A MULTI-METHOD APPROACH TO MONITOR THE EVOLUTION OF POVERTY

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Summary

In this article the authors present the results of research on the evolution of income poverty, insecurity of subsistence and relative deprivation. Using socio-economic panel data of the late 1980s in The Netherlands (1985–88) they sketch the incidence and distribution of poverty applying a multi-method approach, in which income and consumption approaches of poverty are used as complements to each other. Their results show that income and consumption-deprivation based standards provide complementary insights into the issue of poverty. If social policies are not solely aimed at the provision of a 'minimum income guarantee' but also at the combat of 'social exclusion', income standards are inadequate as monitoring devices. The information of the latter should be complemented by using a multidimensional deprivation standard that is capable of covering a broader range of living conditions or aspects of life than just income. This recommendation holds for the national level. Yet, also at the European level it should be a guiding principle for monitoring social policies at the level of the Community and its member states. As regards the panel information it appears that income mobility within the poor and the non-poor population is very high, though for a considerable part of the population the poverty status seems to be a rather permanent attribute. From their research the authors recommend the elaboration of a panel research device to enable member states to monitor the evolution in the basic social institutions and to assess the impact of internal social shifts like marriage instability as well as the impact of 1992 on their economies, employment structures and social protection systems. Such a panel device in the form of a Community wide household panel on income, social protection systems and labour market policies could give the member states and their Community the tool needed for creating and monitoring efficient and effective policy instruments to resolve the challenges of the years ahead.

Résumé

UNE APPROCHE MULTI-MÉTHODOLOGIQUE POUR CONTRÔLER L'ÉVOLUTION DE LA PAUVRETÉ

Dans cet article, les auteurs précentent les résultats de recherches effectuées sur l'évolution de la pauvreté des revenus, de l'insécurité des moyens de subsistance et des désavantages qui en découlent. À l'aide de données provenant d'un panel socio-économique réalisé dans la fin des années quatre-vingt aux Pays-Bas (de 1985 à 1988), ils décrivent dans les grandes lignes l'incidence et la répartition de la pauvreté en appliquant une approche pluridisciplinaire, dans laquelle les approches de la pauvreté au niveau des revenus et de la consommation sont utilisées pour se compléter l'une l'autre. Les résultats montrent que les standards qui se basent sur les désavantages en matière de revenus et de consommation offrent des aperçus complémentaires du problème de la pauvreté. Si les politiques sociales n'ont pas seulement comme objectif d'assurer un 'revenu minimum garanti', mais de combattre

également 'l'exclusion sociale', les standards de revenus se révèlent alors comme étant des instruments de contrôle non appropriés. Ils devraient être complétés par un standard pluridimensionnel des désavantages qui serait en mesure de couvrir une gamme plus étendue des conditions ou des aspects de vie plutôt que les simples revenus. Cette recommandation est valable au niveau national. Cependant, il devrait exister également au niveau européen un principle directeur permettant de surveiller les politiques sociales au niveau de la Communauté et de ses Etats membres. En ce qui concerne les informations contenues dans le panel, il apparaît que la mobilité des revenus parmi la population pauvre et non-pauvre est très élevée, malgré le fait que pour une très grande partie de la population la condition de pauvreté semble plutôt être un état permanent. A partir de leurs recherches, les auteurs recommandent l'élaboration d'un dispositif de panels de recherche donnant aux Etats membres la possibilité de contrôler l'évolution au sein des institutions sociales de base et d'évaluer l'impact des transformations sociales internes comme l'instabilité du mariage ainsi que l'impact de 1992 sur leur économie, leurs structures d'emploi et leurs systèmes de protection social. Un tel ensemble de panels sous forme de panel des ménages dans la Communauté et concernant les revenus, les systèmes de protection sociale et les politiques de l'emploi pourrait offrir aux Etats membres et à la Communauté l'instrument nécessaire pour la création et le contrôle de politiques efficaces destinées à résoudre des défis des années à venir.

