insurance) is assessed. The former of these two approaches is also called "group-by-group" approach (Hauser 1988) and it is what the available micro data which we will be using, is best suited for. This means for example, not analysing and comparing early retirement, or pension systems *per se* but the relative wealth position of the elderly, or pensioners across different countries.

Second, in cross-country comparison, each country's system has to be assessed in term of its own worth, and standards. For example, in some poverty research the poverty standard of one particular country (e.g. a certain amount of US Dollars per equivalent family) is chosen and applied to a range of other countries. This exercise might be quite useful in the light of a domestic policy debate on poverty (in the perspective of "learning lessons from abroad"). Examples of using several countries' (relative) poverty lines as an (absolute) line for other countries will be presented in Chapter II. However, in our type of analysis we are searching for measures and indicators which give the same weight and importance to each of the country's standards.

Third, different underlying ideologies about social justice influence the results from national studies. In much of the poverty research literature two underlying approaches might be distinguished. One might be described as inherent social charity approach: the absolute level of poverty is analysed, and research (as well as policy) cares about the ability of individuals or families to participate in social life. Causes for this inability are either not analysed or presumed to be the responsibility of each individual. A typical policy prescription would be to provide additional money, or income in kind, to the so defined poor. On the other hand, a second approach which dominates much of the Continental and Scandinavian European debate (e.g. France, Germany) might be described as a social rights approach which is based on the entitlements of individuals and families to resources. The policy debate in this case is clearly focused on re-distributional issues.

B. Low-income and poverty lines

Expenditures or income?

All different approaches to set up a comparative poverty measure have in common the establishment of a cut-off-line below which persons, or families are considered to have an inadequate income (low income cut-off-line) or being poor (poverty line). In literature, the terms 'low income' and 'poverty' are often used alternatively. This implies that, in those cases, poverty is defined merely in terms of income, sometimes broader in terms of material deprivation due to lack of resources. Townsend (1985) for instance, defines

resources as "income including the income equivalent of wealth and income in kind."

There is, however, a widespread use of poverty concepts which are related to elements other than income, e.g. consumption (low spending), deprivation standards (see Townsend 1987), total wealth (see Hurd 1986) or non-pecuniary elements. In particular, the European Community is using consumption, namely a fraction of the mean equivalent household expenditure in its poverty research; the argument for that is that "household expenditure is a more reliable indicator for permanent income" (EUROSTAT 1990: 64).

There are several reasons why the necessary minimum income (Y^*) may differ from the necessary minimum expenditure (E). A family may attain E with an income below Y^* by dissaving or by borrowing. On the other hand, an income above Y^* may not be sufficient to attain E due to certain market failures (access to housing is for instance typically rationed for newcomers, e.g. immigrants). A more technical argument refers to the fact that incomes are typically underreported in surveys, particularly at the margins of the distribution.

However, for the present study, we are using low (disposable) income rather than low spending as an indicator for poverty because we focus on the capacities of individuals and families to participate in the mainstream of their society and not on their actual behaviour (in other words, we are not interested whether a family actually buys a meal twice a day or takes holidays but if it has the possibility to do so by means of its resources).

Permanent or disposable income?

The use of annual disposable income (as opposed to permanent income) as a single indicator of economic well-being has several implications. In general, the use of disposable income implies a (Keynesian-type) absolute income hypothesis according to which consumption expenditures of the current period depend on the income in the current period. The according consumption function is:

$$C_r = \alpha + \beta * DPI,$$

where: C_r = real consumption
 α = existence minimum
 β = marginal propensity to consume

On the other hand, the use of permanent income as indicator implies a (Modigliani-type) life-cycle hypothesis of consumption according to which an individual allocates efficiently his consumption and saving over his entire lifetime. The according consumption function is:

$$C = \alpha * WR + \beta * DPI_L$$

where: WR = real wealth
 α = marginal propensity to consume out of wealth
 β = marginal propensity to consume out of labour income
 DPI_L = disposable income from labour

If lifetime consumption equals lifetime income, α can be interpreted as one divided by life expectancy, and β as remaining labour lifetime divided by life

expectancy. One assumption of the latter model is that part of the well-being of the elderly stems from dissaving which is not part of the disposable income (the saving of the non-elderly however is part of it).

Three main reasons lead us to disregard permanent income as a standard for poverty comparisons: The inoperationality of its use (e.g. the appropriate choice of discount rates), the fact that past and expected family income may vary heavily from one country to another, and various theoretical criticism (e.g. the ignorance of the bequest motive and the importance of social insurance). However, we need to be aware of the possible shortcomings when using annual disposable income as a measure of well-being in the following chapters.

Absolute, relative or subjective poverty?

In the past decade, the debate on how to measure poverty and low incomes was focused around three quite different concepts:

- i) The absolute approach (or, as Hagenars/deVos (1987) put it, "having less than an objectively defined absolute minimum")
- ii) The relative approach (or, "having less than others")
- iii) The subjective approach (or, "feeling you do not have enough to get along")

The absolute approach defines a minimum of basic needs which serves to calculate a minimum subsistence amount. Individuals or families who do not dispose of sufficient resources to fulfil these basic needs are counted as 'poor'. The relative approach defines incomes as 'low', or a sub-population as 'poor' with respect to the incomes, or the well-being level, of the population as a whole - the reference point being, for instance, the median equivalent income or the mean equivalent expenditure. It thus takes into account the different levels of well-being between societies and its change over time. The subjective approach is based upon public opinion on income levels in a given society at a certain point in time, as derived by household surveys. The level of low income is defined by the concerned population itself.

For the purpose of comparing poverty across affluent countries which experience economic growth, or at least stagnation, the relative approach provides the most valuable estimates. The three concepts, which continue to dominate the poverty research discussion merit to be treated in a separate section and will therefore be discussed in detail in the next chapter.

III. DIFFERENT APPROACHES TO DEFINING LOW INCOME AND POVERTY

A. The absolute approach

This concept, sometimes called 'budget method', is the basis for most 'official' or state poverty lines. It defines an absolute minimum in terms of basic needs (for food, clothes, housing etc.). The aggregate cost of these goods and services then constitutes the low-income line. This method dates back to the work of Rowntree (1901), which was used for the Beveridge report (1942). This fixed a minimum of resources below which families could have access to subsistence allowances.

Another example for an explicit, absolute definition of poverty is the current US Social Security Administration Poverty Index. Orshansky (1965, 1969) estimated the level of income below which families could not eat adequately using the US Department of Agriculture's economy food plan as measure for families' needs for groceries. The poverty line then is derived by assuming a 33% food share in the total budget of a three person family (27% for singles and two person families). For annual changes, this so derived absolute poverty line is adjusted by the Consumer Price Index. Also, the Swedish existence minimum is often cited as explicit low-income line.

Other countries implicitly define state low-income lines, based on the absolute approach - implicit in the sense that they calculate minimum income levels for administrative purposes (levels below which families become eligible for income support programmes). Examples are the social assistance (Bundessozialhilfe) in Germany based on a detailed basket of goods deemed necessary, or the social aid programme in Austria.

In the past decade, the absolute approach (based up to then on defining needs in terms of consumption goods) has been developed further by Sen who suggests a definition in terms of capabilities rather than commodities: "The comparison of standard of living is not a comparison of utilities. So the constituent part of standard of living is not the good, nor its characteristics but the ability to do various things by using that good or those characteristics." (Sen 1983: 160) He proposes using "capability vectors" to rank people's advantages (or disadvantages) vis-à-vis others. Whilst the conversion of real incomes into actual capabilities varies with social circumstances, there is still the need for setting certain absolute standards of minimum material capabilities relevant to a given society.

The common use of absolute low-income and poverty lines in policy debate can be explained by the fact that effects of social programmes (in particular income maintenance programmes targeted to the poor) may easily be evaluated over a short or medium-term period (comparing the number and composition of the low-income population over years). Difficulties arise, however, when the base of the absolute measure (e.g. the basket of needs) is to be changed. In addition, country comparison becomes extremely difficult because the absolute measures are always defined on a national level.

The most critical feature of the absolute approach is undoubtedly the arbitrariness of the choice as to what basic needs are - notwithstanding if the choice is made by experts or derived by surveys on consumer behaviour (the latter introduces a circularity into the definition of low incomes). If this holds true at a national level, the disadvantages of the absolute approach are

even more striking when comparing across countries, what this study tends to do. Some authors have tried to set one absolute low-income level (e.g. the US poverty line) converting it to other countries income levels with the help of Purchasing Power Parities (Smeeding/Torrey 1988; Short/Garner 1989). While this might be useful in the context of a specific country's policy debate, this approach is not appropriate for comparative social policy analysis. Even under the assumption that basic needs are the same across countries, this attempt would still look at other countries with the view of the one for which the poverty line has been chosen at the beginning.

Another problem for analysing the low-income population with the help of absolute measures is that - once the absolute level is set - it correlates closely with recessions and economic booms. This can be illustrated by the evolution of the US poverty line for which the number of persons has fluctuated in the past two decades according to economic cycles, whereas alternative US poverty measures show a steady decline (for elderly) or increase (for children). Theoretically, economic growth may eliminate low income, if defined in absolute terms (and adjusted only with changes of prices), without any special poverty programme measure and without changing the income distribution - provided all share in growth. (OECD 1976)

B. The relative approach

The relative approach tries to overcome these difficulties by judging incomes as low with respect to the incomes received by the population of families as a whole. In this way, it takes into account that human needs (or capabilities) are socially created and that *"the number and extent of so-called necessary wants... are themselves the product of historical development and depend, therefore, to a great extent on the degree of civilisation of a country."* (Marx, in: EUROSTAT 1990: 3) Thus, relative measures allow to compare income situations across countries, because they are independent from a specific country's definition of basic needs.

The simplest relative income measure is to set a low-income line at a certain bottom percentile of the income distribution. As an example, the OECD List of Social Indicators (OECD 1982) proposes to define the low-income population as households in the bottom quintile of equivalent income (income defined as disposable income). Whilst this measure provides easily cross-country comparable results on the household characteristics in the bottom 20% of the income distribution, it lacks in its interpretation for policy conclusions as the number of low-income families will always be equal to one fifth to the total population.

Another more complex variant of this approach defines low income as a fraction of average or median income (economic distance approach). In this case, the proportion of low-income families varies across time (and countries), and may be zero (*en principe*). The OECD List of Social Indicators (OECD 1982) uses this approach in defining material deprivation (see below). There is no specific argument to opt for one percentage level rather than for another (say, 60% of the median rather than 50%). But the presentation of various percentage levels may serve as benchmarks for policy making. A society may prefer to see 15% of its population having an income close to 60% of the average income rather than 10% staying at the 40 % level.

To a large extent, international comparative studies make use of relative methods to determine low-income lines:

- * EUROSTAT (1990) sets alternative poverty lines for EC member countries at 40% and 50% of mean equivalent expenditure (household expenditure being believed to be a more reliable indicator of 'permanent income' than the income declared in family budget surveys). As reference society two options are chosen: the national mean, and the Community mean.
- * The 1982 OECD publication on social indicators defines low income as "share of income accruing to household in the lowest quintile" (OECD 1982: 36) and material deprivation as "percentage of households with income below a given fraction of the median adjusted disposable income" (OECD 1982: 37).
- * In several studies of the ILO (e.g. ILO 1975), the low-income line for a two member household is set at the average net disposable income per head in the population and then adjusted for other household types by equivalent factors (Beckermann approach, cf. Beckerman 1978).
- * Most of the comparative research papers based on the analysis of the income micro data from the Luxembourg Income Study uses a definition of 50% of the median equivalent disposable income as the low-income cut-off-line.

It has been argued that the relative approach, as it is a measure of distribution, simply reflects inequality in a society and that changes in the number of poor cannot be measured adequately. Different overall well-being levels between countries are not taken into account. But it can be argued that the poor are poor *hic et nunc*, in the context of their and not another society. Relative measures undoubtedly provide valuable estimates for the comparison of the number and composition of families with low incomes across countries.

C. The subjective approach

Both the absolute as well as the relative measures may be regarded as objective. On the contrary, subjective measures of low income are based on public opinion on income levels considered to be 'just sufficient' ("get-along-amount"), derived from household surveys. It thus avoids the problem of the arbitrary choice of needs made by experts as pointed out above.

Several subjective methods have been developed to determine low-income levels:

- * The SPL-method ("subjective poverty line"; Goedhart, Kapteyn, van Praag et.al.) sets a poverty line derived from answers to the question "What is the minimum amount of income that your family, in your circumstances, needs to be able to make ends meet?" (the so-called minimum income question, MIQ)
- * The CSP-method (Centre of Social Policy/University of Antwerp; Deleeck) uses the same basic idea but also takes into account the actual income of the household and answers to another question asking people to qualify the way in which they make ends meet.
- * The LPL-method ("Leyden poverty line"; van Praag et.al.) is based on the individual welfare function of income and works with the answers to a

six-level income evaluation question.

- * The social consensus method (Piachaud, Walker, Mack and Lansley et. al.) asks the public what it is prepared to pay for in taxes as a minimum income, thus defining a financeable poverty level.

In general, subjective low-income lines are set at the income level where Y_{min} equals Y , given the relationship

$$\log (Y_{min}) = a_0 + a_1 \log (Y),$$

where Y_{min} represents the answer to the minimum income question, and Y represents current household income.

The assumption behind this relationship is that only persons whose income is actually equal to their minimally necessary income have a realistic idea of this income level; persons whose incomes are higher tend to overestimate their needs while persons with lower incomes think that they can get along with a lower income (be it higher than their current one).

Initial research in Europe based on subjective measures suggests that the derived poverty levels lie, in general, above those calculated with traditional absolute or relative measures (Deleeck/van der Bosch 1989). A recent study which compares subjective poverty lines derived from the United States Consumer Expenditure Interview 1982 with a survey conceived by the Dutch Centre for Research in Public Economics 1982 concludes that *"subjective poverty lines are considerably above the official poverty lines, but more so in the U.S. than in the Netherlands"* (De Vos/Garner 1989: 14)

At first sight, the subjective approach appears quite attractive because the low-income level is defined by the concerned population itself. However, only few regular (income or budget) surveys incorporate a minimum income question, and the precise way that the questions are formulated differ considerably. Subjective standards may vary across time and, moreover, across countries. Piachaud (1987) underlines the sensitivity of answers to attitudinal surveys. In addition, literature suggests that subjective low-income lines do not reflect the full minimum cost of children because of reference-groups effects and/or inclusion of immaterial values such as satisfaction (Hagenaars/De Vos 1987; Deleeck et al. 1989). Subjective approaches may provide useful methods to measure the low-income population in a particular country at a particular time, but are for the time being not suitable for comparative research.

D. The effects of choosing a particular approach

It should be emphasised that the adoption of one or the other methods to define low income is not an academic question; the absolute number and also the structure of the population in poverty may vary dramatically according to the method chosen. Hagenaars/De Voos (1987) apply eight definitions for a poverty line to a 1983 household survey in the Netherlands (four definitions based on an absolute approach, three on a subjective and one on a relative measure): the derived overall rates range from 5.7% to 33.5%.

If the purpose of the analysis is cross-country comparison rather than comparison over time, a relative definition of low income is the most useful approach to assess poverty. Low income will then be defined as a certain

fraction of the median disposable income. As a reference point the median is preferred to the mean as it reflects better the most widely shared life style (i.e. the resources needed for it). As a reference distance 50% of the median is proposed. In order to test the sensitivity of results, three different distance levels will be presented:

- 40% (about the level of the US poverty line and a UK poverty line derived from the Supplementary Benefit; often used by the research community)
- 50% (a level often used for international comparisons, e.g. EUROSTAT, LIS)
- 60% (about the level where the Swedish existence minimum lies).

It should be stressed that a low-income line does not represent a break-even point below which a person (or family) suddenly becomes poor. Low-income lines rather serve to define several classes of low income. Table 1 presents such low-income classes using data from the Luxembourg Income Study.

Without repeating the more detailed analysis which will follow in chapter V, a first glance at table 1 leads us to discern three groups of countries:

- (i) Australia, Canada and in particular the United States at the top end of the scale, experiencing poverty rates well above the average in all income segments;
- (ii) the continental European countries Austria, Belgium, Germany, Luxembourg and the Netherlands at the bottom in any of the segments. Within this country group - the 'low poverty' countries - Austria and Luxembourg show the lowest values for the very low income segments (below 20 and 30 %); this means that the poor population in these countries is concentrated towards higher cut-off lines (50 and 60%). In Belgium and the Netherlands the poor population seems to be more equally distributed within the segments;
- (iii) the remaining European countries France, Ireland, Italy, Sweden and the United Kingdom are close to the average but show diversified results according to the segment. At the 50 to 70 % - level, for instance, France and Sweden have poverty rates significantly below the average whereas Italy and Ireland experience levels close to those of the first country group, the 'high-poverty countries'.

Further analysis of table 1 reveals some country-specific patterns: some countries (Italy) show below-average rates in the very low income segment (below 20%) but above-average when moving to higher low-income segments. Other countries (Sweden) trace the inverse picture. Both, Ireland and the United Kingdom show above-average rates for the very poor population, average or below-average rates for the segments often defined as the 'core' of the poor (below 40 and 50%), and again above-average rates for the population 'near poverty' (60 and 70% segment).

These results show the incidence of low incomes relative to each country's median disposable income. As argued above, this is a meaningful basis for country comparisons.

An interesting exercise consists therefore in comparing these results with those obtained when using one country's (relative) poverty standard as an (absolute) measure for all other countries under review. For table 2 we took the poverty levels (below 50% of median) of selected countries as an absolute cut-off-line for the other twelve countries. Purchasing power parities for

private final consumption expenditure where used for the conversion of these cut-off-lines into other countries currencies for the respective year. The common base year for the purchasing power parities is 1985.

We selected five countries' low-income lines: two from the first group (high poverty) but having different purchasing power parities: the United States and Australia. Two countries from the 'low-poverty' group: Austria and Belgium. And France, with intermediate poverty levels.

Table 2 shows that poverty rates are extremely sensitive to other countries' levels as well as to the respective purchasing power parity. It should be noted, however, that PPPs are not designed for poverty comparisons. By applying them to the poor, we assume that this part of the population has the same consumption baskets as the total population which is likely to be untrue. Also, by de- and reflating to the common base year 1985, we assume that no changes in consumers' preferences have been taken place between 1984 (earliest LIS countries) and 1987 (most recent LIS countries).

The purpose of this exercise was to show that meaningful results to compare poverty across countries cannot be obtained when introducing (indirectly) absolute standards of one country. Not only, for most countries, low-income rates increase or decrease significantly (three times and more), but also the rank ordering is changed when the Australian, Austrian (or any other) relative well-being standard is applied for other countries.

Table 1.

Cumulative percentages of persons with lower incomes

	Percent of median income					
	20	30	40	50	60	70
Australia 85/86	1.9	3.4	5.9	12.9	21.0	29.1
Austria 87	0.2	0.8	2.6	6.7	12.2	19.6
Belgium 85	0.5	1.0	1.9	4.4	10.7	19.6
Canada 87	1.5	2.9	7.5	12.1	18.1	26.3
France 84	1.0	2.2	3.9	7.1	13.2	23.3
Germany 84/85	0.4	1.0	2.7	6.4	12.4	20.9
Ireland 87	1.9	3.0	4.4	12.3	20.1	27.8
Italy 86	0.7	2.7	5.6	11.0	18.0	27.6
Luxembourg 85	0.2	0.7	1.7	5.1	10.8	21.1
Netherlands 87	0.7	0.9	1.9	3.9	8.3	16.3
Sweden 87	1.4	2.6	4.2	6.8	11.8	19.4
United Kingdom 86	1.5	2.3	3.9	8.7	17.3	26.5
United States 86	2.9	7.3	12.8	18.4	24.1	30.3
AVERAGE	1.1	2.4	4.5	8.9	15.2	23.7

Source: LIS micro data base

Note: income concept used is disposable income adjusted for family size, using an equivalence scale with an elasticity of 0.55 (see chapter IV)

Table 2.

Low-income rates: applying country-specific relative definitions to other societies

	Australian level	Austrian level	Belgian level	French level	United States level	Each country relative level
Australia 85/86	12.9	19.4	11.9	14.5	29.4	12.9
Austria 87	3.9	6.7	3.0	5.1	12.5	6.7
Belgium 85	5.2	28.4	4.4	6.3	23.2	4.4
Canada 87	5.6	8.3	5.2	6.6	12.8	12.1
France 84	5.9	10.0	5.5	7.1	20.4	7.1
Germany 84/85	5.0	8.7	4.7	6.3	18.6	6.4
Ireland 87	33.4	42.3	31.7	36.5	54.8	12.3
Italy 86	14.8	23.3	14.2	16.9	35.2	11.0
Luxembourg 85	1.8	3.8	1.6	2.1	9.5	5.1
Netherlands 87	10.1	18.8	8.6	12.9	39.7	3.9
Sweden 87	8.0	12.3	7.5	9.2	23.5	6.8
United Kingdom 86	10.8	18.6	9.7	12.9	30.4	8.7
United States 86	10.2	13.3	9.6	11.1	18.4	18.4
AVERAGE	9.8	16.5	9.0	11.3	25.3	8.9

Source: LIS micro data base and OECD (1992), Annual National Accounts

Note: income concept used is disposable income adjusted for family size, using an equivalence scale with an elasticity of 0.55 (see chapter IV)
 Low-income rate defined as percentage of persons in families with incomes below 50% of median income

IV. HOW TO ADJUST FAMILY INCOME: EQUIVALENCE SCALES AND THE REFERENCE POPULATION

Once the poverty line (or lines) having been defined, we would like to adjust the reference income measure (in our case, disposable family income). One can assume that, due to economies of scale, the needs of a family for resources grow with each additional member, but not in a proportional way. With the help of equivalence scales, each family type in the population is assigned a value in proportion to its needs. The factors commonly taken into account to assign these values are the size of the family and its age structure (adults or children). Ideally, sophisticated equivalence scales would also consider the different ages of adults and children themselves as well as other factors, such as the health status, region (this is, for instance, done by the Hungarian CSO), etc.