1 Introduction

In welfare-economic literature poverty is considered to be a state of low welfare. With regard to the measurement of welfare a distinction is made between direct and indirect methods of welfare measurement (Kapteyn 1985). The traditional economic approach of *indirect* measurement of welfare refers to the concept of 'revealed preferences' (preferences can only be traced back by means of research into the utility based consumption decisions of individuals and households). The *direct* method refers to the concepts of direct measurement of preferences by means of direct questioning (Kapteyn *et al.* 1977, Van Praag *et al.* 1978). Yet, in the highly quoted article of the sociologist Ringen (1990) the distinction between direct and indirect approaches of defining and measuring poverty refers to consumption-based methods (direct approach) and income-based methods (indirect approach), respectively. In order to avoid confusion we reserve the terms direct and indirect for the method of measurement of poverty in welfare terms, where welfare may be measured in terms of consumption or income. In this article we will apply both direct approaches, such as the consumption-based deprivation poverty line (SDL) and the income-based subjective poverty line approach (SPL), and indirect approaches, such as the national social minimum income approach (NSMI) and the European statistical minimum income approach (ESMI).

2 The concepts of relative deprivation, subjective poverty and subsistence insecurity

Deprivation poverty and the SDL

First, an attempt is made to apply a direct measurement approach of poverty based on the elaboration of a *consumption* index (Muffels and Vriens 1991). Building further on the deprivation-index approach of Desai and Shah (1985) the authors have elaborated a so-called subjective deprivation scale (SDS)

and a subjective deprivation poverty line (SDL). The deprivation index score (SDS) is defined for every head of household in the sample. It is defined as the weighted sum of the deprivation score on each consumption item out of a large set of items or indicators of the actual living conditions of people in society (the list of items is given in the Appendix). The weights for each item represent the subjectively perceived importance of the item in the individual consumption experience, compared to the perceived importance of the item in the consumption experience of the 'reference group' of the head of household. Theoretically, the method is derived from the 'Relative Deprivation' theory of Runciman (1966) and the 'Preference Formation' theory of Kapteyn (1977). It takes account of the various dimensions of living conditions and tries to assess to what degree households take part, consume or participate according to these dimensions or, if not so, are deprived of it. It is a deprivation standard which rests not only on the measurement of actual living conditions but also on the measurement of perceptions of respondents on the necessity of every item on the list of material consumption goods and social and cultural goods. From this, one may conclude that the index is a kind of subjectively assessed measure of deprivation. However, as it is based on the perceptions of all households in the sample, it is rather a kind of *intersubjective* measure.

Next to that, Muffels and Vriens (1991) transform the SDS index into a deprivation poverty line (SDL) by making use of a question in the survey, the so-called life resources evaluation question (LREQ), which is asked directly after the battery of questions on the actual living conditions.

> If you consider the way in which your household lives at the moment, would you consider your household as poor, or in fact as rich, or as somewhere in between? You may answer by giving a score to your situation. A score of 1 means that you consider your household as being very poor, a number of 10 means that you consider your household as being very rich.

In the next step a regression model is estimated in which the answers on this LREQ are assumed to be determined by a set of variables indicating the needs and wants of the household, the level of economic resources and the financial situation. The model assumes that the score on the LREQ is determined first by the score on the deprivation index, which is assumed to reflect the (inverse) of the consumption welfare of the household. Next a set of variables such as income, age of the head, family status and financial stress factors (perception of current financial situation, financial expectations) are added to control for unobserved 'life resources' indicators. In the final step the poverty line is set where the actual level of consumption welfare of the household measured by the inverse of the score on the SDS index is evaluated with the schoolmark 5.5, the midpoint of the scores between 5 and 6. The households for which actual welfare is evaluated with 5.5 are supposed to be the experts which are best aware of the minimum needs of the household. As with a school mark in The Netherlands it is assumed that a score of 5.5 indicates the dividing line between a 'satisfactory' and an 'unsatisfactory' score, in this case as regards the evaluation of one's current living conditions.

From the estimation of the regression model it appears that the evaluation of the life resources in terms of assigning a schoolmark between 1 and 10 to the actual living conditions is influenced by the score on the deprivation index, by the marital status of the head, by reference group factors and by financial stress factors. Given the individual scores on these variables for each household and making use of the parameter estimates of the regression model (estimated on the whole sample), the SDL poverty-line can be calculated for every household in the sample.

In this article two poverty lines associated with different evaluation levels are calculated, the SDL standard corresponding to an evaluation level of 5.5 and the SDL poverty-line corresponding to an evaluation level of 6. Within the Dutch schoolsystem the schoolmark 6 is supposed to represent the verbal qualification 'sufficient'. Because the extended list of 45 items was submitted to the respondents for the first time in October 1988, the SDL measures (SDL-5.5 and SDL-6) could be calculated for 1988 only.

Subjective poverty and the SPL

Secondly, a direct measurement method based on *income* has been applied. According to this approach, persons are poor when their actual income is below a level of income which corresponds to a minimum level of welfare. The income that corresponds to the minimum welfare level is acquired by means of direct questioning. As such, the Subjective Poverty Line as it is called, is based on views of all households on the minimum income they need to acquire a certain minimum standard of welfare (Goedhart *et al.* 1977, Colassanto *et al.* 1984, Kapteyn *et al.* 1988, Muffels *et al.* 1990). For the purpose of measuring that income, a question is included in the questionnaire on the absolute minimum income a household needs in order just to make ends meet. This question is called the Minimum Income question (MIQ).

> Which after tax monthly income do you consider to be the absolute minimum for your household in your circumstances? In other words: if you had any less you would not be in a position to make ends meet.

The answers to the MIQ appear to be related to a number of determining variables. Based on the preference formation theory (Kapteyn 1977), the model used in this research assumes a close relationship between the answers on the MIQ and family composition (costs/need factors), current household income (influences of habit formation) and reference group characteristics (reference group influences). As might be expected the household's minimum income appears to be higher the higher the actual income of the household is.

The poverty line is then set where the actual household income equals the minimum income reported with the MIQ. Again each household's income is compared to the level of the Subjective Poverty Line for that household. If disposable household income is below the Subjective poverty line a household is considered to be poor. In Muffels *et al.* (1990) a number of SPL models have been estimated, quite simple ones where the model variables just consist of actual income and family size, and more complex ones where a correction is made for selectivity bias with regard to the measurement of income and where other variables are added to the model such as family composition (age and rank order of the children) and reference group factors. In this article, a correction is made for selectivity bias and the model includes family composition and reference group variables[1].

Subsistence insecurity

According to indirect definitions of poverty, people are considered to be poor if they do not have at their disposal sufficient resources in order to achieve a particular minimum level of subsistence. Poverty then becomes operationalized as the situation in which the disposable income of a household is below a 'subsistance income minimum'. According to these income approaches, poverty is both, *defined* and *measured*, in terms of an indirectly assessed yardstick of welfare being income. In our research two different kinds of indirect income poverty standards are

applied: the national social minimum income standard (NSMI), and the European statistical minimum income standard (ESMI).

The NSMI standard Although no official poverty line exists in the Netherlands, the level of the lowest social security benefits in the General Social Assistance Act (ABW) might be considered to represent a minimum income level required for households to live in security of subsistence. This minimum income level is generally referred to as the 'social minimum'. The calculation of the poverty line for every type of household in the samples is based on the benefit levels from the General Social Assistance Act (Berghman *et al.* 1988: 83–85, Muffels *et al.* 1990: 127–135, Dirven and Berghman 1991). These amounts may originally have referred to the estimated costs of a minimum basket of goods, over the years the adjustments of the benefit levels have made the relationship with a kind of minimum consumption basket rather weak.