A wide range of equivalence scales has been developed in the past. They can be defined explicitly or implicitly, as ratio of the low-income lines for different family types. As in the case of low income, there is no generally accepted method for determining equivalence scales. Basically, one can distinguish scales developed by experts' judgements, and scales derived empirically by regression analysis using survey data.

A. Adjusting for family size

Using family size as the sole determinant, equivalence scales can be captured by one single parameter, the equivalence elasticity, i.e. the power by which needs increase as family size increases:

$$N = S^e, \text{ or}$$

$$e = \ln(N) / \ln(S), \quad 0 \leq e \leq 1$$

where e: equivalence elasticity

N: economic need (Disposable income / economic well-being)

S: family size

The equivalence elasticity, e, thus can range from 0 (when unadjusted family disposable income is taken as income measure) to 1 (when per capita income is used). Any adopted adjustment lies in between, i.e. the smaller the value for e, the higher the assumed economies of scale.

In a prominent article, Buhmann et.al. (1988) review a quite complete inventory of some 30 equivalence scales being used during the eighties. They may be distinguished into two groups for each, the experts' judgement (a and b) and the survey based approach (c and d):

- i) Expert statistical judgement: scales developed primarily for statistical and comparative purposes. The US Bureau of Labour Statistics family budgets are an example, but also the scales used by EUROSTAT for poverty measurement and the one which is proposed by the OECD List of Social Indicators (OECD 1982). The equivalence elasticities lie around 0.74.
- ii) Expert programme judgement: scales implicitly used for calculating benefits of social programmes, such as the Swiss social assistance, the Swedish base amount, the UK Supplementary benefits, or the US poverty

definition. Their equivalence elasticities lie around 0.55.

- iii) Efforts have been made to measure utility through the analysis of household consumption expenditure patterns as derived from household surveys. The Statistics Canada method falls into this category. Important work has been carried out in the US (see for example Van der Gaag/Smolensky 1982), and, more recently, in France (Glaude/Moutardier 1990). In general, the derived equivalence elasticities lie around 0.4, or around 0.5 if the method is based on food shares (Engel method).
- iv) Another survey-based method measures utility directly from public opinion polls (see in particular van Praag et. al. 1982 and Rainwater 1990). These methods estimate in general the lowest values for e (around 0.25).

B. Adjusting for age and other factors

Some equivalence scales also take into account other characteristics of the family, such as the age structure (in particular: ages of the household heads, and of the children). Studies on subjective assessment of well-being suggest that the ages of children do not have a significant effect on people's belief on how much income they need (Rainwater 1988). On the other hand, the age of the head of the family seems to affect people's assessment of need: studies of the US Gallup surveys and the Eurobarometer survey indicate that need increases about 0.8% each year of age up to the age of 45 and decreases slightly faster (about 1%) after that. Assuming family adjustment with an elasticity of 0.55 ('policy based scale') and an age-need increase rate of 0.8% before and after age 45, the equivalent income would then be defined as:

$$EI = DPI / (S^{0.55} * 0.992^{|45-age|})$$

where EI: equivalent income
DPI: disposable income
S: family size

This view implies that need (for any given family size) for a 25 (or 65) year old person is estimated to be 85% of a person of age 45. In other words, the Engel curves for basic goods are assumed to be flatter for the young and the old population. Rainwater (1988) shows for 9 OECD countries (around 1980), that adjusting for the age of the family head in this way decreases the overall low-income rate for all countries by 10 to 20%. As our study will focus in its second part on the analysis of **non-elderly** families, no adjustment for age will be made when applying equivalence scales.

Is there an interaction between income levels and equivalence (which would complicate the establishment of a simple scale)? In other words, do higher incomes require smaller adjustment factors for large families to estimate the same level of well-being? This can be tested with correlation procedures on estimates from household surveys which include questions on get-along-amounts. However, results from survey-based analyses provide a controversial picture: some studies (e.g. Dubneff 1985) find a negative correlation between income and size elasticity, others (e.g. Rainwater 1990) do not.

C. The effects of different equivalence scales

The present study will use three typical equivalence scales in addition to family and per-capita income for sensitivity tests when analysing relative income positions:

Table 3

Three equivalence scales and corresponding elasticities					
Family size ⁴	EQ1 ¹	EQ2 ²	EQ3 ³	family income	per-capita income
1	1	1	1	1	1
2	1.26	1.50	1.7	1	2
3	1.44	1.88	2.2	1	3
4	1.58	2.18	2.7	1	4
5	1.70	2.40	3.2	1	5
6	1.81	2.63	3.7	1	6
7	1.90	2.85	4.2	1	7
elasticity	0.33	0.55	0.73	0	1

Notes:

¹ EQ1 corresponds to equivalence scales, typically derived by self-assessment through surveys

² EQ2 corresponds to most equivalence scales inherent in many national social programmes; it also has been used as poverty measure in OECD (1976)

³ EQ3 corresponds to the equivalence scale suggested in OECD Social Indicators (1982)

⁴ The figures shown assume that the third and higher members of the family are children

Equivalence scales derived by self-assessment from households (EQ1) typically underestimate the costs of additional family members. 'Statistical' equivalence scales (EQ3) represent one extreme in the possible choice. 'Policy based' scales (EQ2) represent values which are inherent in many social programmes of OECD member countries, and also come quite close to equivalence values found in several surveys on household consumption expenditures.

Choosing a particular equivalence scale, emphasis has to be given to the arithmetic effects on the number of the low-income population, its composition, and the relative positions of countries in comparison. The research of Buhmann et. al. (1988) suggests that, in general, poverty rates are lower at higher elasticities. It should be noted, however, that this is not a linear function and that one can get 'u-shape' results when including the two benchmark values for e, 0 and 1. Chart 1 shows that this holds true for all the 13 OECD countries under review. This means that one cannot simply calculate low-income rates for two extreme equivalence scales and assume that intermediate scales would lead to intermediate low-income estimates (Coulter et.al 1991). In some countries (Australia, Austria, Sweden), the low-income

rate, defined here at the 50%-level, is reduced by one third or more when shifting from EQ1 to EQ3. In the other countries the adoption of different equivalent scales does not have a significant impact on overall low-income levels. Also, the ranking of countries is, in general, not affected by the use of different equivalent scales (with the notable exceptions of the three countries already mentioned).

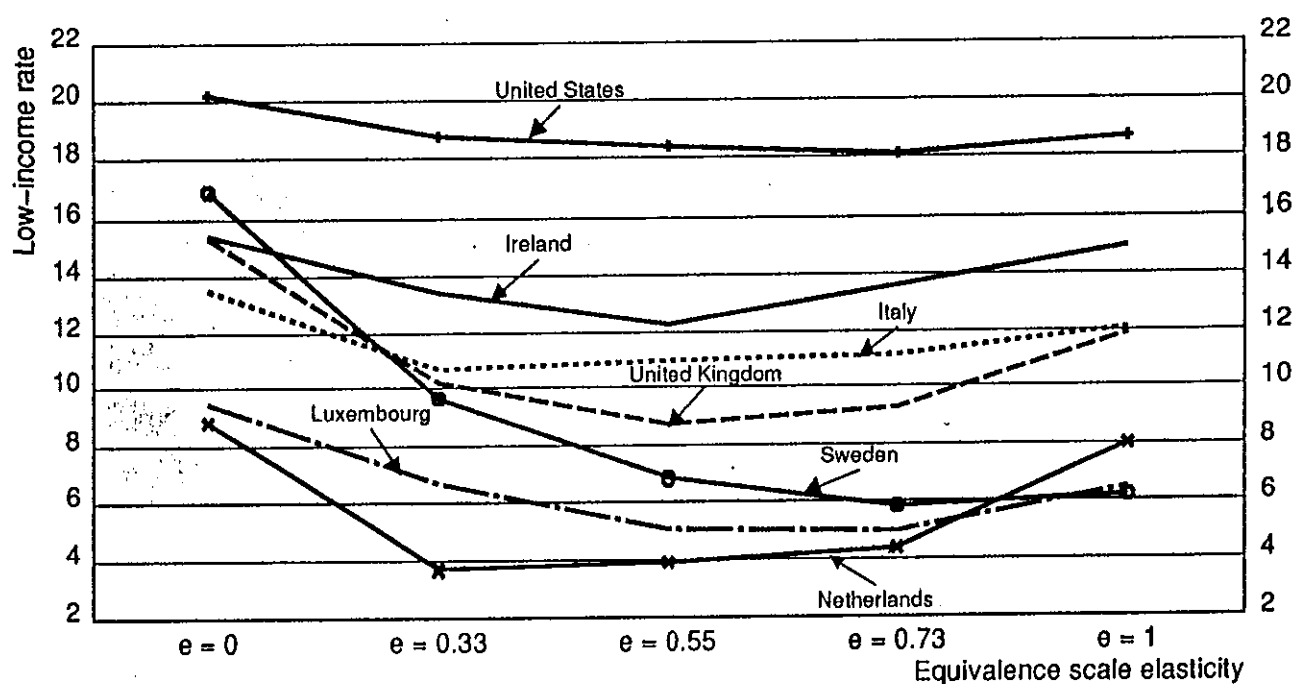
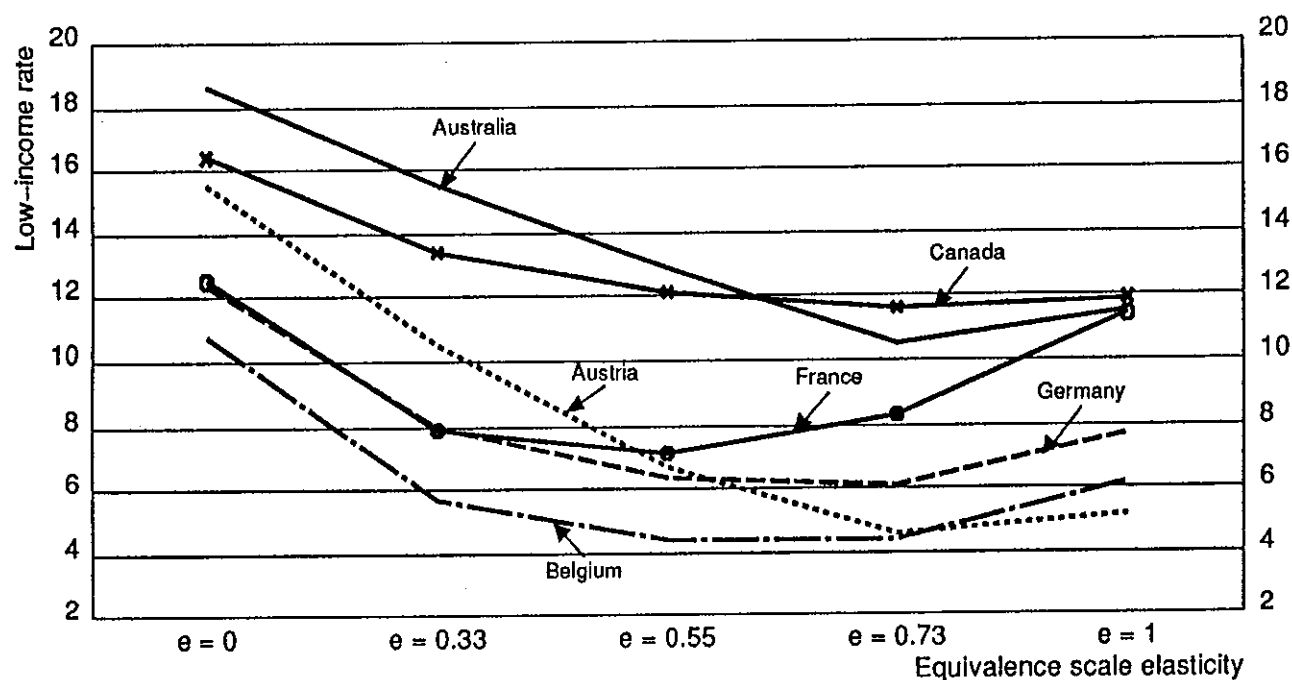
As to the composition of the poor population, almost by definition, the larger the elasticity, the greater the share of large families (thus children) among the poor population and the smaller the share of single persons (thus elderly) and older married couples. To illustrate the extent of these effects, it has been shown that per centage shares in low income of specific demographic groups, such as couples with two or more children, may double (or triple for some countries) when shifting from a low e-value (0.25) to a high one (0.72) (Buhmann et.al. 1988). However, at the same time the ranking of countries in cross-country comparison does not change dramatically, neither for low-income rates, nor for population shares (due to similar overall family structures in industrialised countries). Also, it has been shown that a "specific equivalence scale chosen does not affect the conclusion about trends very much, especially if one gives less weight to the extreme cases." (Jenkins 1991, on results for the UK)

Table 4 analyses the arithmetic effects of equivalence scales on age-specific low-income rates. It can be shown that low-income rates are extremely sensitive to the choice of the equivalence scale, particularly for the elderly population (families with a head aged over 60). This is true for all countries with the exception of Italy. In a majority of countries, also the low-income rates for young families may double when shifting from a per-capita equivalence basis to a low elasticity. **Table 4** also shows that countries with practically no sensitivity of overall low-income rates may have quite important age-specific sensitivities, as is the case for Germany.

The second part of the paper (chapters V, VI and VII) analyses the relative income positions among non-elderly families which eliminates the upper part of the age-specific sensitivity problem. As the focus will be on the action of the state to alleviate poverty among this population, EQ2 without age-adjustment will be used, the scale described above as 'policy based' scale.

Chart 1

Sensitivity of low-income rates to different elasticities



Source: LIS micro data base

Note: Low-income rate defined as percentage of persons in families with incomes below 50% of the median adjusted income

Table 4
Sensitivity of low-income rates (50%-level) to different equivalence scales, by age of the family head

		Head aged under 25	Head aged 25 to 34	Head aged 35 to 49	Head aged 50 to 59	Head aged 60 and over	All families
Australia 85/86	EQ1(e=0.33)	30.6	14.0	9.4	9.6	31.2	15.5
	EQ2(e=0.55)	26.2	14.3	10.4	7.1	17.4	12.9
	EQ3(e=0.72)	20.4	15.1	10.8	5.3	5.4	10.5
	EQ4(e=1)	18.9	16.9	13.0	5.8	3.8	11.5
Austria 87	EQ1(e=0.33)	14.8	5.9	2.9	5.1	24.9	10.5
	EQ2(e=0.55)	10.2	5.5	2.8	3.5	13.5	6.7
	EQ3(e=0.72)	8.6	5.5	3.6	2.0	6.0	4.6
	EQ4(e=1)	7.8	9.2	5.9	1.5	2.7	5.2
Belgium 85	EQ1(e=0.33)	12.7	4.7	3.1	4.2	12.3	5.7
	EQ2(e=0.55)	9.0	4.5	3.0	3.3	7.4	4.4
	EQ3(e=0.72)	7.0	5.3	3.9	3.7	4.8	4.4
	EQ4(e=1)	7.5	6.3	8.1	4.2	4.1	6.2
Canada 87	EQ1(e=0.33)	34.9	13.8	9.6	9.7	18.4	13.4
	EQ2(e=0.55)	30.4	13.8	10.8	9.2	10.6	12.1
	EQ3(e=0.72)	26.9	14.4	11.2	8.0	7.6	11.6
	EQ4(e=1)	21.2	16.4	12.6	7.4	5.6	11.9
France 84	EQ1(e=0.33)	14.8	5.7	5.2	10.6	11.8	7.9
	EQ2(e=0.55)	9.6	6.9	6.3	10.8	5.1	7.1
	EQ3(e=0.72)	10.2	8.5	8.3	11.9	4.7	8.3
	EQ4(e=1)	9.7	13.1	12.9	14.4	4.3	11.4
Germany 84/85	EQ1(e=0.33)	30.5	9.3	2.8	5.3	15.4	8.0
	EQ2(e=0.55)	25.2	9.4	3.5	5.4	7.9	6.4
	EQ3(e=0.72)	21.1	9.1	4.9	4.9	5.4	6.1
	EQ4(e=1)	13.9	11.3	8.2	7.5	3.8	7.7
Ireland 87	EQ1(e=0.33)	41.8	12.3	11.3	10.5	17.9	13.3
	EQ2(e=0.55)	35.8	15.3	14.0	8.7	6.5	12.3
	EQ3(e=0.72)	35.8	18.0	16.7	8.9	5.0	13.6
	EQ4(e=1)	31.3	19.8	19.4	9.2	4.5	14.9
Italy 86	EQ1(e=0.33)	23.1	10.4	7.4	7.9	19.0	10.7
	EQ2(e=0.55)	23.4	11.5	9.0	9.9	15.0	11.0
	EQ3(e=0.72)	28.2	11.7	10.4	10.4	12.4	11.2
	EQ4(e=1)	26.1	10.7	13.2	11.4	11.1	12.1
Luxembourg 85	EQ1(e=0.33)	16.8	6.0	1.7	5.1	18.3	6.7
	EQ2(e=0.55)	11.0	6.2	2.1	3.8	10.9	5.1
	EQ3(e=0.72)	11.0	5.6	4.1	3.8	6.5	5.0
	EQ4(e=1)	14.8	7.5	8.4	3.8	2.8	6.5
Netherlands 87	EQ1(e=0.33)	15.0	3.1	3.7	3.7	2.5	3.7
	EQ2(e=0.55)	8.7	3.4	4.6	3.9	2.1	3.9
	EQ3(e=0.72)	6.5	4.4	5.4	3.9	2.0	4.4
	EQ4(e=1)	7.4	8.7	10.1	7.9	2.9	8.0
Sweden 87	EQ1(e=0.33)	35.7	5.9	3.9	4.6	13.0	9.7
	EQ2(e=0.55)	28.6	5.4	4.0	4.0	4.9	6.8
	EQ3(e=0.72)	24.4	5.7	4.5	3.8	1.7	5.9
	EQ4(e=1)	18.7	7.2	6.5	4.2	1.1	6.2
United Kingdom 86	EQ1(e=0.33)	19.1	10.5	7.1	6.8	15.4	10.2
	EQ2(e=0.55)	16.4	12.4	8.5	6.0	5.6	8.7
	EQ3(e=0.72)	15.2	15.4	10.4	6.0	2.6	9.3
	EQ4(e=1)	17.3	21.7	13.7	6.8	2.1	11.9
United States 86	EQ1(e=0.33)	44.1	21.1	12.9	13.3	24.6	18.8
	EQ2(e=0.55)	39.4	22.6	14.3	12.6	19.9	18.4
	EQ3(e=0.72)	37.6	23.7	15.1	12.9	15.7	18.1
	EQ4(e=1)	35.6	25.3	17.7	13.8	11.7	18.7
AVERAGE	EQ1(e=0.33)	25.7	9.4	6.2	7.4	17.3	10.3
	EQ2(e=0.55)	21.1	10.1	7.2	6.8	9.7	8.9
	EQ3(e=0.72)	19.5	11.0	8.4	6.6	6.1	8.7
	EQ4(e=1)	17.7	13.4	11.5	7.5	4.7	10.2

Source: LIS micro data base.

D. Definition of the reference population

A final methodological question to be answered refers to the definition of the reference unit of observation: the household or the family? Since there are multi-family households, opting for a family definition as the reference unit means a certain degree of "per-capitalisation" of household income. It has been shown (Milanovic 1992: 8) that "calculated progressivity and targeting of transfers", which we will be interested in in chapter VII, "increases with per-capitalisation of incomes". The argument for choosing the household as the reference unit is the observation that economies of scale and shared resources exist in a same household notwithstanding marriage or blood relationship among its members. On the other hand, the interest of the analysis in chapters V and VII of the study lies in families with children (e.g. single parent families). Therefore, for this part, non-elderly families (i.e. families with a head below age 60) have been chosen as the reference population where it was possible. Unfortunately, data for Italy and the Netherlands are only available on a household basis.

In general, our poverty estimates were not very sensitive to the choice of the weight (person- od household/family weight), i.e. whether we define poverty as the number of persons living in poor families or as the number of poor families. There is, however, one exception: a particular unit definition for Sweden is likely to result in overestimates for poverty for this country when choosing household (family) weights (see Annex).

An additional question related to the observation unit is: should we speak of children's poverty or of poor families with children? (Children being defined, according to the LIS convention as unmarried persons under the age of 18 living in the household). In many studies, poverty rates are calculated by defining the number of poor children with respect to the total population of children. In the light of the remarks above, the quantitative analysis in the following chapters will primarily investigate in the evaluation of the well-being status of families with children. A standard head-count ratio, for this type of analysis, will be

- the percentage of low-income families with children.

In addition, for specific investigations on 'child poverty' and the effects of net transfers on the population of children (chapters V and VII), the following head-count ratio will be used:

- the percentage of children living in low-income families.

V. SOCIO-DEMOGRAPHIC AND -ECONOMIC CHARACTERISTICS OF THE POOR POPULATION

In the preceding chapters, we have set up the conceptual framework in which the phenomenon of poverty will be studied. This chapter provides some of the basic answers to the question: who constitutes the poor population in affluent countries. It identifies the socio-demographic and -economic key characteristics of the persons and families with low incomes.

Section A summarises an analysis of the composition of the whole population with low incomes, comparing earlier findings for the beginning of the past decade with those derived for the mid- to the end-eighties. The reference population for this analysis are individuals rather than families. Part of this section discusses the issue of child poverty.

Section B then analyses the structure of poor non-elderly families. Low-income rates at the levels of 40 %, 50 % and 60 % of the median income are presented for socio-demographic key characteristics of families, such as the size of the family, the presence of children, the age of the family head and the marital status.

A note on terminology

As set out in chapters II and III, we define the 'poor population' in terms of their relative income position in their society. We prefer using the term 'low-income rate' to 'poverty rate' in the tables which follow so that this choice remains apparent. The cut-off lines are set at 40%, 50% and 60% of the median disposable equivalence adjusted income, where the population share falling below may be interpreted in the following way:

- below 40%: the very poor population
- below 50%: the poor population
- below 60%: the population near poverty

A. Persons living in families with low incomes: past and recent findings

Past analysis of the first countries participating in LIS (referring to a benchmark date between 1979 and 1981) (e.g. Hauser/Fischer 1985; Mc Fate/Fischer 1989; Rainwater 1988 and 1989; Smeeding 1989) has shown that the risk of having a low income is higher for persons living in

- large families
- lone parent families, in particular those headed by a mother
- families headed by aged persons
- families with three and more children

This is still true for the mid- and late eighties. We have carried out a similar type of analysis for a benchmark year between 1984 and 1987; we have compared poverty rates corresponding to 40%, 50% and 60% of the median disposable equivalent income, for sub-groups of the total population of individuals (tables not shown).

Age and size structure

The main findings concerning the age and size structure of poor families are as follows. Across all countries studied, persons living in large families

and persons living alone have substantially higher poverty rates, as well is the case for very young and elderly persons (persons aged under 25 and over 65). The intensity, however, is quite different: whereas poor people in large families and poor young people are clustered in the very lowest income segments (below 30% and 40% of the median income), elderly persons and singles (who are, in fact, in the majority old persons) are concentrated in the segments near the highest cut-off-lines (60% of the median income). For these latter groups, low-income rates at the 40% level are quite similar to the overall average of the population. This may indicate that in the 13 countries analysed, social security provisions increasingly helped to keep old people out of situations of very low incomes.

The marital status of persons with low incomes

Comparing results for the two benchmark periods, we have confirmed that single parents, in particular single mothers, have very high poverty rates in all low-income segments (outstanding high ones in Australia, Canada and the United States). At the same time there is evidence for the fact that the proportion of these families in the total population has been growing between the early eighties and the mid-eighties and since then (OECD 1990a).

Child poverty?

Large and very large families are likely to consist, in the majority, of families with many children. In some countries (Australia, United Kingdom, United States), poverty research is increasingly focused on children *per se*, comparing well-being levels for children with those for adults. Chart 2 illustrates such an approach, analysing low-income rates at the 40% - as well as at the 50% level, for all persons and for children. It shows that child poverty is, in general, lower than adult's poverty, except for the United States (at both low-income levels), Canada (in the 50% segment) and Australia (40% segment), but also for three European countries when moving to lower income segments: Ireland, Italy and the United Kingdom.

There is much to often a **moral dimension** in the debate on child poverty because children are seen as the most vulnerable members of society (due to their dependency and non-earning capacity). Moreover, we are interested here in **economic factors**. If we accept the assumption that today's poor children are likely to become tomorrow's poor adults (with all the counter-productive consequences on the economy) and when we compare the picture given in Chart 1 between, say Germany and the United States, we could expect for the future an even higher difference in overall poverty between these two countries, **potentially**. One of today's policy debates is therefore whether this could be avoided by targeting transfer policies on 'children at risk'.

The economic well-being of a child is determined by the well-being level of the family he or she is living with. As we are not able to study and to assess across countries in detail the socio-individual patterns within families (intra-generational distribution of wealth, individual social pathologies etc.) we will be considering in the following analysis the well-being of families with children when discussing poverty related to children (except in section C of chapter VII).

Conclusion

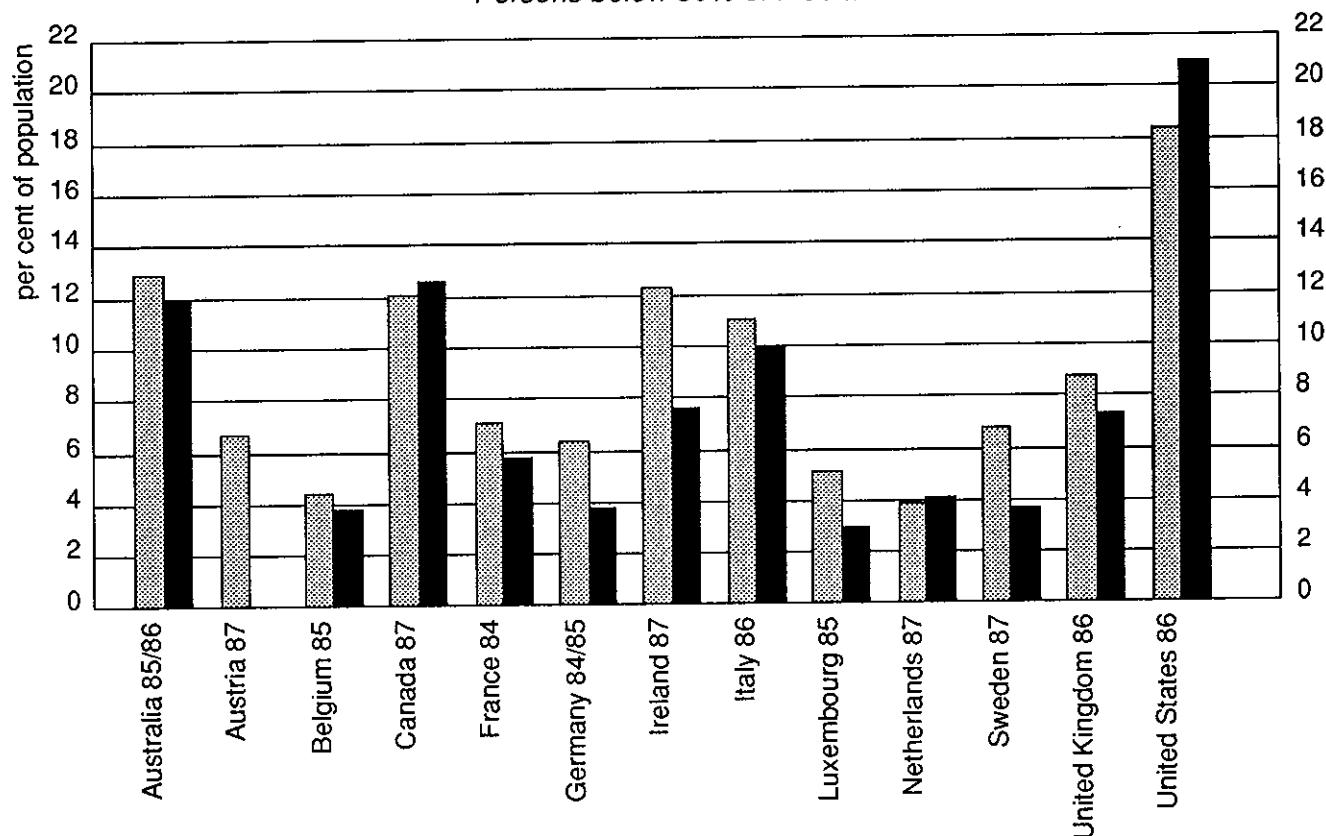
What is therefore 'new' about poverty patterns is the growing number of families in their working age having not enough incomes to participate in the mainstream of society (be it lone parents, young families, families with many children). The remaining part of the quantitative analysis of low incomes will therefore focus on non-elderly families.

Chart 2

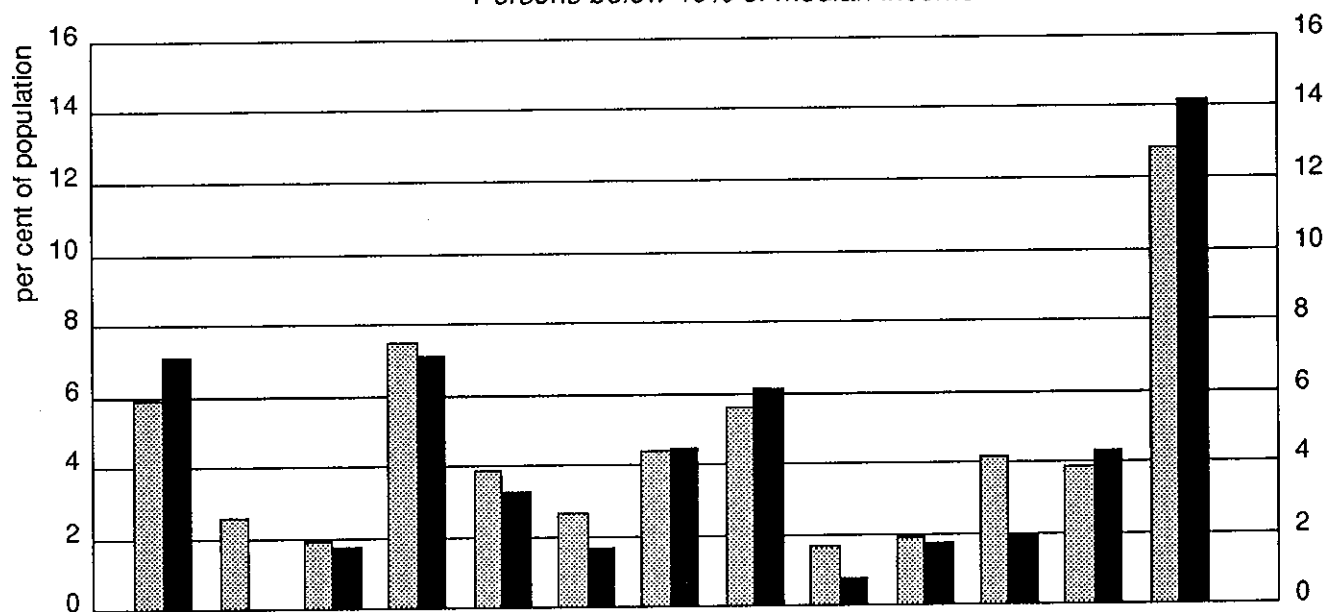
Percentages of persons in families with low incomes

 All persons
 Children

Persons below 50% of median income



Persons below 40% of median income



Source: LIS micro data base

Income concept: disposable income adjusted for family size ($\alpha=0.55$)

B. The socio-demographic structure of poor non-elderly families

Non-elderly families are defined, by convention, as families with a head under the age of 60. The reason for choosing this age is that we try to exclude old-age pensioners from the reference population; taking into account the actual (average) retirement ages in the countries studied (see OECD 1988: 78), 60 seems to be a reasonable cut-off age. Also, the low-income cut-off lines refer to percentages of the median equivalent disposable income of this population. The amounts of these medians are shown in the Annex.

The size of the family

Table 5 shows low-income rates by family size. Throughout all countries, large families with six or more family members and persons living alone have a higher risk of being poor. We can distinguish two different country patterns. In one group of countries, low-income rates are particularly high for singles but less so for large families: Austria, Belgium, Canada, Germany and Sweden. In another group, the situation is inverse (i.e. significantly higher poverty among large families than among singles): Ireland, Italy, the Netherlands, the United Kingdom and the United States.

The presence of children

An interesting finding is revealed in **table 6**. The presence of children, *per se*, is not a predominant factor for poverty. In fact, in one third of the countries studied, families without children face a higher risk of being poor than those with children (in particular in the segments of below 40 % and 50 % of the median). Arguments which correlate child poverty with **general** fertility behaviour (e.g. Smeeding 1989) might therefore be misleading. Also, in most of the countries, there is no particular difference in poverty between families having one child and those having two children. However, when three or more children enter into the family, low-income rates become significantly higher, with the notable exception of Belgium and Sweden. Results for families with more than three children are not shown separately, because they represent only 2% (Germany) to 5% (United States) of all the families (their low-income rates are as high as 40 - 50% in some countries). A resulting policy conclusion would be to concentrate on large families with many children, when regarding family and child allowance provisions (unless other considerations, such as the growth of the national population are preponderant).

The age of the family head

What is the effect of the age of the family head on low-income incidence? The results in **table 7** illustrate quite well the observation of variations of income over the lifecycle. This dates back to Rowntree according to whom poverty risks decrease with age until the end of a working career and then increase again. (It should be noted, however, that the analysis presented here refers to income differences of different age groups at one point in time, and not to the fluctuation over time for the same family).

Young families have by far the lowest incomes notwithstanding where the line is drawn (two to three times higher than the average, except in France). Apart from the fact that earnings are relatively lower at the beginning of a professional career, this high incidence of low incomes among the young

population in the mid-eighties may be explained by the absence of earnings due to education and non-activity and, particularly, unemployment. The column to the right of table 7 shows the national youth unemployment index according to which the youth unemployment rate for the corresponding year was between 1 ½ to 3 times higher than the total unemployment rate. There is, however, no correlation between the extent of over-representation of youth unemployment and the extent of poverty among young families across countries.

It is interesting to compare age-specific patterns in two countries with similar levels of overall poverty levels, France and Germany: whereas in Germany low-income rates seem to decrease continuously with increasing age (until 60), poverty in France is higher for families at the beginning and towards the end of their working career.

The marital status

In table 8 the marital status of the family head in connection with the presence of children is analysed. As expected, families where the head is a single person have a higher incidence of poverty than married couples throughout all countries. Couples without children have low-income rates below the average whereas those who have children are closer to the average.

Lone parent mothers have, in general, very high low-income rates. The situation is most dramatic in the three non-European countries: one out of two single mothers in the United States and in Australia, and one out of three in Canada are very poor (income below 40% of the median income). This contrasts with the experience of some European countries, in particular Sweden (rate of 4% in the lowest segment) but also the Netherlands, Luxembourg and Belgium (rates under 10%) which might indicate a relative success of child care and family allowance policy.

This picture gets even much sharper when comparing young single parent families across countries. Table 9 shows that a clear majority of young single parents have incomes below 50% of the median in Australia, Canada and the United States whereas in the Netherlands and Sweden their respective low-income rates do not exceed the national average for non-elderly families. In Belgium, Italy, the Netherlands and Sweden, young single parents are relatively better off than older ones which contrasts all other country experiences. The age factor plays much less a role for couples with children, although in half of the countries young couples with children face a higher poverty risk than older ones.

In general, when comparing families with children across countries, poverty (at the 50% level) is highest in Australia (young and adult single parents), the United States (elderly single parents), the United Kingdom (young couples with children) and in Ireland (adult and elderly couples with children).

Ages of children

What is the role of the age of a child, or a particular age combination of children in a family for the low-income status of their family? Sometimes it is claimed that the youngest among the children have the highest exposure to poverty (e.g. Harris 1989). We tried to investigate if there is any relationship between children's ages and poverty - but did not find any, no

matter which equivalence scale we used or how ages were regrouped (for example near birth, preschool, primary school, secondary school). This finding corresponds to recent results based on a correlation analysis of families with children in several countries in which the variable "age of the child" was found to be the only non-significant one (Gornick/Pavetti 1990).

Conclusion

Socio-demographic characteristics were found to be significant for the low-income status of non-elderly families for at least three cases: young families, single mothers, and large families with many children. Differences in poverty levels across countries are rather pronounced, especially in the case of single parents. Chapter VII, which will study the role of governments' tax and transfer policies to alleviate poverty, will therefore focus in its analysis on families with many children and single parent families.

Table 5
Low-income rates of non-elderly families, by size of family

		1 family member	2 family members	3 family members	4 family members	5 family members	6 and more fam members	All families
Australia 85/86	< 40%	9.8	8.7	9.9	6.4	10.6	11.2	8.9
	< 50%	19.5	15.2	14.9	10.3	19.5	17.9	15.7
	< 60%	23.7	18.6	18.8	16.9	29.2	32.4	21.3
Austria 87	< 40%	6.3	3.4	1.6	0.6	(a)	(a)	3.0
	< 50%	12.5	6.3	2.6	1.8	3.6	(a)	6.2
	< 60%	19.2	11.4	6.3	6.1	9.1	6.3	11.2
Belgium 85	< 40%	4.8	3.1	2.3	1.3	1.0	2.4	2.3
	< 50%	11.1	5.7	6.0	3.4	2.9	6.8	5.4
	< 60%	17.1	10.6	11.5	9.6	11.7	17.0	11.6
Canada 87	< 40%	18.4	8.5	9.7	5.4	6.3	12.6	10.5
	< 50%	25.0	12.5	13.2	9.4	12.7	18.7	15.4
	< 60%	31.5	16.3	19.4	14.6	18.2	32.1	21.1
France 84	< 40%	10.2	5.2	3.8	3.6	4.2	6.0	5.2
	< 50%	14.4	7.9	7.1	7.1	9.8	11.6	8.9
	< 60%	18.3	12.8	13.3	12.7	18.2	25.6	15.0
Germany 84/85	< 40%	7.8	3.4	2.9	1.2	2.6	2.6	3.8
	< 50%	17.4	5.5	6.7	4.4	6.5	9.4	8.5
	< 60%	23.6	8.7	11.8	13.9	13.4	15.9	14.5
Ireland 87	< 40%	8.2	5.3	5.4	6.0	4.1	5.8	5.4
	< 50%	14.3	10.7	15.3	15.3	15.6	19.4	15.7
	< 60%	24.5	17.3	19.8	23.3	25.4	26.5	23.4
Italy 86	< 40%	6.5	4.3	4.1	5.1	10.1	9.8	5.6
	< 50%	13.7	7.6	6.5	10.1	15.3	20.3	10.1
	< 60%	16.0	16.3	11.4	17.7	27.0	27.7	17.3
Luxembourg 85	< 40%	1.6	1.7	2.2	1.1	(a)	(a)	1.6
	< 50%	3.7	4.2	4.4	3.4	8.8	7.5	4.5
	< 60%	10.6	7.5	9.0	13.2	15.2	11.9	10.5
Netherlands 87	< 40%	2.0	1.3	2.7	2.0	4.7	13.8	2.4
	< 50%	5.5	2.5	4.6	3.3	8.1	22.3	4.7
	< 60%	9.0	5.1	14.2	11.4	22.2	39.4	11.3
Sweden 87	< 40%	16.3	2.1	1.8	1.7	2.7	(a)	8.9
	< 50%	21.2	3.2	3.3	3.6	4.5	(a)	12.1
	< 60%	26.7	5.6	5.6	5.6	7.2	11.1	16.0
United Kingdom 86	< 40%	5.9	4.2	5.3	6.5	5.6	9.9	5.6
	< 50%	11.5	8.5	12.7	13.8	15.1	24.4	12.4
	< 60%	20.8	16.0	20.2	22.4	24.0	36.6	20.6
United States 86	< 40%	17.1	11.3	12.9	11.3	13.7	26.2	13.9
	< 50%	21.6	15.4	18.0	15.2	20.5	34.6	18.7
	< 60%	28.5	19.5	23.4	20.8	27.8	41.1	24.4
AVERAGE	< 40%	8.8	4.8	5.0	4.0	-	-	5.9
	< 50%	14.7	8.1	8.9	7.8	11.0	-	10.6
	< 60%	20.7	12.7	14.2	14.5	19.1	24.9	16.8

Source: LIS micro data base.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

(a) sample size too small

Table 6
Low-income rates of non-elderly families, by presence of children

		Families without children	Families with one child	Families with 2 children	Families with 3 or more children	All families
Australia 85/86	< 40%	6.5	10.5	10.4	14.3	8.9
	< 50%	13.2	17.2	15.3	24.5	15.7
	< 60%	16.7	21.5	22.7	36.8	21.3
Austria 87	< 40%	n.a.	n.a.	n.a.	n.a.	3.0
	< 50%	n.a.	n.a.	n.a.	n.a.	6.2
	< 60%	n.a.	n.a.	n.a.	n.a.	11.2
Belgium 85	< 40%	2.6	2.1	1.4	2.8	2.3
	< 50%	5.5	5.7	3.8	7.3	5.4
	< 60%	10.0	11.6	12.7	20.5	11.6
Canada 87	< 40%	10.9	9.7	8.6	13.7	10.5
	< 50%	15.4	13.9	13.5	23.0	15.4
	< 60%	20.3	19.1	19.4	33.5	21.1
France 84	< 40%	6.2	4.8	3.9	4.6	5.2
	< 50%	9.4	8.3	7.6	10.5	8.9
	< 60%	13.9	14.3	14.0	22.6	15.0
Germany 84/85	< 40%	4.4	3.4	1.7	5.2	3.8
	< 50%	9.4	6.3	7.1	12.6	8.5
	< 60%	13.1	12.8	19.8	22.7	14.5
Ireland 87	< 40%	5.1	5.2	6.0	5.9	5.4
	< 50%	8.6	12.9	17.2	21.8	15.7
	< 60%	14.9	19.0	24.5	31.8	23.4
Italy 86	< 40%	4.1	5.1	6.9	12.9	5.6
	< 50%	7.2	9.4	12.8	20.8	10.1
	< 60%	13.1	15.5	22.4	32.8	17.3
Luxembourg 85	< 40%	1.3	2.3	1.8	1.7	1.6
	< 50%	3.0	4.8	4.6	12.1	4.5
	< 60%	6.6	10.1	15.9	22.4	10.5
Netherlands 87	< 40%	1.5	2.6	2.9	6.3	2.4
	< 50%	3.9	3.9	4.8	11.0	4.7
	< 60%	7.4	10.8	14.6	29.2	11.3
Sweden 87	< 40%	12.4	2.2	2.0	2.0	8.9
	< 50%	16.2	3.5	4.3	4.1	12.1
	< 60%	20.7	6.6	7.0	8.1	16.0
United Kingdom 86	< 40%	4.0	5.4	7.7	8.8	5.6
	< 50%	7.3	12.8	16.8	24.7	12.4
	< 60%	12.7	22.5	27.1	38.8	20.6
United States 86	< 40%	11.0	12.4	15.9	28.1	13.9
	< 50%	14.4	18.4	20.9	37.1	18.7
	< 60%	19.4	24.1	27.6	44.5	24.4
AVERAGE	< 40%	5.8	5.5	5.8	8.8	6.2
	< 50%	9.5	9.8	10.7	17.5	11.0
	< 60%	14.1	15.7	19.0	28.6	17.3

Source: LIS micro data base.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

Average excludes Austria

Table 7
Low-income rates of non-elderly families, by age of the family head

		Head aged under 25	Head aged 25 to 34	Head aged 35 to 44	Head aged 45 to 59	All families	Youth unempl index
Australia 85/86	< 40%	17.6	9.5	7.9	5.9	8.9	184
	< 50%	26.2	15.7	13.3	13.9	15.7	
	< 60%	32.2	21.7	18.6	19.2	21.3	
Austria 87	< 40%	9.4	2.6	1.7	2.4	3.0	n.a.
	< 50%	13.5	6.0	4.6	5.6	6.2	
	< 60%	19.8	12.0	8.8	10.1	11.2	
Belgium 85	< 40%	6.2	1.9	1.9	2.1	2.3	n.a.
	< 50%	12.6	5.2	4.6	4.7	5.4	
	< 60%	21.8	11.8	11.0	9.8	11.6	
Canada 87	< 40%	21.6	9.4	9.0	8.2	10.5	156
	< 50%	30.1	14.1	12.7	13.0	15.4	
	< 60%	40.4	19.9	17.3	17.2	21.1	
France 84	< 40%	8.3	3.9	2.9	7.4	5.2	260
	< 50%	11.9	6.7	6.3	12.1	8.9	
	< 60%	19.1	13.0	11.3	18.5	15.0	
Germany 84/85	< 40%	15.0	4.2	2.0	2.2	3.8	123
	< 50%	25.9	11.1	5.3	5.2	8.5	
	< 60%	36.6	17.8	12.8	8.7	14.5	
Ireland 87	< 40%	3.4	5.4	3.8	7.0	5.4	149
	< 50%	24.1	16.5	15.4	14.0	15.7	
	< 60%	34.5	25.9	23.1	19.7	23.4	
Italy 86	< 40%	14.1	5.0	5.2	5.8	5.6	311
	< 50%	23.6	10.1	9.1	10.1	10.1	
	< 60%	38.0	15.7	15.2	18.4	17.3	
Luxembourg 85	< 40%	6.5	1.5	1.0	1.3	1.6	n.a.
	< 50%	6.5	6.1	3.1	3.9	4.5	
	< 60%	17.8	13.5	8.8	8.3	10.5	
Netherlands 87	< 40%	4.3	1.7	2.7	2.1	2.4	156
	< 50%	10.3	3.2	3.9	5.3	4.7	
	< 60%	19.8	8.9	10.3	12.2	11.3	
Sweden 87	< 40%	24.9	4.7	2.9	3.5	8.9	221
	< 50%	31.0	7.2	5.2	5.1	12.1	
	< 60%	38.6	10.6	7.6	7.8	16.0	
United Kingdom 86	< 40%	7.9	5.6	6.1	4.3	5.6	167
	< 50%	18.8	15.0	11.1	8.9	12.4	
	< 60%	32.1	25.1	17.5	15.7	20.6	
United States 86	< 40%	29.9	13.5	10.7	10.9	13.9	184
	< 50%	37.3	19.1	14.4	14.5	18.7	
	< 60%	46.6	25.4	19.7	18.5	24.4	
AVERAGE	< 40%	13.0	5.3	4.5	4.9	5.9	191
	< 50%	20.9	10.5	8.4	8.9	10.6	
	< 60%	30.6	17.0	14.0	14.2	16.8	

Source: LIS data base, OECD Labour Force Statistics 1979-1989, Part III.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

Youth unemployment index = Unemployment rate for persons aged 15 (16) to 24 divided by total unemployment rate.