The current levels of the benefits depend on the composition of the household the person lives in, the age of the person, and whether or not the person shares an income with others in the household. In determining the NSMI levels, not only social assistance benefits but also holiday allowances, incidental benefits, family allowances and student grants have been included in the calculations. For every household in the sample a NSMI has been calculated on the basis of the conditions set out in these statutory benefit schemes. Next, each household's disposable income has been compared to the NSMI levels corresponding to that type of household. If disposable income is below the NSMI poverty line, a household is considered to be poor. In reality, households may indeed have an income below the safety net the 'social minimum' is supposed to be, because of a reduction in the level of benefits (sanction regulations, payment of credit commitments, capital income ceilings) or because of non-take up of benefits (underconsumption of social security benefits the household is entitled to but for whatever reason does not want or dare to claim). Underreporting of income could of course be another reason. Yet, information is only used from households reporting on an extensive list of 27 income components on which information is collected in the questionnaire (Kapteyn and Melenberg 1990). The NSMI standard is to a certain extent based on a kind of social or political consensus, or so to speak on the views of experts (politicians) on the minimum income level their society is prepared to guarantee in order to safeguard subsistence.

European statistical minimum income standard (ESMI) The poverty standard which has been used in research commissioned by the European Community (second poverty programme) to measure the extent of poverty in Europe is based on the idea of setting the poverty line at a level which corresponds to a certain fraction of median equivalent disposable income in every country. The line we used in our study follows O'Higgins and Jenkins (1989). Standardization of household income means correcting for differences in welfare due to differences in household composition. These differences can be expressed in a so-called equivalence scale for various household types. Various equivalence scales are distinguished in literature. The equivalence scale proposed by O'Higgins and Jenkins starts from the poverty line for a single person, which is set at 50 per cent of the median income of the standardized income distribution. The equivalence scale then supposes that, compared to the single person standard, for each additional adult in the household a 70 per cent increase in household income is needed to keep the household at the same welfare level. For each additional child a 50 per cent increase in household income is assumed to be needed. Again, if the household's disposable income falls below this poverty line, the household is considered

to be poor. In the sequel, the poverty standard will be referred to as the European statistical minimum income standard (ESMI).

Evaluation

Implicitly, some arguments are already given for the use of four poverty lines simultaneously. The NSMI poverty line is applied because it enables testing of the aim of official social policies to guarantee an adequate minimum income. Yet, it would be dangerous to use solely this standard. A downward adjustment of the politically guaranteed minimum income amounts in the Social Assistance schemes would lead to the situation that poor households having labour or social security income from outside social assistance would see their income rise above the level of the NSMI though their income did not change at all. Hence, the poverty rate would decrease as a result of the fall in the NSMI levels. This would be clearly an artefact of the NSMI line which for that reason is not considered to be a very good indicator of poverty. Therefore, the subjective poverty line approach has been included in our research to represent an income poverty standard that is not directly affected by policy making.

In the European setting there is a growing need for comparative poverty research. Yet, so far, neither the NSMI nor the subjective poverty line are very adequate to base comparative research on. Therefore the ESMI method, as developed by O'Higgins and Jenkins (1989) has also been applied.

One major drawback of this standard is related to the use of uniform equivalence scales. It means that welfare differences between households because of differences in size and composition are assumed to be the same in every member state. It has been shown that this assumption is not met in reality (Deleeck *et al.* 1991).

That a household is in subsistence insecurity according to the ESMI standard does not necessarily mean that the household is also in deprivation poverty. Having a low income does not necessarily imply experiencing an insufficient quality of living conditions, while the quality of life is determined by a lot more aspects than income alone. For this reason the multidimensional poverty line has to be applied. There is another reason too, which is that if European social policies are not solely aimed at the provision of a 'minimum income guarantee' but also at combatting 'social exclusion' in the community the statistical minimum income standard is not qualified to function as a monitoring device for integrative social policies in the EC. Finally, from a theoretical perspective, it should be noted that studying poverty according to the income-based measurement method means that the focus is on poverty in terms of *inequality of outcomes*, while the use of the consumption-based methods means that one is more interested in poverty in terms of *inequality of opportunities*. From a policy perspective this leads to an important conclusion because the need for creating monitoring devices for social policies in Europe in the years ahead should lead to the creation of statistical tools that may give attention to both aspects of poverty: poverty in terms of inequality of opportunities and poverty in terms of inequalities of results.