Table 8

Low income rates for non-elderly families, by marital status of the head of the family and presence of children

		Single male without children	Single female without children	Couple	Single male with children	Single female with children	Couple	All families
Australia 85/86	< 40%	9.0	9.1	3.0	12.5	47.4	6.9	8.9
	< 50%	16.4	20.5	6.5	18.8	66.4	12.2	15.7
	< 60%	19.7	25.5	9.4	28.1	72.5	20.0	21.3
Austria 87	< 40%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3.0
	< 50%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6.2
	< 60%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	11.2
Belgium 85	< 40%	5.6	5.8	1.6	4.5	10.3	1.4	2.3
	< 50%	10.9	12.2	3.6	9.1	20.7	4.2	5.4
	< 60%	16.5	18.5	7.5	13.6	37.9	11.9	11.6
Canada 87	< 40%	15.8	18.4	3.1	9.3	40.3	6.0	10.5
	< 50%	21.7	25.4	5.1	22.2	52.1	10.5	15.4
	< 60%	27.0	33.6	8.0	29.6	61.5	16.6	21.1
France 84	< 40%	9.0	8.9	4.0	7.0	13.3	3.7	5.2
	< 50%	13.2	12.9	6.6	8.1	21.9	7.5	8.9
	< 60%	16.5	17.4	11.5	22.1	33.7	14.3	15.0
Germany 84/85	< 40%	5.2	9.4	2.0	(a)	19.1	2.1	3.8
	< 50%	13.0	19.1	3.9	(a)	38.8	5.5	8.5
	< 60%	18.3	26.1	5.6	(a)	49.5	14.4	14.5
Ireland 87	< 40%	11.5	(a)	2.5	(a)	20.7	4.9	5.4
	< 50%	19.2	(a)	4.9	(a)	44.8	17.1	15.7
	< 60%	26.9	12.2	9.9	(a)	55.2	25.2	23.4
Italy 86	< 40%	5.7	5.6	3.5	(a)	12.6	6.5	5.6
	< 50%	8.4	12.5	5.9	(a)	21.1	11.7	10.1
	< 60%	11.0	20.3	11.9	(a)	28.1	19.9	17.3
Luxembourg 85	< 40%	(a)	1.7	1.1	(a)	7.8	1.4	1.6
	< 50%	(a)	5.0	2.8	(a)	17.6	4.9	4.5
	< 60%	7.3	11.7	5.2	(a)	31.4	13.0	10.5
Netherlands 87	< 40%	2.7	1.9	0.8	(a)	7.2	2.9	2.4
	< 50%	6.1	6.3	1.6	(a)	10.6	4.8	4.7
	< 60%	9.5	12.6	3.8	(a)	34.4	13.6	11.3
Sweden 87	< 40%	15.6	17.4	1.9	(a)	4.0	1.6	8.9
	< 50%	20.0	22.9	2.8	(a)	6.0	3.2	12.1
	< 60%	25.2	28.9	4.1	14.3	13.9	5.2	16.0
United Kingdom 86	< 40%	4.8	5.7	3.0	10.3	10.1	6.4	5.6
	< 50%	9.0	11.1	5.2	15.5	30.4	14.5	12.4
	< 60%	14.6	21.0	8.9	25.9	58.0	22.4	20.6
United States 86	< 40%	13.3	19.9	4.4	12.6	49.6	9.1	13.9
	< 50%	17.1	25.8	6.1	20.8	59.8	14.2	18.7
	< 60%	22.7	33.4	9.1	28.5	66.0	20.7	24.4

Source: LIS micro data base.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

(a) sample size too small

Table 9

Low income rates for non-elderly single and couple parents by age of the head of the family

		Single Parents			Couples with children		
		under 30	30-44	45-59	under 30	30-44	45-59
Australia 85/86	< 40%	59.0	36.4	17.4	8.9	6.8	5.8
	< 50%	79.5	51.7	28.3	17.9	11.3	11.4
	< 60%	85.9	57.6	39.1	27.2	18.9	18.7
Belgium 85	< 40%	5.4	10.2	14.3	1.9	1.2	1.7
	< 50%	24.3	15.9	28.6	5.8	3.7	3.8
	< 60%	51.4	28.4	28.6	12.9	11.3	12.8
Canada 87	< 40%	60.8	28.5	25.4	10.0	5.4	4.1
	< 50%	70.8	42.7	31.7	17.4	9.3	8.2
	< 60%	82.5	50.9	39.7	29.0	14.6	12.1
France 84	< 40%	22.0	7.4	18.3	4.0	2.4	7.1
	< 50%	34.7	13.0	24.2	5.8	5.7	14.1
	< 60%	46.6	25.9	35.8	13.7	11.9	22.1
Germany 84/85	< 40%	50.8	13.7	8.2	6.3	1.4	1.4
	< 50%	62.7	32.6	24.6	13.4	4.8	3.1
	< 60%	76.3	41.9	41.5	27.5	14.8	6.9
Ireland 87	< 40%	33.3	14.3	9.1	6.3	4.0	5.9
	< 50%	50.0	38.1	18.2	22.5	16.9	14.3
	< 60%	83.3	47.6	27.3	35.0	25.3	18.5
Italy 86	< 40%	6.3	10.7	13.8	9.0	5.4	7.7
	< 50%	15.6	18.0	22.0	14.2	10.4	13.4
	< 60%	25.0	20.5	37.4	23.1	17.6	23.1
Luxembourg 85	< 40%	10.0	9.7	5.3	5.1	0.5	1.9
	< 50%	40.0	19.4	5.3	10.1	3.4	5.8
	< 60%	80.0	29.0	10.5	20.2	11.8	11.0
Netherlands 87	< 40%	6.4	5.8	12.5	5.6	2.5	2.9
	< 50%	6.4	13.2	12.5	8.2	3.7	6.8
	< 60%	21.3	36.4	37.5	22.6	11.6	15.5
Sweden 87	< 40%	6.7	2.7	4.8	0.9	1.5	2.4
	< 50%	6.7	5.3	9.5	2.6	3.3	3.0
	< 60%	15.6	14.2	9.5	4.4	5.4	5.4
United Kingdom 86	< 40%	9.6	11.8	6.8	8.7	6.2	4.4
	< 50%	40.4	24.5	16.4	23.1	12.8	11.5
	< 60%	76.5	46.6	30.1	33.8	20.2	18.3
United States 86	< 40%	65.9	39.6	24.6	14.6	7.4	8.1
	< 50%	78.4	48.3	34.7	22.9	12.1	11.3
	< 60%	81.7	55.2	44.5	33.8	17.8	15.3
AVERAGE	< 40%	28.0	15.9	13.4	6.8	3.7	4.5
	< 50%	42.5	26.9	21.3	13.7	8.1	8.9
	< 60%	60.5	37.8	31.8	23.6	15.1	15.0

Source: LIS micro data base.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

VI. ALTERNATIVE MEASURES TO ANALYSE LOW INCOMES AND TO EVALUATE ANTI-POVERTY POLICIES

A. The low-income gap

Up to now, we restricted the discussion on concepts for poverty estimates to comparisons of head-count ratios, i.e. the number of persons, or families, with low incomes as a proportion of the total population. This simple indicator, the so-called low-income rate provides useful information on the incidence of low-income situations but do not capture the intensity of such situations, i.e. how far the low-income population falls below a given cut-off-line. Let us consider two countries as shown in table 10 below, having the same population (1 000 000) and low-income-line z . Although Country I has a higher low-income rate than Country II, the amount necessary to pull all families out of low income would be one and a half time higher for Country II. Policy considerations might therefore differ when there is a lack of information on the intensity of low incomes.

Table 10

Head counts and distance

	number of low-income families	low-income rate	average income of these families	z	necessary amount
Country I	12 000	12%	10	15	60 000
Country II	10 000	10%	6	15	90 000

A common way to representing this intensity is the average low-income gap (ALG), which is defined as the difference between the average income of the low-income population and the low-income line, as a percentage of that line. Head-count ratio (LIR) and average low-income gap (ALG) are written in the following way:

$$LIR = q / n$$

$$ALG = (z - \bar{y}_q) / z = (1/q) * \sum_{i=1}^q (z - y_i) / z,$$

where q : number of persons having incomes below z

n : total population

z : low-income cut-off-line

y_i : income of the i^{th} individual of the low-income population

When ALG is multiplied with the absolute number of people with low incomes and expressed as a percentage of GDP or social expenditures rather than z , it provides an illustrative measure for the magnitude of the part of the budget which has to be spent in order to pull all people out of situations of

poverty. Such estimates are illustrated in table 11: it can be seen that the percentage of GDP theoretically necessary to eliminate poverty below 40% of the median income would in no country except the United States be bigger than one percent. At the 60% level, low-poverty countries would have to spend around 0.6 to 0.8% of their GDP to pull persons out of poverty. In high-poverty countries, this percentage is between 1.5% and 2.5%, in the remaining countries around one percent.

For the purpose of cross-country comparison, an indicator which captures both, incidence and intensity of low incomes, will be presented: the low-income index (LII) is defined as:

$$LII = LIR * ALG * 100$$

The first three columns in table 12 show low-income rates, average low-income gaps and low-income indices using three different low-income levels (40, 50 and 60% of the median adjusted income). (Note: the last three columns will be discussed further below in section B) The data refer to non-elderly families (families with a head under age 60) as the following chapters will analyse this reference group. In general, average low-income gaps are well below the average for Austria and Germany, and above average for Sweden and the United States.

It is interesting to note that for half of the countries the low-income gaps are significantly higher for very poor families (below 40%): Belgium, France, Luxembourg, the Netherlands and the United Kingdom. In these countries, the part of non-elderly families which has very low incomes is, on average, also far below the cut-off-line. In the other group (Australia, Austria, Canada, Germany, Italy, Sweden, United States), the average income shortfall is about the same in each of the three low-income levels.

It can be shown that countries with similar levels of low-income incidence might, in fact, experience quite different patterns as to the intensity of low incomes of the population concerned. This is for example the case for the Ireland and Italy (at the 40% level), France and Germany (at the 50% level), or Canada and the United Kingdom (at the 60% level): in the latter of these countries, respectively, the same proportion of families with low incomes is relatively better off.

Which conclusions can be drawn with the help of the low-income index? Table 13 compares the change in ranking of countries when using either the LIR or the LII measure, at the 50% level. Whilst there is no change for the bottom (Luxembourg, Netherlands, Belgium, Austria) and the very top end (United States) of the country list, we observe a considerable variation for the rest of the countries. Sweden, ranked eighth on the LIR scale, has a higher low-income index than the United Kingdom, Ireland and Australia (we should, however, bear in mind the remarks about the sensitivity of the Swedish results to the household weighting, made in chapter IV, section D and in the Annex). On the other hand, both Ireland and the United Kingdom show lower rankings on the LII than on the LIR scale.

Table 11

Proportion of GDP and social expenditures which would have to be spent to pull all persons out of poverty

		percent of GDP	percent of social expenditures
Australia 85/86	<40% of median	0.4	2.1
	<50% of median	0.8	4.0
	<60% of median	1.4	7.2
Austria 87	<40% of median	0.1	0.2
	<50% of median	0.3	0.8
	<60% of median	0.6	2.0
Belgium 85	<40% of median	0.1	0.3
	<50% of median	0.3	0.8
	<60% of median	0.7	2.0
Canada 87	<40% of median	0.4	1.7
	<50% of median	0.9	3.7
	<60% of median	1.6	6.7
France 84	<40% of median	0.3	0.8
	<50% of median	0.6	1.9
	<60% of median	1.3	3.9
Germany 84/85	<40% of median	0.1	0.4
	<50% of median	0.3	1.1
	<60% of median	0.8	2.7
Ireland 87	<40% of median	0.4	1.5
	<50% of median	0.9	3.1
	<60% of median	1.6	5.8
Italy 86	<40% of median	0.3	1.0
	<50% of median	0.6	2.3
	<60% of median	1.2	4.4
Luxembourg 85	<40% of median	0.1	0.3
	<50% of median	0.3	1.0
	<60% of median	0.7	2.3
Netherlands 87	<40% of median	0.2	0.4
	<50% of median	0.4	1.0
	<60% of median	0.8	2.1
Sweden 87	<40% of median	0.2	0.5
	<50% of median	0.4	1.0
	<60% of median	0.7	1.8
United Kingdom 86	<40% of median	0.4	1.3
	<50% of median	0.8	2.7
	<60% of median	1.4	5.0
United States 86	<40% of median	0.8	4.4
	<50% of median	1.5	8.0
	<60% of median	2.5	12.9

Sources: LIS micro data base; OECD Annual National Accounts; OECD Labour Force Statistics; OECD Social Data base
Note: poverty estimates refer to the whole population and are based on per-capita income.

Table 12

Poverty indices for non-elderly families: headcount, distance, low-income index, distribution and the Sen measure

		Low inc rate LIR	Low inc gap ALG	Low inc index LII	Gini (all families)	Gini (poor)	SEN index*100
Australia 85/86	< 40%	8.9	33.5	3.0	0.3045	0.2373	4.38
	< 50%	15.7	30.7	4.8		0.1952	6.94
	< 60%	21.3	33.4	7.1		0.1934	9.86
Austria 87	< 40%	3.0	23.4	0.7	0.2153	0.1202	0.98
	< 50%	6.2	24.0	1.5		0.1187	2.05
	< 60%	11.2	24.5	2.7		0.1289	3.83
Belgium 85	< 40%	2.3	34.6	0.8	0.2285	0.2482	1.17
	< 50%	5.4	25.0	1.3		0.1917	2.13
	< 60%	11.6	21.3	2.5		0.1376	3.73
Canada 87	< 40%	10.5	30.3	3.2	0.2995	0.1885	4.56
	< 50%	15.4	33.2	5.1		0.1890	7.05
	< 60%	21.1	34.4	7.3		0.1989	10.01
France 84	< 40%	5.2	37.9	2.0	0.2920	0.2343	2.73
	< 50%	8.9	33.3	3.0		0.2185	4.26
	< 60%	15.0	29.6	4.4		0.1925	6.47
Germany 84/85	< 40%	3.8	23.4	0.9	0.2487	0.1431	1.31
	< 50%	8.5	23.2	2.0		0.1340	2.86
	< 60%	14.5	24.2	3.5		0.1379	5.03
Ireland 87	< 40%	5.5	42.2	2.3	0.3532	0.2959	3.26
	< 50%	15.7	24.9	3.9		0.1730	5.94
	< 60%	23.4	27.4	6.4		0.1567	9.08
Italy 86	< 40%	5.6	27.5	1.5	0.3007	0.1631	2.20
	< 50%	10.1	27.3	2.8		0.1616	3.96
	< 60%	17.3	26.3	4.5		0.1561	6.54
Luxembourg 85	< 40%	1.7	32.9	0.6	0.2363	0.2308	0.82
	< 50%	4.5	22.4	1.0		0.1513	1.54
	< 60%	10.6	19.0	2.0		0.1181	3.03
Netherlands 87	< 40%	2.4	33.2	0.8	0.2555	0.2546	1.20
	< 50%	4.7	28.8	1.4		0.1971	2.01
	< 60%	11.3	20.9	2.4		0.1398	3.61
Sweden 87	< 40%	8.9	40.4	3.6	0.2368	0.2392	4.86
	< 50%	12.1	41.0	5.0		0.2485	6.74
	< 60%	16.1	40.0	6.4		0.2527	8.88
United Kingdom 86	< 40%	5.6	38.3	2.1	0.3018	0.2752	3.10
	< 50%	12.4	27.6	3.4		0.1907	5.13
	< 60%	20.6	26.9	5.5		0.1649	8.03
United States 86	< 40%	13.9	37.0	5.1	0.3394	0.2249	7.12
	< 50%	18.7	39.4	7.4		0.2326	10.00
	< 60%	24.4	39.8	9.7		0.2394	13.24
AVERAGE	< 40%	5.9	33.4	2.0	0.2779	0.2196	2.90
	< 50%	10.6	29.3	3.3		0.1848	4.66
	< 60%	16.8	28.3	5.0		0.1705	7.03

Source: LIS micro data base.

Non-elderly families: Families headed by a person aged below 60.

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income.

Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refers to below 40%, 50% and 60% of median income, respectively

Low income gap (ALG): difference between average low income and the low income line, as percentage of that line

Low-income index: LII = LIR * ALG * 100

Sen index = LIR*(ALG+(1-ALG)*GINp)

Table 13

Rank on low-income rate versus rank on low-income index for non-elderly families (50% level)

LIR		LII	
4.5	Luxembourg	Luxembourg	1.0
4.7	Netherlands	Belgium	1.3
5.4	Belgium	Netherlands	1.4
6.2	Austria	Austria	1.5
8.5	Germany	Germany	2.0
8.9	France	Italy	2.8
10.1	Italy	France	3.0
12.1	Sweden	United Kingdom	3.4
12.4	United Kingdom	Ireland	3.9
15.4	Canada	Australia	4.8
15.7	Ireland	Sweden	5.0
15.7	Australia	Canada	5.4
18.7	United States	United States	7.4
10.6	Average		3.3

Source: LIS micro data base

Notes: Definitions of LIR and LII see table 12.

B. Synthetic poverty indicators: the Sen Index

However, a third aspect when comparing low incomes has not been introduced yet, namely the fact that some of the poor families are (more or less) poorer than others: the distribution of incomes among the poor families cannot be captured with the low-income gap as it measures the distance below the average low income and the low-income line and is therefore insensitive to redistribution among the poor population.

The income distribution can be measured by the concentration coefficient which is a synthetic indicator showing the concentration of an income source x when recipients are ranked by amounts of their income y . The line which connects the cumulative percentages of individuals with the cumulative percentages of x is the concentration curve. The concentration coefficient is equal to twice the area between the concentration curve and the 45° line (line of perfect equality). In the special case where $x = y$, the concentration curve is called Lorenz curve and the concentration coefficient Gini coefficient (G). G lies between 0 - when all incomes are distributed equally -, and 1 - when there is perfect inequality. The literature contains various methods to express the Gini coefficient (for an extensive discussion of measures of income inequality, and the Gini coefficient see OECD 1990b: 220 ff); a common formula is:

$$G = 2 / (n^2 * \bar{y}) * \sum_{i=1}^n i * (y_i - \bar{y})$$

where the y_i are ranked in ascending order by their subscripts

Summarising the aspects discussed in the former paragraphs, we can thus conclude that the extent of poverty in a country depends on:

- i) the number (or fraction) of persons/families below a defined low-income standard (expressed as LIR),
- ii) the severity of the low-income situation which is given by the average low-income gap (ALG),
- iii) the distribution of income among poor population, expressed for instance by a concentration measure.

Sen (1976) developed an approach to combine these three elements into a single indicator: the Sen Index is defined in the following way:

$$S = LIR * (ALG + (1 - ALG) * G_p)$$

where LIR: low-income rate (head-count ratio)

ALG: average low-income gap (income shortfall)

G_p : Gini coefficient of income inequality among the poor

It can thus be shown that the Sen Index is equal to the low-income index (LII) in the case of perfect equality among the poor population, and equal to the low-income rate (LIR) in the case of perfect inequality:

$$\begin{aligned} S &= LIR * ALG = LII, & \text{for } G_p &= 0 \\ S &= LIR, & \text{for } G_p &= 1 \end{aligned}$$

One interesting feature of the Sen Index has been found by McGregor/Borooah (1991): comparing the Sen Indices for (aggregated) poverty according to two different poverty definitions for the same country (United Kingdom) - one based on income, the other on consumption expenditure - they conclude that the two Sen Indices were virtually the same (the higher headcount of DPI-based poverty being countered by the greater inequality among the poor according to consumption expenditures).

Some authors have argued that the Sen index gives too much weight to the low-income index (LIR * ALG) because the headcount and the income shortfall both enter symmetrically in its formula. Generalising the Sen index, poverty can be defined in the following way (Blackorby/Donaldson 1980):

$$P = LIR * ALG * (1 + D_p)$$

where D_p is some inequality measure of incomes among the poor

Foster et al. (1984) have developed a poverty measure (known as P_α -class measures) which gives more weight to the income shortfall among the poor. In a discrete setting it is defined as:

$$F_\alpha = 1/n * \sum_{i=1}^q (z - y_i)^\alpha / z^\alpha, \text{ for } \alpha > 0$$

where q : number of persons having incomes below z

z : low-income cut-off-line

y_i : income of the i^{th} individual of the low-income population

n : population

Introducing a coefficient α , it is possible to derive a function which normatively describes the intensity of poverty. It may easily be seen that F_α equals the headcount LIR for $\alpha=0$, and it equals LII for $\alpha=1$. Similar measures were developed by Thon (1983) and Chakravaty (1983). The central point, however, is that all P_α measures concentrate very much on the lower income segment of a given population and do not give a particular weight to a transfer which pulls someone out of poverty (how close to the cut-off-line he or she may be). On the contrary, the Sen Index implies a non-zero social gain for any such a transfer, and might therefore find a compensation for a worsening in the severity of low incomes in a reduction in the number of low incomes (Bourguignon/Fields 1990).

Another advantage of the Foster Index is its quality to analytically decompose the low-income population and thus to measure the contribution of a chosen group (say, single mothers) to aggregate poverty. This cannot be done with the Sen index, as this measure includes the Gini coefficient which is using ranked income data. The Foster index for a given group k in the population can be written as

$$F(k)_\alpha = 1/n_k * \sum_{i=1}^{q(k)} (z - y_i)^\alpha / z^\alpha, \text{ for } \alpha > 0$$

$$(n_k / n) * (F_k / F):$$

would then be the contribution of group k to aggregate poverty.

In the following sections, we will apply the Sen index as defined above, as all alternative measures are to some extent variations (or special cases) of the Sen index. Also, we are interested mainly in the effects of policy on different components of low-income for a given group (non-elderly families with children), rather than in a decomposition of aggregate low-income. The basic idea to be kept is that low income has to be analysed through the three elements **incidence, intensity and distribution**.

The Sen Index as a measure to evaluate anti-poverty policies

The Sen Index is a most useful instrument to evaluate transfer policies to alleviate low incomes. Typically, the policy maker will have to decide how to best allocate a given anti-poverty budget. Should the budget be targeted to the 'richest' among the poor families, or, on the contrary, to the most 'needy'? Should policy opt for a mixture of both, or should there be targeting at all? This will be illustrated with the help of the following example:

Example 1

Let us assume a society with a population of 50 families. Five of these families have equivalent adjusted incomes below the low-income line ($z = 10$), so that the low-income rate (LIR) is equal to 10%. Let the budget to alleviate poverty be 6. The initial distribution of incomes among the low-income families would be:

$$Y_0 = \{1, 5, 5, 5, 9\}$$

for which the corresponding average low-income gap (ALG_0) is 50%, the corresponding low-income index (LI_0) 5.00, and the corresponding Sen Index (SEN_0), multiplied by 100, is 6.28.

Let us consider four alternative policies to spent the anti-poverty budget:

- i) 'Type NT': there is no targeting at all, each low-income family would receive the same amount from the budget.
- ii) 'Type TR': targeting to the richest of the poor families, trying to pull the highest possible number of families out of poverty.
- iii) 'Type TP': targeting to the poorest of the families, trying to reduce inequality among the low-income families.
- iv) 'Type MT': a policy of mixed targeting, allocating a (strictly positive) fraction of the budget to both, the richest and the poorest of the low-income families.

Let us illustrate this typology with some examples from the 'real world'. The 'NT' type policy would correspond for example to a system of child allowances to all families having children, notwithstanding their income status (thus, without means-testing), such as in some of the former European socialist countries. The 'TP' policy may be characterised by a strict means-tested system (with a relatively low cut-off line), elements of which can be found in Australia and the United States. The 'TR' policy may correspond, under some circumstances, to an employment-related insurance system in which transfers are not taxed (and therefore have re-distributional effects - re-distributional towards the rich) and not all individuals in the society have, directly or indirectly, an employment history (such is the case for unemployment benefits in Austria up to 1992). The 'MT' policy finally may

be described as an universal insurance system with elements of (generous) means-testing, examples of which might be, in part, found in the Netherlands and in Sweden. Of course, in no country does the whole social security system correspond purely to one or the other type of policy described above; but certain elements may be preponderant for one or the other.

It should be noted that our assumption that the totality of the budget (6 units in our example) is allocated to the poor families implies an a priori general targeting to the poor. Commonly, "no targeting" refers to the whole population and would mean that the families in our example would receive only 0.6 out of the total budget since they constitute 10% of the whole population.

Let us now consider the effects of different types of policy, taking the initial income distribution, poverty line and budget assumptions from example 1. **Table 14** shows the resultant income distributions for these five families under the four alternative allocation policies, as well as the corresponding measures and indices. When regarding solely the head-count (LIR), policy would opt for an allocation of the budget to the richest low-income families ('Type TR' policy). LIR would significantly fall (although this is accompanied by an increase in the low-income gap, which becomes even higher as in the initial situation). The situation becomes much more difficult when the choice is to be based on the low-income index measure (LII). Clearly no choice can be made, if not to reject the 'Type NT' policy where there is no targeting at all. All other new distributions have the same LII. Only with the help of the Sen index it is possible to opt for one of the four alternative policies, namely that of 'Type MT'. Under the Sen index which takes into account incidence, intensity and distribution of low incomes, the optimal (i.e. poverty minimising) allocation is a mixed targeting.

Table 14

Income distribution, LIR, ALG, LII and Sen Index under four alternative policies

Policy	Income distribution	LIR	ALG	LII	SEN
Y ₀	{1, 5, 5, 5, 9}	10%	50.0%	5.00	6.28
Type NT	{2.2, 6.2, 6.2, 6.2, 10.2}	8%	48.0%	3.84	4.44
Type TR	{1, 5, 5, 10, 10}	6%	63.3%	3.80	4.36
Type TP	{5.5, 5.5, 5.5, 5.5, 9}	10%	38.0%	3.80	4.33
Type MT	{4.5, 5.5, 5.5, 5.5, 10}	8%	47.5%	3.80	3.95

Note: Sen Index multiplied by 100.

It should be noted, however, that the choice for one or the other poverty index and, hence, type of policy, includes an element of value judgement, namely about the social welfare function. (cf. Stiglitz 1988: 108 ff). Under the assumption of an utilitarian social welfare function, society's welfare

would be represented as the sum of utilities of different individuals. This implies that the increase in utility (but not: income) of **any** individual should be weighted equally. The only reason to allocate relatively more income to individuals at the bottom end of the distribution would be that their marginal utility is likely to be higher than that of richer individuals. But there exists a trade-off in any case. To the contrary, egalitarian social welfare functions assume no trade-off: the welfare of society only depends on the welfare of the worst-off individual. Under this view, the available budget would always be allocated to the poorest ('TP' policy). Much like the egalitarian view, the Rawlsian social welfare function is concerned with maximising the welfare of the worst-off individual rather than with equating marginal utilities. There is, however, the assumption of a non-zero social gain for any transfer pulling a person out of poverty. The idea behind is, that persons close to the poverty line (unlike the very poor population) would in such a case be able to re-integrate into the labour market, hence increasing the society's output and the government's tax revenues, thus increasing what could be distributed to the remaining poor.

In the following, the Sen index is applied to the 13 countries studied to describe the components of poverty. Columns four and five in table 12 show Gini coefficients for the population of non-elderly families as a whole as well as for the low-income groups among them. In a majority of countries, incomes among families in the lowest income segment (under 40%) are distributed more unequally than for the other low-income segments but more equally than for the population as a whole. Only in Austria, Canada, Germany, Italy, Sweden and the United States, the Gini coefficients are similar for all three low-income groups. When regarding the families below the 50%-line we observe that, in general, their incomes are far more equally distributed than those of their respective whole non-elderly population. The only exception is Sweden where low incomes show a higher inequality in their distribution than all incomes.

When analysing the results for the Sen indices (shown in column six of table 12), the findings derived earlier with the use of the low-income index become more accentuated; we can distinguish four groups of countries:

- (i) first, the Central European countries Austria, Belgium, Germany, Luxembourg and the Netherlands with Sen indices below one third (40% interval) or half the average (50% and 60% interval);
- (ii) second, the remaining continental European countries France and Italy (together with Germany at the 60% level) which have indices close but below the average;
- (iii) third, the non-continental European countries Sweden, Ireland and the United Kingdom with indices just above the average. An interesting result is to see Sweden at the top end of this group with Sen indices higher than the average, in particular in the 40% and 50% interval.
- (iv) the fourth country group, Australia, Canada and the United States, have very high Sen indices for low income among non-elderly families. In particular, the United States show rates of more than double the average.

Looking at its decomposition, we see that the high rates of the fourth country group are due, to its biggest part, to the high incidence of low

incomes (expressed in the LIR); the intensity and distribution of low income, however, are in the three countries close to the cross-country average. This contrasts in particular with the case of Sweden which has a low-income incidence and distribution patterns close to the average but the highest low-income intensity among the countries studied which brings the Sen index well above the average. It should be noted, however, that due to a particular unit definition, the figures for Sweden are likely to be overestimated (see Annex). Another particular case is Ireland, with high low-income incidence (at the 50% and 60% level) but well below-average intensity and inequality among the poor which results in a lower ranking on the Sen index.

VII. THE ROLE OF THE STATE IN ALLEVIATING POVERTY

A. The welfare state

So far, we have discussed concepts and measures for poverty based on the disposable income. This means that we regarded the relative income positions of families after state intervention through taxes and transfers. There is however strong reason to believe that the state, in particular the welfare state, influences the level as well as the composition of poverty.

In providing health, educational and social services and in guaranteeing basic security in the case of old-age, sickness, disability, unemployment and family situation, the welfare state also tries to prevent its citizens from poverty, at least in its harshest form. There are however substantive differences across countries as to the extent and the functioning of the public social sector. Some studies analyse the relationship between the size of the welfare state and cross-national variations in poverty. Gustafsson/Uusitalo (1989: 6) for example claim that, "the bigger the welfare state the smaller is the poverty rate."

This hypothesis can be tested with a simple cross-section regression for the 13 countries included in our study. The independent variable, the size of the welfare state, is measured here as the GDP-share of total social expenditures on education, pensions, unemployment, health, family and other allowances. The dependent variable is measured by the low-income rate at its 50% level of the whole society (i.e. including elderly persons, as we also include old-age pensions in total social expenditures). Chart 3 shows that there is a significant correlation between these two variables across countries. The regression equation is

$$\text{LIR} = 25.8 - 0.58 * \text{SOC},$$

with $R^2 = 0.703$, and standard error of coefficient = 0.11

This strong relationship also holds when testing the 60% level of poverty, resulting in the following equation:

$$\text{LIR} = 35.10 - 0.68 * \text{SOC},$$

with $R^2 = 0.736$, and standard error of coefficient = 0.12

In both cases, we can distinguish three groups of countries: The United States and Australia both have the highest poverty and the lowest social expenditure share. On the contrary, the continental European countries (except Italy) have relatively low poverty and high social expenditures. Canada, the United Kingdom, Ireland and Italy lie in between.

The purpose of the following sections is to analyse in more detail the instruments that the welfare state uses for alleviating poverty among non-elderly families. In general, this aim may be achieved by the following means:

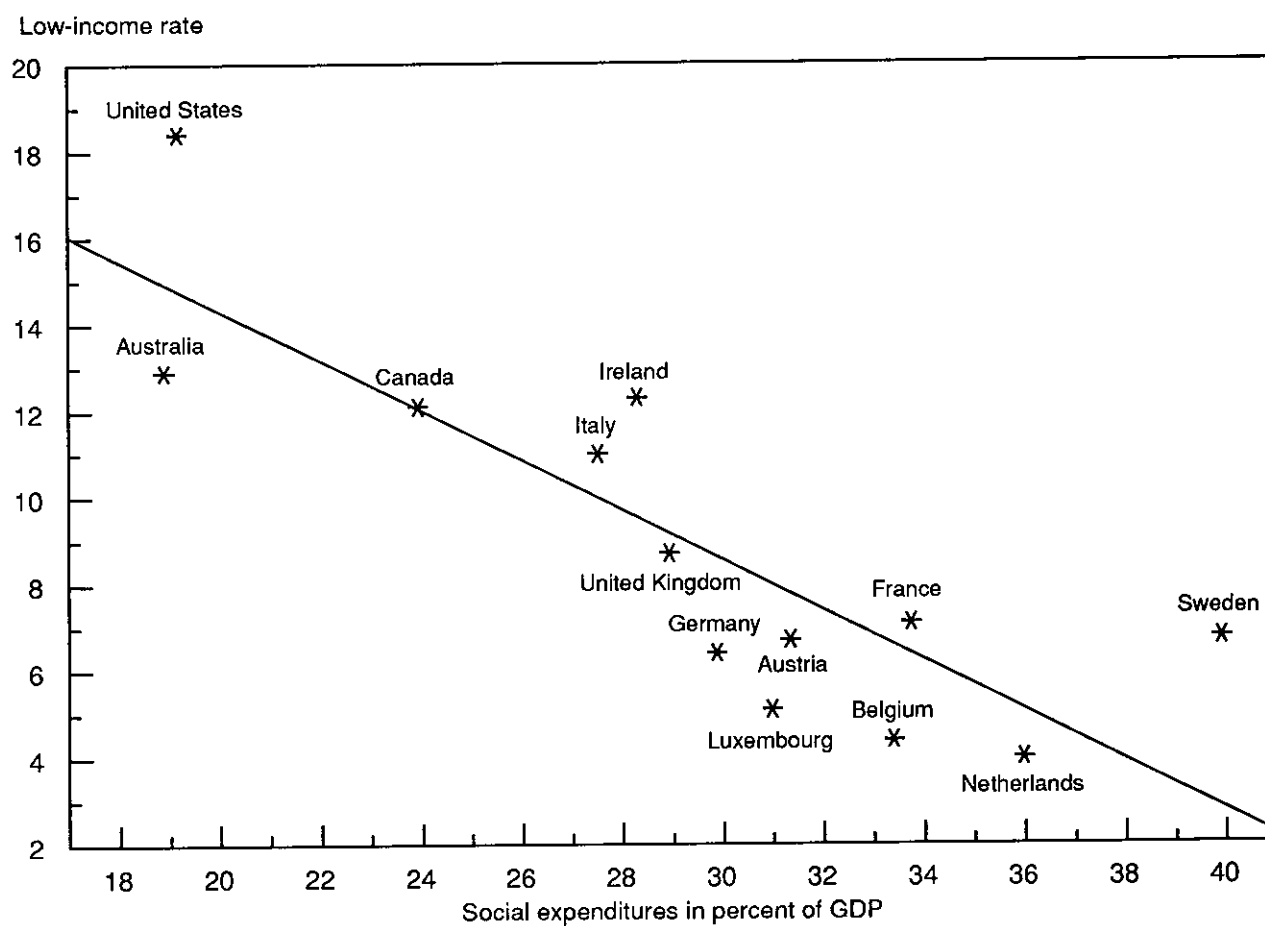
- (i) direct taxes (income taxes and social security contributions)
- (ii) indirect taxes (e.g. consumption taxes)
- (iii) cash transfers
- (iv) in-kind transfers

For technical reasons we will, however, examine only those instruments

which can be estimated directly: (iii) **cash transfers** and (i) **direct taxes**. Near-cash transfers, where appropriate, are included in the underlying surveys used for the analysis (e.g. food stamps). However, an imputation of transfers in kind (in particular education and health benefits) for the socio-demographic groups studied has not been undertaken (results for seven LIS data files from the 'first wave' show that education and health benefits constitute between 13 and 22 % of the disposable income (Smeeding et al. 1992: 323)).

Furthermore, the analysis will not capture the effects of indirect taxes. A more sophisticated approach would impute indirect taxes using consumption patterns for specific families from national household budget surveys. At present, no such micro-simulations for the countries and the periods in the study are available. Different weighting of direct and indirect taxes within the overall tax policy may influence the incidence but also the composition of the low-income population: a gain in disposable income caused by a reduced personal income tax may be offset by an increase in consumption taxes (e.g. VAT), in particular for very poor families. For example, such a mechanism could probably be observed in the United Kingdom at the beginning of the eighties. This cannot be evaluated with the data available.

Chart 3
Low-income rate and social expenditures



Source: LIS micro data base; OECD Social Data base.

Note: Low-income rate: percent of persons in families with incomes below 50% of median adjusted income

B. Analysis of tax and transfer policies towards non-elderly families

B.1 Overall Sen poverty indices

The following two sections analyse the impact of net transfers (social transfers minus income taxes) by means of the Sen poverty index and its components as set out in chapter VI. Poverty of

- (i) non-elderly families,
- (ii) non-elderly families with three and more children and
- (iii) non-elderly single parent families

is measured in relation to their market incomes and then is compared to poverty related to their disposable income. We thus analyse the combined effect of income taxes and transfers to capture the total anti-poverty impact of re-distributional instruments. A separate evaluation of the effects of transfers is not meaningful, as a significant decrease in poverty due to social transfers for a certain population group may partly be offset by a relatively high personal taxing of the same group; This is for example the case for very poor non-elderly families with children in Sweden (table not shown).

It should be stressed that the following analysis cannot follow the reasoning set out in example 1 in the preceding chapter, where the effects of four alternative allocations under the **same budget restriction** have been studied. Here, countries with **different** budget restrictions are studied and it is possible that the 'success' of one or the other country's policy is not only due to a particular 'policy mix' but also to higher level of expenditures allocated. Nonetheless, the application of the Sen index allows to draw conclusions about different countries' tax and transfer policies towards particular populations.

The analysis in this chapter will include only ten countries, as estimates for market income are not available for Austria, Italy and Luxembourg. Also, the results shown for France (before net transfers) have to be treated with care, as social security contributions are (unlike in other countries) not regarded as part of the personal income tax, and therefore excluded. We show poverty estimates for three low-income bands: 40, 50 and 60 % below the median, as the setting of the cut-off line might be quite sensitive to the Sen indices before and after taxes and transfers: means-tested transfer systems might be close to the 40 % level in one country and close to the 60 % level in another.

i) All non-elderly families

Columns 4 and 8 in table 15 show the Sen index (S) before and after taxes and transfers for all non-elderly families. Looking at the absolute values of S for market incomes, we observe that poverty in all three segments is highest in Ireland and the United Kingdom, and lowest in Belgium, France and Germany. After taxes and transfers, it is the United States and Australia which have the highest values for S, and Belgium, the Netherlands and Germany showing the lowest values. All countries reduce poverty through their tax and transfers systems, but in quite different magnitudes. Not only the country rank ordering changes but also the **amplitude** of poverty values between countries increases. As we are using a relative poverty concept, this means that the market 'produces' poverty to, more or less, the same extent across all countries ($\pm 30\%$). After state intervention, this amplitude rises to $\pm 60\%$. This means, that

some European countries significantly decrease poverty through taxes and transfers: the Netherlands, Belgium, Ireland, the United Kingdom and Germany (with above-average reduction rates for S). The smallest reduction takes place in the United States.

In general, all countries reduce Sen poverty levels more for the lowest income group than for those in the higher segments. However, Australia and the United States, countries with strong means-tested characteristics in their social protection systems, reduce levels in the lowest segment by two to three times more than for families in the 60%-segment. On the other hand, France, the Netherlands and Sweden reduce poverty levels in all three segments to about the same extent.

Chart 4 shows at a glance the relative positions of countries before and after state intervention, for poverty at the 50%-level. The x-axis traces Sen poverty values for 10 countries before taxes and transfers, the corresponding Sen-values after taxes and transfers are traced on the y-axis. One pair of outlayers is Ireland and the United Kingdom: in these countries, market income-poverty is by far the highest across countries, but net transfers bring these levels down to the average. The contrary is true for the United States: average poverty before net transfers, but twice the average thereafter. The continental European countries Belgium, the Netherlands, France and Germany have below-average poverty levels before and after net transfers, with the Netherlands showing the most performing state intervention after the primary income distribution. The remaining countries Sweden, Australia and Canada have Sen poverty levels close to the average before taxes and transfers and slightly above thereafter.

ii) Families with three children and more

The values for Sen indices for this socio-demographic group are shown in columns 4 and 8 of table 16. The pre-tax and -transfer poverty values for S are higher for families with three and more children than for all families with three exceptions: the Netherlands, Sweden and Germany (except the 60 % level). These three countries together with Belgium have also the lowest poverty levels for these families before taxes and transfers across countries. After public intervention in form of net transfers, some countries succeed in bringing poverty levels for families with three children or more closer to or below the average for all non-elderly families: Belgium, Canada, France, Ireland and the United Kingdom. This is particularly the case in the very-poor segment. Sweden keeps poverty levels for families with three children and more below the total average for all families. Germany and the Netherlands, although reducing substantially the absolute level, face higher poverty levels now for these families than for all families. Australia and the United States do not achieve a reduction of the difference in poverty between all families and those with many children through taxes and transfers.

Tax and transfer policy benefits families with three and more children most in Sweden, France, Belgium and the United Kingdom, with reduction rates for S over 80% (very poor), 70% (poor) and 55% (near poverty). Of these four countries, France constitutes a quite particular case as it has the highest Sen poverty levels for families with many children before taxes and transfers (the other three countries have very low values). This means that France's tax and transfer policy towards families with many children seems to be very powerful (nevertheless, the reservation made above about the interpretation of the French data should be kept in mind).