In section 3 some information is given on the data and operationalization of the variables. In section 4 the various direct and indirect poverty standards are compared making use of the information in 1988. Section 5 deals with the issue of poverty mobility, and information is given on the topic of 'transitory and permanent poverty'. From a policy perspective this issue will seem to be very important. Section 6 deals with the question to the determinants of transitions into and out of poverty. Finally, in section 7, some important conclusions with regard to the scientific and policy implications of the study are presented.

3 Data and operationalization

The analyses carried out in the study are based on the data sets of individuals. The datasets of 1985–88 are matched by the personal identification number.

To be able to calculate the incidence of poverty at individual level, the household income and the poverty line at household level are assigned to every person in the household. If the household lives in poverty it is assumed that all persons in the households live in poverty. This assumption implies that the household is considered to be the consumption unit and not the individuals within households. In welfare economic terms this meets the assumption of a 'joint utility function'. The same procedure is followed for other variables at household level such as the socio-economic status of the head of household, the marital status of the head, the age, education level, number of children and so on. From the perspective of analysing the dynamics of poverty or change in general, it is very important to take into account changes in household composition, because family composition often changes fundamentally over the years for various reasons, such as birth and death, children leaving home, divorce or separation and marriage or remarriage. Because these changes often alter family well-being considerably, the restriction of analysing poverty dynamics only at the household level becomes problematic. A proper way to deal with this is to switch the analyses from the household level to the individual level.

Dynamic analyses of poverty can then be carried out at individual level taking into account household characteristics. This procedure is followed in section 6 on poverty dynamics. For a more detailed operationalization of all variables in the analysis the reader is referred to Dirven and Berghman (1991).

4 The situation in 1988

From Table 1 it appears that in 1988 a sizeable minority of the population, ranging from 6 per cent according to the NSMI standard, to 22 per cent according to the highest deprivation standard (SDL-6), lives in insecurity of subsistence or relative deprivation. It also becomes clear that the average individual poverty gap, defined as the

Table 1 Poverty ratios and poverty gaps for five poverty lines, data from the Dutch Socio-Economic Panel, 1988

Poverty standards	*Poverty ratios (in %)*		*Poverty gaps in % of poverty line*	
	Households (N)	*Persons (N)*	*Households (Np)*	*Persons (Np)*
Consumption stand				
SDL 5.5	10.6 (4,329)	9.6 (11,244)	0.22 (459)	0.21 (1,079)
SD 6	23.2 (4,329)	20.2 (11,244)	0.21 (1,004)	0.21 (2,276)
Income stand				
SPL	18.6 (4,687)	12.3 (12,582)	24.0 (870)	25.0 (1,547)
NSMI	7.9 (4,745)	6.2 (12,787)	26.0 (373)	26.0 (787)
ESMI	7.5 (4,759	9.4 (12,808)	27.0 (359)	24.0 (1,203)

N = the total number of households or persons in the sample.
Np = the number of *poor* households or *poor* persons.

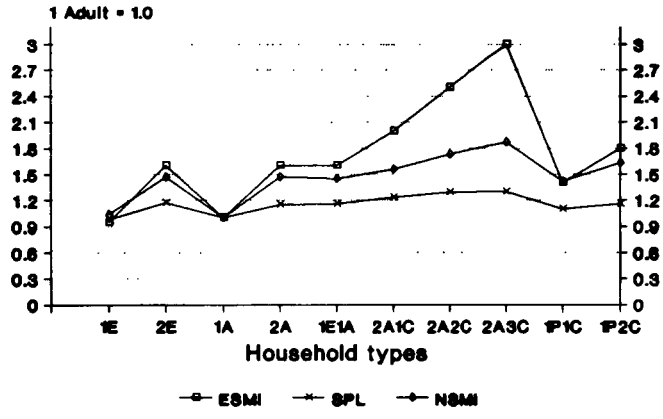

Figure 1 Equivalence scales by household type for three poverty lines. E = elderly; A = adult; C = child; 1P = one present.

income shortfall of the household income (y) to the poverty line $(z)^2$, amounts to approximately 20 per cent for the deprivation standards and 25 per cent for the income poverty standards.