Concerning the absolute poverty levels for families with many children after taxes and transfers, we can distinguish three country groups: the continental and Scandinavian European countries with Sen values well below average; a four-country group comprising Canada, Australia, Ireland and the United Kingdom (values around average), and the United States with Sen indices as high as twelve to twenty times the Swedish one. In two countries, France and Sweden, families with many children actually face a **lower** risk of being poor (in all three segments) than all non-elderly families, after net transfers.

iii) Single parent families

The observation of a smaller amplitude for market income poverty than for disposable income poverty is particularly true for single parent families. This means that the extent (and, possibly, efficiency) of policies towards this group varies greatly across countries. Before state intervention, Sen poverty levels for single parent families are extremely high: about three times higher than for all families, for any low-income segment and for any country. This is shown in table 17.

Tax and transfer policies towards single parents are most effective in Sweden, the United Kingdom and the Netherlands. Sweden actually achieves to bring poverty levels for single parents well below the overall average for all families. Sweden also has by far the lowest poverty level across countries. This is meaningful insofar as in Sweden, (part-time) employment rates among single mothers are higher than elsewhere. As market income poverty does not differ significantly from other countries, this suggests that specific taxation and (child and family) benefits are powerful policy instruments in Sweden. The United Kingdom and the Netherlands, although showing the highest Sen values before taxes and transfers (together with Australia), reduce their levels close to the cross-country average.

On the other hand, taxes and transfers in the United States, Australia and Canada reduce poverty levels among single parents much less. Interestingly, these countries also experienced the most significant increase of single parent families within the total population in the past decade (OECD 1990).

B.2 Components of poverty and poverty reduction

Below we will refer to the respective weights that different countries' policies attribute to the reduction

- (i) of poverty incidence (the low-income rate),
- (ii) of poverty intensity (the low-income gap) and
- (iii) of inequality among the poor.

The respective values are shown in columns 1 through 3 (for market income) and columns 5 through 7 (for disposable income) of tables 15 (all non-elderly families), 16 (families with many children) and 17 (single parents). The question is whether there are country-specific patterns to be observed, favouring one or the other components of poverty reduction or whether there is any weighting at all. Analysing components of poverty and poverty reduction for the three low-income segments separately will also allow us to test the results for sensitivity and to get some further insights on targeting features.

i) All non-elderly families

Firstly, we are interested whether some or all of the countries' policies can be described by the typology set out in chapter IV: targeting to the rich, to the poor, mixed or no targeting. In general, we can find no country with a "TR"-type of policy: Targeting to the rich (of the poor) occurs when the state reduces the low-income rate substantially but at the same time increases the low-income gap and inequality among the remaining poor. There is, however, one notable exception for the 40%- and 50%- low-income segment: Belgium, the country in which the market 'produces' by far the least inequality among the poor and the least poverty intensity across countries but about average incidence reduces the low-income rate drastically to the lowest one after the Netherlands but for the 'price' of an increase in intensity and inequality among the remaining poorest. Nevertheless, this results in very low S values.

Targeting tax and transfer policies to the poorest segments is strongest in Australia, Canada and the United States and, to a lesser degree, in Germany, Ireland and the United Kingdom.

Concerning the reduction of inequality among the poor, half of the countries reduce the Gini coefficient for the near-poverty segments more than for the very poor: Australia, France, Ireland, the Netherlands, and the United Kingdom.

For all non-elderly families, only Ireland, Sweden and the United Kingdom seem to accord equal importance to each of the three components, resulting in similar values for poverty and its elements - although Ireland and the United Kingdom starts from a quite less favourable situation, in particular regarding inequality among the poor (the highest across countries) and intensity. Australia and the United States, two countries with almost the same poverty value S before taxes and transfers, give very little weight to the reduction of the number of low-income families; in the near-poverty segment, poverty incidence actually **increases** after taxes and transfers. The main elements of their policies are the re-distribution among the poor, and to bring them closer to the low-income line, with Australia showing higher performance in both fields. The other extremes are Belgium, France and the Netherlands: these are the only countries which influence less intensity and inequality than incidence, reducing the low-income rate by about a half (60%-segment) and more (other segments). Ireland and the United Kingdom show the same picture but at the 40%-level only.

ii) Families with three children or more

Looking at policies towards families with many children, this picture gets somewhat sharper. All countries reduce the low-income gap as well as inequality among poor families with three children or more. However, in one group of countries - Australia, Canada and the United States - the incidence of poverty does not significantly decrease. In the case of Australia and the United States, the number of poor families stagnated or increased (at the 50% and 60% level). The same is true at the 60%-level for Canada, Germany and the Netherlands.

On the other side, Belgium, France and Sweden (in all three segments) as well as Ireland and the United Kingdom (in the very-poor segment only) decrease poverty incidence among families with many children significantly. France is

particularly successful: it has one of the highest low-income rate before taxes and transfers (almost one half of these families were poor, at the 50% segment), reducing this rates to one of the lowest ones.

It can be seen that none of these countries attaches the same weight to the reduction of incidence, intensity and inequality in **all** of the three segments. Targeting to the poorest families (i.e. reducing primarily poverty intensity and inequality) alone does not improve a country's relative position. The most successful results are obtained when each of the components of poverty is reduced substantially, i.e. by more than the half, as is the case of Sweden in all three low-income segments.

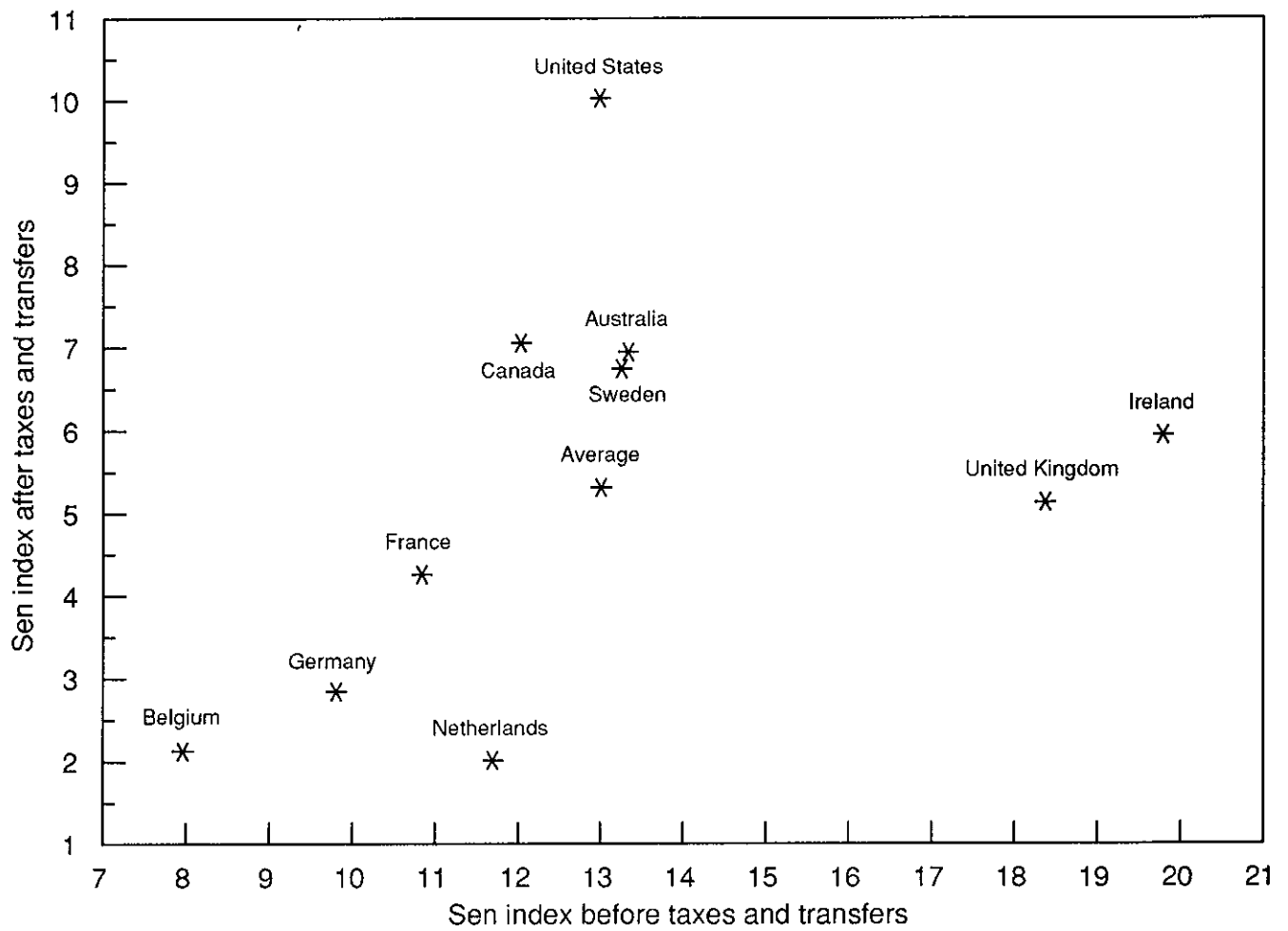
iii) Single parent families

If, on average, poverty incidence for single parents is two to three times higher than for all non-eldery families, this is not the case for poverty intensity (the low-income gaps are slightly lower), and even less for inequality (Gini coefficients are about 10% lower).

As can be seen from tables 17, policies directed to single parent families are quite diversified across and within countries. Only the three non-European countries focus their policy in all three poverty segments on the reduction of the low-income gap and, even more, of inequality among the poor. On the other side, only two of the European countries - Belgium and France - focus their policy on incidence reduction. As in the case of families with many children, Sweden's policy shows the most successful results for combating poverty among single parents.

Chart 4

Sen index before and after net transfers
Non-elderly families



Source: LIS micro data base

Note: Sen indices at the 50% poverty level

Table 15
Sen poverty measure and its components before and after taxes and transfers, for all non-elderly families

	BEFORE TAXES AND TRANSFERS					AFTER TAXES AND TRANSFERS					REDUCTION	
	Low-inc. rate	Low-inc. gap	Gini (poor)	SEN index*100		Low-inc. rate	Low-inc. gap	Gini (poor)	SEN index*100		IN SEN	INDEX
	LJR	ALG	Gp			LJR	ALG					
Australia 85/86	below 40 %	15.3	60.7	0.4542	12.02	8.9	33.5	0.2373	4.38		63.5%	
	below 50 %	17.6	57.0	0.4361	13.33	15.7	30.7	0.1952	6.94		47.9%	
	below 60 %	20.5	52.5	0.4027	14.69	21.3	33.4	0.1934	9.86		32.9%	
Belgium 85	below 40 %	16.0	29.0	0.2216	7.16	2.3	34.6	0.2482	1.17		83.7%	
	below 50 %	22.7	22.6	0.1619	7.97	5.4	25.0	0.1917	2.13		73.3%	
	below 60 %	29.9	24.0	0.1383	10.31	11.6	21.3	0.1376	3.73		63.9%	
Canada 87	below 40 %	15.8	47.2	0.3221	10.14	10.5	30.5	0.1885	4.58		54.8%	
	below 50 %	19.0	46.5	0.3141	12.03	15.4	33.2	0.1890	7.05		41.4%	
	below 60 %	22.7	46.4	0.3098	14.31	21.1	34.4	0.1989	10.01		30.1%	
France 84	below 40 %	14.5	39.6	0.2689	8.10	5.2	37.9	0.2343	2.73		66.3%	
	below 50 %	20.6	37.1	0.2466	10.84	8.9	33.3	0.2185	4.26		60.7%	
	below 60 %	27.2	36.6	0.2333	13.99	15.0	29.6	0.1925	6.47		53.7%	
Germany 84/85	below 40 %	10.7	64.7	0.5199	8.89	3.8	23.5	0.1431	1.31		85.3%	
	below 50 %	12.4	59.5	0.4837	9.80	8.5	23.2	0.1340	2.84		71.0%	
	below 60 %	14.6	54.6	0.4394	10.88	14.5	24.2	0.1379	5.02		53.9%	
Ireland 87	below 40 %	23.6	59.1	0.4468	18.26	5.5	42.2	0.2959	3.26		82.1%	
	below 50 %	26.3	57.1	0.4227	19.79	15.7	24.9	0.1730	5.94		70.0%	
	below 60 %	29.9	53.7	0.3988	21.57	23.4	27.4	0.1567	9.08		57.9%	
Netherlands 87	below 40 %	18.1	45.9	0.2897	11.14	2.4	33.2	0.2546	1.20		89.2%	
	below 50 %	18.9	45.8	0.2965	11.70	4.7	28.8	0.1971	2.01		82.8%	
	below 60 %	19.7	45.6	0.2918	12.11	11.3	20.9	0.1398	3.61		70.2%	
Sweden 87	below 40 %	15.5	54.6	0.3950	11.24	8.9	40.4	0.2392	4.86		56.7%	
	below 50 %	18.4	54.4	0.3865	13.25	12.1	41.0	0.2485	6.74		49.1%	
	below 60 %	22.2	51.9	0.3740	15.51	16.1	40.1	0.2527	8.89		42.7%	
United Kingdom 86	below 40 %	21.6	60.0	0.4955	17.24	5.6	38.3	0.2752	3.10		82.0%	
	below 50 %	24.0	57.1	0.4526	18.37	12.4	27.6	0.1907	5.13		72.1%	
	below 60 %	26.8	53.7	0.4188	19.59	20.6	26.9	0.1649	8.03		59.0%	
United States 86	below 40 %	16.0	51.2	0.3659	11.05	13.9	37.0	0.2249	7.12		35.6%	
	below 50 %	19.4	49.3	0.3484	12.99	18.7	39.5	0.2326	10.02		22.8%	
	below 60 %	23.1	47.9	0.3353	15.10	24.4	39.8	0.2394	13.24		12.3%	
AVERAGE	below 40 %	16.7	51.2	0.3780	11.52	6.7	35.1	0.2341	3.37		69.9%	
	below 50 %	19.9	48.6	0.3549	13.01	11.8	30.7	0.1970	5.31		59.1%	
	below 60 %	23.7	46.7	0.3342	14.81	17.9	29.8	0.1814	7.79		47.7%	

Source: LIS micro data base. Income adjusted with an equivalence elasticity of 0.55. Further definitions and methods: see table 12

Table 16
Sen poverty measure and its components before and after taxes and transfers, for non-elderly families with three or more children

	BEFORE TAXES AND TRANSFERS				AFTER TAXES AND TRANSFERS				REDUCTION IN SEN INDEX
	Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor) Gp	SEN index*100	Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor) Gp	SEN index*100	
Australia 85/86	below 40 %	20.6	49.3	0.3603	13.92	35.3	0.2389	7.21	48.2%
	below 50 %	24.4	47.8	0.3372	15.95	32.1	0.2061	11.29	29.2%
	below 60 %	31.3	41.0	0.2953	18.28	31.9	0.1939	16.55	9.5%
Belgium 85	below 40 %	23.2	20.6	0.1258	7.10	24.9	0.1423	1.00	86.0%
	below 50 %	38.5	21.2	0.1154	11.65	20.7	0.1292	2.26	80.6%
	below 60 %	52.6	25.2	0.1202	17.99	17.1	0.0983	5.17	71.3%
Canada 87	below 40 %	21.2	45.8	0.3208	13.40	22.8	0.1369	4.57	65.9%
	below 50 %	27.7	42.8	0.3013	16.63	26.3	0.1435	8.48	49.0%
	below 60 %	32.3	44.9	0.2939	19.72	28.4	0.1566	13.32	32.5%
France 84	below 40 %	34.4	35.0	0.2396	17.41	23.8	0.1580	1.65	90.5%
	below 50 %	47.6	36.1	0.2257	24.06	21.0	0.1519	3.46	85.6%
	below 60 %	58.3	39.4	0.2282	31.03	20.9	0.1270	6.99	77.5%
Germany 84/85	below 40 %	11.7	51.3	0.3437	7.96	25.5	0.1964	2.13	73.3%
	below 50 %	14.5	48.6	0.3445	9.61	22.4	0.1496	4.32	55.1%
	below 60 %	23.8	34.0	0.3155	13.04	23.7	0.1451	7.96	39.0%
Ireland 87	below 40 %	28.2	60.2	0.4361	21.86	41.6	0.2125	3.13	85.7%
	below 50 %	31.5	58.1	0.4150	23.78	20.7	0.1273	6.74	71.7%
	below 60 %	36.5	53.5	0.3914	26.18	25.2	0.1270	11.06	57.7%
Netherlands 87	below 40 %	13.6	45.5	0.3473	8.76	20.9	0.2096	2.36	73.0%
	below 50 %	13.8	56.4	0.3473	9.87	23.9	0.1742	4.09	58.6%
	below 60 %	26.1	42.5	0.3089	15.73	18.5	0.1276	8.46	46.2%
Sweden 87	below 40 %	12.6	52.8	0.3575	8.78	26.2	0.1120	0.65	92.5%
	below 50 %	17.5	47.2	0.3314	11.32	24.9	0.1089	1.22	89.2%
	below 60 %	22.7	44.4	0.3048	13.92	20.2	0.0986	2.22	84.1%
United Kingdom 86	below 40 %	37.8	50.0	0.3942	26.36	33.5	0.2514	4.42	83.2%
	below 50 %	41.0	51.2	0.3704	28.40	22.7	0.1524	8.52	70.0%
	below 60 %	46.1	48.5	0.3560	30.82	26.0	0.1378	14.06	54.4%
United States 86	below 40 %	30.0	51.8	0.3601	20.74	34.1	0.1896	13.10	36.8%
	below 50 %	35.0	51.4	0.3531	24.00	38.4	0.2107	19.06	20.6%
	below 60 %	41.3	49.1	0.3444	27.53	41.6	0.2278	24.45	11.2%
AVERAGE	below 40 %	23.3	46.2	0.3285	14.63	28.9	0.1848	4.02	73.5%
	below 50 %	29.2	46.1	0.3141	17.53	25.3	0.1554	6.94	61.0%
	below 60 %	37.1	42.3	0.2959	21.43	25.3	0.1440	11.02	48.3%

Source: LIS micro data base. Income adjusted with an equivalence elasticity of 0.55. Further definitions and methods: see table 12

Table 17
Sen poverty measure and its components before and after taxes and transfers, for non-elderly single parent families

	BEFORE TAXES AND TRANSFERS					AFTER TAXES AND TRANSFERS					REDUCTION IN SEN INDEX	
	Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor) Gp	SEN index*100		Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor)	SEN index*100			
Australia 85/86	below 40 % below 50 % below 60 %	59.3 62.5 65.5	73.0 69.4 67.2	0.5275 0.5372 0.5280	51.73 53.65 55.36	39.5 55.6 62.5	27.6 33.2 40.4	0.1679 0.1690 0.1840	15.70 24.74 32.10		69.6%	53.9%
Belgium 85	below 40 % below 50 % below 60 %	51.1 63.3 68.3	31.1 29.3 33.3	0.2121 0.1924 0.1816	23.35 27.16 31.01	9.4 19.4 34.5	36.5 27.6 25.1	0.2764 0.1886 0.1573	5.08 8.00 12.73		78.2%	70.5%
Canada 87	below 40 % below 50 % below 60 %	53.0 57.1 62.8	58.3 59.9 58.4	0.4097 0.4122 0.4164	39.95 43.64 47.55	36.6 48.6 57.6	25.1 32.1 38.1	0.1532 0.1638 0.1813	13.39 21.01 28.41		66.5%	51.9%
France 84	below 40 % below 50 % below 60 %	36.1 44.4 60.4	45.6 44.6 39.7	0.3595 0.3269 0.2803	23.52 27.84 34.19	11.8 18.6 31.0	30.9 32.2 29.4	0.1986 0.1970 0.1959	5.27 8.47 13.40		77.6%	69.6%
Germany 84/85	below 40 % below 50 % below 60 %	40.0 46.5 50.0	69.6 56.8 56.9	0.4972 0.5314 0.4890	33.89 37.09 38.99	16.4 33.3 46.0	29.1 25.1 29.4	0.1804 0.1785 0.1768	6.87 12.81 19.27		79.7%	65.5%
Ireland 87	below 40 % below 50 % below 60 %	48.6 56.6 62.1	66.0 51.6 49.4	0.3467 0.3240 0.3087	37.80 38.08 40.38	14.8 32.6 43.5	43.2 29.5 32.9	0.2138 0.1832 0.1675	8.19 13.83 19.20		78.3%	63.7%
Netherlands 87	below 40 % below 50 % below 60 %	70.2 73.9 75.3	48.7 41.7 46.3	0.3800 0.3169 0.3093	47.87 44.47 47.37	7.3 12.0 33.7	40.4 33.7 19.5	0.3832 0.3201 0.1604	4.62 6.59 10.92		90.4%	85.2%
Sweden 87	below 40 % below 50 % below 60 %	31.6 38.3 46.4	87.1 55.4 52.4	0.4348 0.4108 0.3998	29.30 28.24 33.14	3.8 5.9 13.7	17.4 25.6 20.1	0.1061 0.1102 0.1167	0.99 1.99 4.03		96.6%	92.9%
United Kingdom 86	below 40 % below 50 % below 60 %	70.5 75.1 77.7	64.8 62.4 63.7	0.5438 0.5065 0.4950	59.18 61.16 63.46	10.2 28.3 53.5	30.0 21.4 21.8	0.1999 0.1319 0.1204	4.49 8.99 16.70		92.4%	85.3%
United States 86	below 40 % below 50 % below 60 %	50.5 57.5 62.9	60.2 56.3 56.7	0.4382 0.4201 0.4105	39.21 42.93 46.84	44.8 54.8 61.2	36.3 41.8 47.1	0.1971 0.2197 0.2382	21.89 29.91 36.54		44.2%	30.3%
AVERAGE	below 40 % below 50 % below 60 %	51.1 57.5 63.1	60.4 52.7 52.4	0.4150 0.3978 0.3819	38.38 40.43 43.83	19.5 30.9 43.7	31.6 30.2 30.4	0.2077 0.1862 0.1699	8.65 13.63 19.33		77.4%	66.9%

Source: LIS micro data base. Income adjusted with an equivalence elasticity of 0.55. Further definitions and methods: see table 12

C. The elements of child poverty

In chapter V (Chart 2), we have seen that child poverty constitutes a concern in some countries, in particular the United States, Canada and Australia and, to a lesser degree, in Ireland, Italy and the United Kingdom. Today's policy debate in these countries very often addresses the question whether transfers should be targeted on 'children at risk'. For this section, we have therefore used the children as the reference population rather than their families (technically, the population of children is 'reconstructed' by multiplying the household sample weights by the number of children in each family). The reason for that is to examine differences in child poverty and its elements and to see to which extent net transfers yield different results from those obtained when analysing families.

Overall Sen poverty indices and components for children

Chart 5 and columns four and eight in table 18 compare Sen indices for children before and after taxes and transfers. Child poverty before taxes and transfers as measured by S is highest in Ireland and in the United Kingdom (almost twice the average in the very-poor segment), it is the lowest in Germany (about half the average). Overall child poverty based on the disposable income of their families is highest for the United States, and lowest for Belgium, Germany and Sweden (values of S below 1.35 at the 50% level).

When comparing the picture from Chart 5 with that in Chart 4 (Sen indices for all non-elderly families), we observe roughly the same patterns: Ireland and the United Kingdom as one pair of 'outlayers' (very high pre-tax and transfer and average post-tax and transfer S-values) and the three non-European countries where S-values move in the inverse direction. There is, however, one significant difference: Sweden's children have very low pre- and post- net transfer values for S. This result may also be explained by the fact, that we are using here person rather than household weights (see Chapter IV, section D and the Annex).

In two countries - Belgium and France - the relatively high incidence of **pre-transfer** child poverty is 'counteracted' by a small income gap and a more equal distribution among poor children, resulting in Sen poverty indices below the average. In both countries, a relatively great number of children are poor (the low-income rates are in fact higher than in the United States), but the market incomes of their families are more equally distributed and are much closer to the low-income line (both values being lowest ones across countries). The opposite (i.e. low incidence and a rather high intensity and inequality) is true - to some extent - for Australia and Germany.

Concerning **post-transfer** child poverty, Canada's high incidence in child poverty is partly offset by a relatively small income gap and one of the 'fairest' income distributions among poor children across countries. On the other hand, Australia and, in particular, Ireland and the United Kingdom (which have below average poverty rates for children in the 40% and 50% segments) have the highest income gaps and a high concentration of low incomes after taxes and transfers, resulting in high child poverty levels.

When comparing the effects of net transfers on the income position of children with those for all families (table 15), it can be seen that the poverty reduction (reduction in the Sen index) is higher for children in all

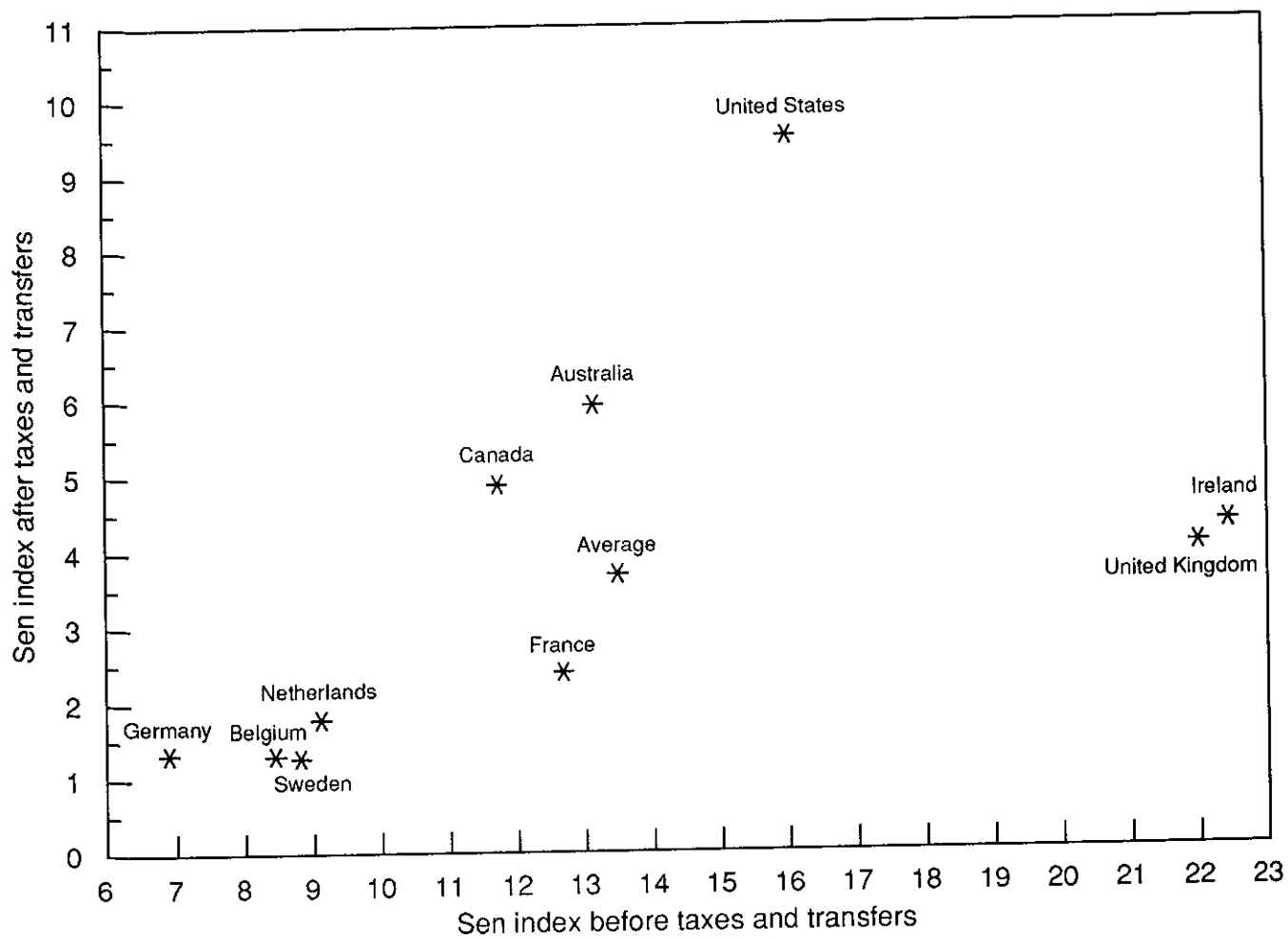
countries studied. This difference is most striking for Canada, France, Sweden and the United States. This means that those four countries, although starting from very different positions after market incomes, attach more weight to alleviating child poverty than overall family poverty.

An overall view over different effects of net transfers across countries confirms the earlier findings: the European countries reduce child poverty (measured by S) in general by more than 80 % (in the 50% segment) while the United States reduces it only by 40%; Canada's and Australia's performances lie in between.

In the case of the United States, this is in particular due to a lack of reducing the **number** of poor children (the incidence) - the reduction of the low-income gap and of inequality among poor children being similar to most of the other countries (decrease to about two thirds (gap) or half (distribution) of the former level). The opposite tendency can be observed in all European countries except Germany: the number of poor children is reduced to a large extent (by more than three quarters in the 50% segment and by more than the half in the 60% segment), giving much less weight to reductions in intensity and inequality of low incomes. In the case of continental Europe and Sweden, this has no substantial consequences, as those countries already have small low-income gaps and low inequality among low incomes **prior** to net transfers. For Ireland and the United Kingdom, however, this results in quite high overall poverty values for children. The country which seem to give equal weights in its tax and transfer policies to the three elements constituting poverty - Germany - also shows the highest overall performances for reducing the Sen poverty levels for children.

Chart 5

Sen index before and after net transfers
Children



Source: LIS micro data base

Note: Sen indices at the 50% poverty level

Table 18
Sen poverty measure and its components before and after taxes and transfers, for all children

		BEFORE TAXES AND TRANSFERS				AFTER TAXES AND TRANSFERS				REDUCTION IN SEN INDEX
		Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor) Gp	SEN index*100	Low-inc. rate LIR	Low-inc. gap ALG	Gini (poor) Gp	SEN index*100	
Australia 85/86	below 40 %	15.7	58.9	0.4464	12.12	7.1	41.0	0.2932	4.14	65.9%
	below 50 %	17.5	56.6	0.4275	13.15	12.0	33.7	0.2369	5.93	54.9%
	below 60 %	19.7	53.2	0.4047	14.22	18.2	32.5	0.2084	8.48	40.4%
Belgium 85	below 40 %	13.7	33.0	0.2082	6.43	1.7	29.4	0.1999	0.74	88.5%
	below 50 %	21.8	25.9	0.1731	8.44	3.6	24.4	0.1571	1.31	84.5%
	below 60 %	33.1	25.0	0.1476	11.93	9.7	17.8	0.1149	2.64	77.8%
Canada 87	below 40 %	14.9	48.5	0.3459	9.88	7.1	25.5	0.1874	2.80	71.7%
	below 50 %	18.4	46.1	0.3273	11.73	12.6	27.3	0.1579	4.89	58.3%
	below 60 %	22.5	44.8	0.3111	13.95	18.5	28.8	0.1627	7.48	46.4%
France 84	below 40 %	17.5	36.2	0.2707	9.36	3.3	31.1	0.2106	1.51	83.9%
	below 50 %	24.7	36.1	0.2387	12.68	5.7	28.9	0.1855	2.40	81.1%
	below 60 %	33.6	35.3	0.2251	16.74	11.5	23.8	0.1613	4.15	75.2%
Germany 84/85	below 40 %	8.4	54.3	0.4091	6.13	1.7	25.4	0.1806	0.66	89.2%
	below 50 %	9.7	51.7	0.3987	6.88	3.8	23.4	0.1523	1.33	80.7%
	below 60 %	11.3	50.2	0.3769	7.79	8.8	19.7	0.1266	2.63	66.3%
Ireland 87	below 40 %	26.6	59.3	0.4886	21.06	4.5	48.7	0.3255	2.94	86.0%
	below 50 %	29.3	57.7	0.4455	22.43	7.6	38.9	0.2931	4.32	80.8%
	below 60 %	32.4	57.0	0.4259	24.41	21.8	22.2	0.1550	7.48	69.4%
Netherlands 87	below 40 %	13.5	46.3	0.3691	8.92	1.8	39.2	0.3285	1.07	88.1%
	below 50 %	14.3	46.0	0.3289	9.12	4.1	26.1	0.2361	1.79	80.4%
	below 60 %	14.9	48.0	0.3243	9.66	6.1	27.9	0.1989	2.58	73.3%
Sweden 87	below 40 %	9.9	53.1	0.3977	7.10	2.0	24.0	0.1475	0.70	90.1%
	below 50 %	13.1	48.6	0.3638	8.81	3.7	24.6	0.1327	1.28	85.5%
	below 60 %	17.0	44.9	0.3294	10.72	7.1	22.7	0.1327	2.34	78.1%
United Kingdom 86	below 40 %	26.5	58.9	0.4948	21.00	4.3	46.6	0.3463	2.80	86.7%
	below 50 %	29.5	54.6	0.4398	22.00	7.3	37.6	0.2817	4.03	81.7%
	below 60 %	32.6	52.0	0.4012	23.23	16.2	25.8	0.1877	6.44	72.3%
United States 86	below 40 %	20.2	51.3	0.3730	14.03	14.2	30.2	0.1725	5.99	57.3%
	below 50 %	23.3	51.2	0.3591	16.01	21.0	32.9	0.1844	9.50	40.6%
	below 60 %	26.9	49.7	0.3484	18.08	26.4	36.3	0.1489	12.10	33.1%
AVERAGE	below 40 %	16.7	50.0	0.3804	11.60	4.8	34.1	0.2392	2.33	80.7%
	below 50 %	20.2	47.4	0.3502	13.13	8.1	29.8	0.2018	3.68	72.8%
	below 60 %	24.4	46.0	0.3295	15.07	14.4	25.8	0.1597	5.63	63.2%

Source: LIS micro data base. Income adjusted with an equivalence elasticity of 0.55. Further definitions and methods: see table 12.

VII. SUMMARY AND CONCLUSIONS

The main part of the present paper has focused its analysis on the methodology of low-income and poverty definition and measurement: its theoretical underpinning and its application to income micro data sets from 13 OECD member countries for the mid- to end-eighties. The perspective of the study was an international comparison of ten European and three Non-European countries: Australia, Austria, Belgium, Canada, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Sweden, the United Kingdom and the United States. The choice for this perspective has several implications. Rather than analysing in a most detailed way one society's specific poor population, we are interested in finding indicators which allow for meaningful conclusions as to the relative risk of different socio-demographic groups of being poor and the different policy answers across countries.

Although economic analysis of poverty and, more globally, social well-being is ultimately interested in consumption and consumption behaviour, the use of disposable income as a single indicator for well-being is justified for the aim of short-term cross-country comparisons. Ideally, this income measure should include income in kind. This was, however, not possible with the instruments used in this paper (except for certain transfer incomes in kind).

We have discussed three quite different approaches to define and measure poverty: absolute, relative and subjective approaches. For the purpose of international cross-country comparisons, we have shown that the most suitable approach is the economic distance approach. According to this approach poverty is defined as a fraction of the median equivalent disposable income, using low-income bands rather than a single cut-off line (40%, 50% and 60%). For the analysis of effects of taxes and transfers, we have applied a more comprehensive indicator for poverty - the Sen index - which allows for decomposition of poverty, and anti-poverty policies, into incidence, intensity and distribution of poverty.

The adoption of a particular equivalence scale to adjust family incomes for need proved to be sensitive to poverty estimates, for some countries (Australia, Austria, Sweden) more than for others. Ultimately, the choice for any equivalence scale is subject to assumptions about the shape of Engel curves for different populations. As the paper studied effects of net transfers on the relative income position of non-elderly families, it used a 'policy-based equivalence scale', with adjustment factors inherent in many countries' social programmes.

For the overall picture of poverty among non-elderly families as well as for most of the specific groups at risk, we observe a clear grouping at the top and the bottom among the 13 countries studied:

- i) a first group comprises the United States, Australia and Canada, where poverty rates are, in general, one and a half to twice the average of all countries. The country at the top is the United States, where poverty indicators are highest throughout all socio-demographic groups studied.
- ii) A second group, Ireland, Italy and the United Kingdom, has values for poverty close to or above the average. The above average values are found in particular for higher low-income segments (below 50 and 60 percent of the median).

iii) A third group comprises countries France, Germany and Sweden. In these three countries, values for poverty lie, in general, around the average.

iv) Poverty is lowest among the Central European countries: Austria, Belgium, Luxembourg, and the Netherlands. For most specific groups, we find Luxembourg at the bottom end of the poverty scale.

At a first glance, the size of the welfare state is negatively correlated with the level of poverty across the countries studied. Social transfers constitute an important part of the income composition of non-elderly families in European countries, in particular in the Netherlands and in Sweden. The model of 'transfer dependency' cannot exhaustively explain the phenomenon of poverty. Sometimes, it is claimed that transfer incomes for certain poor families are too high to induce their members to sell their workforce on the labour market. On the other hand, it may be argued that returns on work (if available) are too low to do so.

In order to assess the combined effects of taxes and transfers, our analysis has compared poverty after market income with poverty after disposable income. We have applied the Sen indicator for poverty which allows the assessment of different tax and transfer policies and the weights which they give to reducing the three elements of overall poverty incidence, intensity and distribution.

The application of this measure to micro data on incomes of non-elderly families, families with children, single parents, and children, shows quite different patterns across countries. In general, the three non-European countries focus their tax and transfer policies on the reduction of the low-income gap and inequality among the poor. On the other side, some European countries - Belgium, France, Ireland and the United Kingdom - give most of the weight in their policy to reducing poverty incidence, i.e. the number of poor. These two types of policies might - in a very schematic way - be described as 'targeting to the poorest' and 'targeting to the better off (among the poor)', respectively.

Further analysis leads us to the preliminary conclusion that a policy of mixed targeting (which attributes the same weight to reducing numbers of poor, to decrease the severity of poverty and to make the income distribution among the poor more equal) seems to be the policy which results in the highest reductions of overall poverty. In the case of policies directed to families with children, single parents, and children, we may observe this type of policy in the mid- to end-eighties in Sweden, Germany and the Netherlands.

It should be stressed that budget constraints differ across countries. It is not only the relative weighting of different policy aspects but primarily the absolute level of reduction measures which contributes to successful poverty alleviation. This is notably the case of Sweden.

Comparing pre-tax and -transfer incomes with those after taxes and transfers assumes absence of behavioural responses. In a society without taxes and transfers, there would at the margin be more market income, so the percentage of the population who would in fact be below a given level of incomes without net transfers would be less than the static estimates given in our tables. On the other hand, this might also change the income distribution through the market. Further research on poverty would include applying

techniques of micro-simulation of incomes, taxes and transfers which integrate behavioural responses in models of poverty.

ANNEX

DATA QUALITY

This Annex describes the surveys stored at the Luxembourg Income Study which have been used for the analysis, the structure of the demographic and income variables and presents the derived poverty lines in national currencies and in 1985 US Dollars. It also discusses questions of data quality and limitations, such as coverage and non-response rates.

To date, some 40 data files are stored at LIS, covering 17 countries, 15 of which are OECD member countries. Tables A.1 and A.2 show the OECD countries in the LIS data base, their reference year, and the underlying national household survey.

Our quantitative analysis is limited to the countries from the "second round". The reason for that is that we want to focus on country comparison rather than comparison over time. The periods between the two benchmarks are quite different between the countries and often too short. Also, the benchmark years refer to quite different stages in the business cycle of the various countries included. In addition, the recent country files include additional information on persons' characteristics, as for instance the children's ages.

LIS variable structure

The LIS data files consist of micro data, as collected by member countries through the above cited surveys. On the household (family) level, there are 12 socio-demographic and 50 income variables available for each household in each country. The demographic variables would include information such as number of persons, of earners, of children in the household, geographic location etc. Furthermore, a number of variables relate to characteristics of the household head and his or her spouse (sex, age, marital status etc.). In addition, the "second round" data sets contain some 130 variables on an individual level, i.e. characteristics of other persons in the household.

The income variables refer to the household (family). Total gross income is defined as market income plus social and private transfers. Disposable income is gross income minus income tax and mandatory contributions. Figure A.1 illustrates the relations between the different aggregates.

The derived median equivalent disposable incomes are used to calculate the poverty estimates. In general, our paper applies three poverty lines: below 40 % of the median ('very poor'), below 50 % ('poor') and below 60 % ('near poverty'). For sensitivity testing, three different equivalent scales, in addition to per capita income and unadjusted family income, have been applied: EQ1 (referring to an equivalence elasticity of 0.33), EQ2 (equivalence elasticity of 0.55) and EQ3 (equivalence elasticity of 0.73) (see chapter II). Table A.3 shows the respective poverty lines for the three equivalence scales, on a person and on a family basis, in national currencies. Table A.4 transforms these values into 1985 US \$, using 1985 purchasing power parities for private final consumption expenditure, for the respective year.

Table A.1

OECD countries in LIS data base (June 1992)

First round data sets		Second round data sets	
Australia	1981/82	Australia	1985/86
		Austria	1987
		Belgium	1985
Canada	1981	Canada	1987
France	1979	France	1984
Germany	1981	Germany	1984/85
		Ireland	1987
		Italy	1986
		Luxembourg	1985
Netherlands	1983	Netherlands	1987
Norway	1979		
Sweden	1981	Sweden	1987
Switzerland	1982		
United Kingdom	1979	United Kingdom	1986
United States	1979	United States	1986

Table A.2

Surveys used for LIS data files
(in parenthesis unweighted household sample size)

Australia 1985/86	Income Distribution Survey (7563)
Austria 1987	Mikrozensus (11147)
Belgium 1985	The Living Conditions of Households in 1985 (6471)
Canada 1987	Survey of Consumer Finances (10999)
France 1984	Revenus Fiscaux (11044)
Germany 1984/85	Das sozio-ökonomische Panel, Welle 1/Welle 2 (Socio-economic Panel Study, Wave 1/Wave 2) (5174)
Ireland 1987	Survey of Income Distribution (3297)
Italy 1986	Indagine Campionaria sui Bilanci Delle Famiglie (Bank of Italy Income Survey) (8022)
Luxembourg 1985	Panel Socio-Economique "Liewen zu Letzeburg" (Luxembourg Household Panel Study) (2012)
Netherlands 1987	Aanvullend Voorziengengebruik Onderzoek (4833)
Sweden 1987	Inkomstfördelningsundersökningen (Income Distribution Survey) (9421)
United Kingdom 1986	The Family Expenditure Survey (6795)
United States 1986	March Current Population Survey (11614)

Figure A.1

Structure of LIS income variables

V1 (gross wage and salaries)			
+			
V4 (farm self-employment income)	----- EARNING		
+	(total earnings)		
V5 (nonfarm self-employment income)		----- FI	
+		(Factor income)	
V8 (cash property income)			
+			
V16 (sick pay)			
+			
V17 (accident pay)			
+			
V18 (disability pay)			
+			
V19 (social retirement benefits)			
+			
V20 (child or family allowances)	SOCI		
+	--(social insu-	----- SOCTRANS	
V21 (unemployment compensation)	rance transfers)	(Social transfers)	
+			
V22 (maternity pay)			
+			
V23 (military/veteran/war benefits)			
+			
V24 (other social insurance)			
+			
V25 (means tested cash benefits)	MEANSI		
+	---(means-tested		
V26 (near cash benefits)	income)		
+			
V32 (private pensions)		PENSIOI	
+		--(occupational	
V33 (public sector pensions)		pensions)	
+			
V34 (alimony or child support)		PRIVATI	
+		-(private transfers)	
V35 (other regular private income)			
+			
V36 (other cash income)			

GI (total gross income)

MI (market income) = FI + PENSIOI

DPI (disposable income) = GI - V7(mandatory contributions for self-employed)
 - V11(income tax) - V13(mandatory employee contrib.)

Table A.3

Poverty lines in national currencies, for three different equivalence scales

		non-elderly families, EQ 2	all persons EQ 1	all persons EQ 2	all persons EQ 3
Australia 85/86	< 40%	4860.0	5648.0	4352.2	3495.4
Australian Dollars	< 50%	6075.0	7060.0	5440.3	4369.2
	< 60%	7290.0	8471.9	6528.4	5243.0
Austria 87	< 40%	63465.1	77941.4	61600.0	51541.4
Austrian Schillings	< 50%	79331.4	97426.7	77000.0	64426.8
	< 60%	95197.6	116912.0	92400.0	77312.1
Belgium 85	< 40%	1462.2	1822.7	1393.4	1128.8
Hundred Belgian Francs	< 50%	1827.8	2278.4	1741.7	1411.1
	< 60%	2193.4	2734.0	2090.0	1693.3
Canada 87	< 40%	6949.4	8636.4	6678.1	5384.9
Canadian Dollars	< 50%	8686.7	10795.6	8347.6	6731.2
	< 60%	10424.0	12954.7	10017.1	8077.4
France 84	< 40%	24170.2	29889.6	23125.8	18938.9
French Francs	< 50%	30212.8	37362.0	28907.2	23673.6
	< 60%	36255.3	44834.3	34688.6	28408.3
Germany 84/85	< 40%	8437.8	10202.0	8044.4	6708.6
German Marks	< 50%	10547.3	12752.5	10055.5	8385.8
	< 60%	12656.8	15303.0	12066.5	10063.0
Ireland 87	< 40%	1878.6	2482.6	1765.2	1369.4
Irish Pounds	< 50%	2348.3	3103.2	2206.5	1711.7
	< 60%	2818.0	3723.8	2647.8	2054.0
Italy 86	< 40%	4292.0	5261.0	4068.0	3255.7
Thousand Italian Lira	< 50%	5365.0	6576.3	5085.0	4069.6
	< 60%	6437.9	7891.6	6102.0	4883.5
Luxembourg 85	< 40%	185250.0	231785.4	178027.2	144000.0
Luxembourg Francs	< 50%	231562.5	289731.7	222534.1	180000.0
	< 60%	277874.9	347678.0	267040.9	216000.0
Netherlands 87	< 40%	7484.8	8773.8	6904.8	5652.8
Dutch Guilder	< 50%	9356.0	10967.2	8631.0	7066.1
	< 60%	11227.2	13160.6	10357.2	8479.3
Sweden 87	< 40%	29760.0	35640.0	29294.0	24935.6
Swedish Kroner	< 50%	37200.0	44550.0	36617.5	31169.6
	< 60%	44640.0	53460.0	43941.0	37403.5
United Kingdom 86	< 40%	2117.6	2448.7	1910.8	1559.5
British Pounds	< 50%	2647.1	3060.9	2388.5	1949.4
	< 60%	3176.5	3673.1	2866.2	2339.2
United States 86	< 40%	5357.8	6515.0	5081.3	4143.6
US Dollars	< 50%	6697.3	8143.7	6351.6	5179.5
	< 60%	8036.7	9772.4	7621.9	6215.3

Source: LIS micro data base

Notes: < 40 %, < 50 % and < 60 % refers to below 40 %, 50 % and 60 % of median adjusted income, respectively
 EQ1 refers to an equivalence scale with elasticity = 0.33 (survey-based scale), EQ2 to elasticity = 0.55
 ('policy based' scale) and EQ3 to elasticity = 0.73 (OECD Social Indicators scale)

Table A.4

Poverty lines in 1985 US \$, using 1985 purchasing power parities for private final consumption expenditure

		non-elderly families, EQ 2	all persons EQ 1	all persons EQ 2	all persons EQ 3
Australia	< 40%	3919.7	4555.2	3510.2	2819.1
	< 50%	4899.6	5694.0	4387.7	3523.9
	< 60%	5879.5	6832.8	5265.3	4228.6
Austria	< 40%	4201.6	5159.9	4078.1	3412.2
	< 50%	5252.0	6449.9	5097.6	4265.2
	< 60%	6302.4	7739.9	6117.2	5118.3
Belgium	< 40%	3589.6	4474.4	3420.5	2771.1
	< 50%	4487.0	5593.0	4275.6	3463.9
	< 60%	5384.3	6711.6	5130.7	4156.7
Canada	< 40%	5004.9	6219.9	4809.5	3878.2
	< 50%	6256.1	7774.9	6011.9	4847.7
	< 60%	7507.3	9329.8	7214.3	5817.3
France	< 40%	3851.6	4762.9	3685.1	3017.9
	< 50%	4814.4	5953.7	4606.4	3772.4
	< 60%	5777.3	7144.4	5527.7	4526.9
Germany	< 40%	3900.8	4716.4	3718.9	3101.4
	< 50%	4876.0	5895.5	4648.6	3876.7
	< 60%	5851.2	7074.6	5578.3	4652.1
Ireland	< 40%	2437.0	3220.4	2289.8	1776.3
	< 50%	3046.2	4025.5	2862.3	2220.4
	< 60%	3655.5	4830.6	3434.7	2664.5
Italy	< 40%	3300.7	4046.0	3128.5	2503.8
	< 50%	4125.9	5057.5	3910.6	3129.7
	< 60%	4951.1	6068.9	4692.7	3755.6
Luxembourg	< 40%	4538.7	5678.9	4361.8	3528.1
	< 50%	5673.4	7098.6	5452.2	4410.1
	< 60%	6808.1	8518.3	6542.6	5292.1
Netherlands	< 40%	3064.7	3592.5	2827.2	2314.6
	< 50%	3830.9	4490.6	3534.0	2893.3
	< 60%	4597.1	5388.7	4240.8	3471.9
Sweden	< 40%	3389.7	4059.4	3336.6	2840.2
	< 50%	4237.1	5074.3	4170.8	3550.2
	< 60%	5084.5	6089.2	5004.9	4260.3
United Kingdom	< 40%	3703.0	4282.0	3341.3	2727.0
	< 50%	4628.8	5352.5	4176.7	3408.8
	< 60%	5554.6	6423.0	5012.0	4090.5
United States	< 40%	5216.4	6343.0	4947.2	4034.2
	< 50%	6520.5	7928.8	6184.0	5042.7
	< 60%	7824.6	9514.5	7420.8	6051.3

Source: LIS micro data base, and OECD Annual National Accounts, 1992

Notes: < 40 %, < 50 % and < 60 % refers to below 40 %, 50 % and 60 % of median adjusted income, respectively
 EQ1 refers to an equivalence scale with elasticity = 0.33 (survey-based scale), EQ2 to elasticity = 0.55
 ('policy based' scale) and EQ3 to elasticity = 0.73 (OECD Social Indicators scale)

Data limitations

Any research using the LIS data base must be restricted to the analysis of money income. Although some data files are actually based on family budget surveys (Italy, United Kingdom), information on consumption expenditure of households is not included in the LIS data bank. Also, the complex question of income and benefits in kind can - for the time being - not be tackled with the LIS data. This concerns, in particular, imputing values for education, health care, housing, and food produced for own consumption. Initial results have been computed for the United States (Smeeding 1985), but the attempt to assess in-kind benefits on a comparative level for seven LIS countries is still in an ongoing stage. A recent LIS Working Paper (Smeeding et.al. 1992) describes the findings of a three-years research on this topic.

Many of the detailed social income variables (V16 to V26 in Figure A.1) are not available separately for the several country files but are rather incorporated in other variables, according to different social regulations in member countries. For instance, the variables "disability pay" or "accident pay" are, for some countries, included in "social retirement benefits", for others in "unemployment compensation". The variable V20 ("child or family benefits") may include orphans pensions for one country, maternity pay for another. It is therefore difficult to assess the role of one specific transfer programme payment for cross-country comparisons. The study rather tends to analyse aggregates, i.e. the effects of total transfer payments on the income position.

Other data limitations are inherent in the sample design of the basic surveys. First, there is a difference in the population coverage across countries. The institutionalised population as well as the homeless are excluded from all surveys except the ones for Germany and the Netherlands. Moreover, there is the question whether the inclusion or exclusion of migrants in the surveys has important consequences for the representativeness of the data. In general, most of the European and all non-European surveys try to include all households, including illegal immigrants - sometimes through oversampling. However, some European countries (Germany, Italy, the Netherlands) only cover the national civilian population. This may cause some bias in the results for the very poor population.

The results for Austria have to be treated with care as this is the only country which excludes entrepreneurs, and hence: entrepreneurial income, from its survey (more precisely: entrepreneurs, if they are head of the household). Sensitivity tests for other countries excluding this population showed that this does not introduce serious bias for overall estimates of low income and poverty based on disposable income: low-income rates at the 40%, 50% and 60% level, using the 'policy-based' equivalence scale differed not more than 2 to 5 percent (upwards or downwards), except for the Netherlands and Sweden where this difference was between 10 and 20 percent (downwards) (see table A.5).

Another common problem of all surveys is that of non-response. It has been shown (Wolf 1990), that these are highest among the sub-population at the bottom and at the top of the distribution. Hackauf et.al. (1991) show for the German Transfer survey, that income non-response rates are 6% and 11% for unemployed and self-employed, respectively, with an average non-response rate of 4.7%.

A particular problem encountered during the computations was the coding of missing values and non-answers in the income variables of the micro data. Both

are coded 0, as well as 'real' zero income (which is possible in the case of specific transfers). If this does not lead to serious bias in the case of aggregates for disposable and gross income, there were problems for estimates of distribution (Gini coefficients, and low-income gaps) for the very poor population. It has therefore been decided to exclude all missing values for computations of the Gini coefficient. This solution has also been adopted by Saunders (1989) who came across the same problem in the German *Transferumfrage*.

About half of the country files contain cases with negative disposable income. This is particularly worrisome in the case of Ireland and the Netherlands, where these concerns young families and single persons (see table A.6). Although negative disposable income is theoretically possible (e.g. in the case of debts), these cases are traditionally re-coded to a very low value near zero. However, as in our comparative study five countries do not report negative incomes at all, it has been decided to exclude these cases as well.

Another important question is that of the unit definition: it is not possible for all country files to distinguish between households and families. The data for Italy and the Netherlands are available only on household basis. The Swedish definition is that of combined tax/administrative units. A specific problem of the Swedish file relates to young units: Young adults, economically independent but still living with their parents in a household are counted as separate families; the share of the young population and, ceteris paribus, the level of poverty, are therefore overestimated when using a family definition and weighting (as we did in the analysis in chapters V.B, VI, and VII.B). For all other country files, data were available on a standardised family basis.

Table A.5

Overall low income rates, for all persons and non-entrepreneurs

		All persons	All persons excluding entrepreneurs
Australia 85/86	<40% of median	5.9	5.7
	<50% of median	12.9	12.7
	<60% of median	21.0	20.8
Austria 87	<40% of median	2.6	2.6
	<50% of median	6.7	6.7
	<60% of median	12.2	12.2
Belgium 85	<40% of median	1.9	1.9
	<50% of median	4.4	4.4
	<60% of median	10.7	10.7
Canada 87	<40% of median	7.5	7.5
	<50% of median	12.1	12.2
	<60% of median	18.1	18.0
France 84	<40% of median	3.9	3.8
	<50% of median	7.1	6.8
	<60% of median	13.2	12.4
Germany 84/85	<40% of median	2.7	2.8
	<50% of median	6.4	6.5
	<60% of median	12.4	12.2
Ireland 87	<40% of median	4.4	4.3
	<50% of median	12.3	10.1
	<60% of median	20.1	19.7
Italy 86	<40% of median	5.6	5.5
	<50% of median	11.0	9.8
	<60% of median	18.0	16.6
Luxembourg 85	<40% of median	1.7	1.6
	<50% of median	5.1	5.2
	<60% of median	10.8	10.6
Netherlands 87	<40% of median	1.9	1.4
	<50% of median	3.9	3.1
	<60% of median	8.3	7.5
Sweden 87	<40% of median	4.2	3.6
	<50% of median	6.8	6.1
	<60% of median	11.8	10.3
United Kingdom 86	<40% of median	3.9	3.4
	<50% of median	8.7	7.3
	<60% of median	17.3	15.8
United States 86	<40% of median	12.8	13.0
	<50% of median	18.4	18.7
	<60% of median	24.1	24.4
AVERAGE	<40% of median	4.5	4.4
	<50% of median	8.9	8.4
	<60% of median	15.2	14.7

Source: LIS micro data base.

Entrepreneurs: Persons having income from non-farm self-employment

Low income rate: percent of families of each type whose adjusted disposable income is below a certain percentage of the median adjusted income. Income adjusted for family size (equivalence elasticity = 0.55)

< 40%, < 50% and < 60% refer to below 40%, 50% and 60% of median income, respectively.

Table A.6

Units reporting negative and zero DPI (percent of all units)

		Total	Young families	Old families	Single persons	Single parents	Self-employed
Australia 85/86	negative DPI	0.8	0.3	0.9	1.0	0.2	2.2
	zero DPI	0.2	0.5	0.5	1.2	0.0	0.3
Austria 87	negative DPI	0.0	0.0	0.0	0.0	0.0	na
	zero DPI	0.0	0.0	0.0	0.0	0.0	na
Belgium 85	negative DPI	0.0	0.0	0.0	0.0	na	na
	zero DPI	0.2	1.8	0.0	1.9	na	na
Canada 87	negative DPI	0.1	0.0	0.0	0.0	0.0	0.6
	zero DPI	0.2	0.4	0.0	0.7	0.4	0.0
France 84	negative DPI	0.5	0.1	0.0	0.3	0.0	2.4
	zero DPI	0.2	0.7	0.0	1.3	0.0	0.2
Germany 84/85	negative DPI	0.0	0.0	0.0	0.0	0.0	0.0
	zero DPI	0.0	0.0	0.0	0.0	0.0	0.0
Ireland 87	negative DPI	2.2	0.0	1.5	0.6	0.0	na
	zero DPI	0.0	0.0	0.2	0.0	0.0	na
Italy 86	negative DPI	0.0	0.0	0.0	0.0	0.0	0.0
	zero DPI	0.0	0.0	0.0	0.0	0.0	0.0
Luxembourg 85	negative DPI	0.0	0.0	0.0	0.0	0.0	0.0
	zero DPI	0.1	0.6	0.1	1.3	0.0	0.0
Netherlands 87	negative DPI	1.2	14.5	0.0	5.7	0.0	4.7
	zero DPI	0.3	4.8	0.0	1.9	0.0	0.0
Sweden 87	negative DPI	0.3	0.0	0.2	0.4	0.0	1.8
	zero DPI	0.1	1.1	0.0	0.4	0.0	0.0
United Kingdom 86	negative DPI	1.1	0.9	0.1	1.0	0.5	1.8
	zero DPI	0.1	0.1	0.0	1.0	0.0	0.0
United States 86	negative DPI	0.3	0.1	0.0	0.4	0.1	na
	zero DPI	0.4	2.8	0.2	1.6	1.1	na
AVERAGE	negative DPI	0.5	1.2	0.2	0.7	0.1	na
	zero DPI	0.1	1.0	0.1	0.9	0.1	na

Source: LIS micro data base

Young families: families headed by a person below age 25

Old families: families headed by a person of age 65 or over

REFERENCES

- Atkinson, A. (1991), "Poverty, Statistics, and Progress in Europe", Discussion Paper WSP/60, The Welfare State Programme, Suntory-Toyota International, Centre for Economics and Related Disciplines, London School of Economics
- Atkinson, A. (1992), "Measuring Poverty and Differences in Family Composition", in: *Economica* 59 - February 1992, pp. 1-16
- Beckerman, W. (1978), "Estimates of Poverty in Italy in 1975", WEP 2-23/ WP 70, ILO (Geneva)
- Bourgignon, F./Fields, G. (1990), "Poverty Measures and Anti-Poverty Policy", in: *Recherches économiques de Louvain*, Vol. 56 - 1990, No.3-4. Université catholique de Louvain 1990.
- Bradbury, B./Saunders, P. (1990), "How Reliable Are Poverty Estimates in Australia - Some Sensitivity Tests For the Periods 1981-82 to 1985-86", *SPRC Discussion Paper No. 18*. Kensington 1990.
- Buhmann, B./Rainwater, L./Schmaus, G./Smeeding, T. (1988), "Equivalence Scales, Well-Being, Inequality, and Poverty: Sensitivity Estimates Across Ten Countries using the LIS Database". *Review of Income and Wealth*, pp. 115-142.
- Deleeck, H./van den Bosch, K. (1989), "The Measurement of Poverty in a Comparative Context: Empirical Evidence and Methodological Evaluation of Four Poverty Lines in Seven EC Countries". Paper presented at the seminar 'Poverty Statistics in the EC', Noordwijk, 1989
- De Vos, K./Garner, Th. (1989), "An evaluation of subjective poverty definitions comparing results from the U.S. and the Netherlands", Paper presented at the 21st General Conference on the international Association for Research in Income and Wealth. Rotterdam/Washington, 1989
- EUROSTAT (1990), "Poverty in Figures: Europe in the Early 1980s". Study carried out by the Institute of Social Studies Advisory Service (Issas)
- Foster, J.E./Greer, J./Thorbecke, E. (1984), "A Class of Decomposable Poverty Measures", *Econometrica*, vol.48, pp.1053-1060.
- Glaude, M./Moutardier, M. (1989), "Estimations d'échelles d'équivalence pour la France en 1979, 1985 et 1989". INSEE, 1989
- Gornick, J./Pavetti, L. (1990), "A Demographic Model of Poverty Among Families With Children: A Comparative Analysis of Five Industrialized Countries Based on Microdata from the LIS". *LIS Working Paper No. 65*
- Gustafsson, B./Uusitalo, H. (1989), "The Welfare State and Poverty in Finland and Sweden from the Mid-1960s to the Mid-1980s", Paper presented at the 21st General Conference on the international Association for Research in Income and Wealth.
- Hagenaars, A. and De Vos, K. (1987), "The Definition and Measurement of Poverty". *The Journal of Human Resources*, XXIII/2, pp. 211-221
- Hauser, R. (1988) "Problems of Comparative Social Policy Analysis: The Case of

Pension Systems and Income Security Systems for the Elderly". *LIS Working Paper No. 20*

Hurd, M. (1986), "Research on the Elderly: Economic Status, Retirement, and Consumption and Saving", in: *Journal of Economic Literature*, Vol. XXVIII (June 1990), pp. 565-637

Jenkins, St. (1991), "Income inequality and living standards: changes in the 1970s and 1980s", in: *Fiscal Studies* 12, pp. 1-28

McGregor, P.P.L./Borooah, V.K. (1991), "Is Low Spending or Low Income a Better Indicator of Whether or Not a Household is Poor: Some Results From the 1985 Family Expenditure Survey", in: *Journal of Social Policy* Vol. 21,1, pp. 53-69

Milanovic, B. (1992), "Distributional Impact of Cash- and In-Kind Transfers in Eastern Europe and Czechoslovakia". World Bank Research Paper Series, Number 9. Washington, DC, June 1992

Mitchell, D./Bradshaw, J. (1991), "Lone Parents and Their Incomes: A Comparative Study of Ten Countries", ESRC Project Report. University of York 1991.

OECD (1976), "Public Expenditure on Income Maintenance Programmes". Paris 1976

OECD (1982), "The OECD List of Social Indicators". Paris 1982

OECD (1988), "The Future of Social Protection". Paris 1988

OECD (1990a), "Lone-Parent Families. The Economic Challenge". Paris, 1990

OECD (1990b), "The Personal Income Tax Base. A Comparative Survey." Paris 1990

Piachaud, D. (1987), "Problems in the Definition and Measurement of Poverty", in: *Journal of Social Policy* 16.2, pp. 147-164

Rainwater, L. (1988), "Inequalities in the Economic Well-Being of Children and Adults in Ten Nations". *LIS Working Paper No. 19*

Rainwater, L. (1990), "Poverty and Equivalence as Social Constructions". *LIS Working Paper No. 55*

Saunders, P./Hobbes, G./ Scott, H. (1989), "Income Inequality in Australia and New Zealand: International Comparisons and Recent Trends". Working Paper No. 304 (Paper presented at the 21st General Conference of the International Conference of the international Association for Research in Income and Wealth)

Sen, A. (1983), "Poor, relatively speaking". *Oxford Economic Papers* Vol.35, No.2 (1983), pp. 153-170

Sen, A. (1985), "A Sociological Approach to the Measurement of Poverty: A Reply to Professor Peter Townsend". *Oxford Economic Papers* Vol.37, No.4 (1985), pp. 669-678

Short, K./Garner, Th. (1989), "Living Arrangements of young Adults living independently". *LIS Working Paper No. 29*

Smeeding, T. and Torrey, B. (1988), "Poor Children in Rich Countries". *Science*

Vol. 242, pp. 873-877. The American Association for the Advancement of Science, 1988. (Also published as LIS Working Paper No. 16)

Smeeding, T. (1989), "Poverty, Affluence, and the Income Costs of Children: Cross-national Evidence from the LIS". *Journal of Post Keynesian Economics* /Winter 1988-89, Vol. XI, No. 2, pp. 222-239. (Also published as LIS Working Paper No. 21)

Smeeding, T./Rainwater, L. (1991), "Cross-National Trends in Income Poverty and Dependency: The Evidence for Young Adults in the Eighties." *LIS Working Paper* No. 67

Smeeding, T./Saunders, P./Coder, J./Jenkins, St./Fritzell, J./Hagenaars, A./Hauser, R./Wolfson, M. (1992), "Noncash Income, Living Standards, And Inequality: Evidence From the Luxembourg Income Study". *LIS Working Paper* No. 79

Townsend, P. (1985), "A Sociological Approach to the Measurement of Poverty: A Rejoinder to Professor Amartya Sen", *Oxford Economic Papers* Vol.37, No.4

Townsend, P. (1987), "Deprivation", in: *Journal of Social Policy* 16.2, pp. 125-146

Warner, U. "Grenzen der Daten aus Haushaltsbudgeterhebungen bei der Analyse von Armutsproblemen". Paper presented at the ÖSTAT Conference "Haushaltsbudgeterhebungen in den 90er Jahren", Vienna 1991

Wolf, W. (1988), "Verzerrungen durch Antwortausfälle in der Konsumerhebung 1984", in: *ÖSTAT, Statistische Nachrichten*, 43. Jg. 1988, Heft 11, pp. 861-867

Wolfson, M.C. and Evans, J.M. (1989), "Statistics Canada's Low Income Cut-Offs, Methodological Concerns and Possibilities - A Discussion Paper", *Statistics Canada - Research Paper Series*