According to the NSMI standard 7.9 per cent of all households and 6.2 per cent of the population have an income below the 'subsistence minimum' in 1988. The high proportion of poor, according to the NSMI standard, seems at first sight surprising. From a policy perspective the phenomenon is important because the figures suggest that even when one takes account of reductions that are applied for those that do not abide with the rules of the General Social Assistance Act, a considerable proportion of the population apparently lives in households where income falls 20 per cent short of the corresponding subsistence minimum levels for that household.

When first confronted with this finding some years ago, the hypothesis was formulated that quite a few people for one reason or another apparently do not claim the benefits they are entitled to (Berghman and Muffels 1988). Given the growing importance of means tested benefits and the tendency in European social systems towards increasingly selective additional entitlement rights (van Oorschot 1991), a first conclusion with regard to policies should be that the issue of non take-up deserves highest attention of both, social policy makers and social security administrators.

The difference between the figures for the household and the individual may be attributed to the unequal distribution of poverty to household size. Subsistence insecurity according to the minimum income standard occurs more frequently with smaller households than with larger households. The reverse holds for the ESMI poverty standard, where the percentage of poor households (9.4 per cent) is higher than the population percentage (7.5 per cent). This has to be attributed to the rather steep equivalence scale of the EC minimum income standard. The equivalence scale for large households appears to be much larger in the case of the ESMI standard than in the case of the NSMI standard. This is depicted in Figure 1.

It becomes apparent from Table 1 that in 1988 19 per cent of all households and 12 per cent of the population was living in a situation of subjective subsistence insecurity. At the same time 11 per cent of all households and 10 per cent of the population was living in a situation of relative deprivation according to the low SDL standard (SDL-5.5). To this

finding should be added that to some extent insecurity of subsistence and relative deprivation appeared to be related. Yet, the relationship was not at all perfect. Not every person living in *in*security of subsistence seems to be relatively deprived, and at the same time it appears that part of all persons in *se*curity of subsistence is in relative deprivation. According to the European minimum income standard only 29.9 per cent of all insecure also belong to the deprived according to the deprivation poverty line (SDL-5.5). On the other hand some 7.6–8.5 per cent of the secure, according to the income standards, turns out to be relatively deprived. However, if the high deprivation standard is used (SDL-6) it turns out that more than 50 per cent of the ESMI-insecure also belong to the SDL-insecure, and some 17–19 per cent of those living in subsistence *security* turn out to be *deprived*. The relationship between the income standards emerge to be much stronger. If the relationship between the national minimum income standard, the SPL standard and the European income standard is examined, it appears that about 86 per cent of the NSMI-insecure also belong to the subjective poor and more than 60 per cent also belong to the ESMI poor. About 45 per cent of the SPL-poor also belong to the NSMI-poor but only 37 per cent belong to the ESMI poor. From these results it emerges that the consumption-based deprivation standards lead to quite different results in terms of poverty incidence in the population. Therefore, even if the policy maker is primarily interested in the issue of identification and counting the poor, the great variance in the poverty distributions will urge him/her to look at various poverty standards simultaneously, whether income- or consumption-based.

In Table 2 the focus is on the bivariate relationship between income and deprivation poverty. To gain a better insight in the variables that determine this bivariate relation a multivariate analysis has been carried out on the relationship between income and deprivation poverty. For that purpose a logistic regression model was estimated, using the BMDP-LR routine. For the dependent variable a categorical variable was chosen: 'being deprived or not'. As independent variables, first of all a variable indicating income poverty according to the NSMI and ESMI standards was implemented, named 'poverty status'. Next, some variables were implemented which, from earlier findings, proved to be significant indicators of poverty (Muffels, *et al.* 1990; Dirven and Berghman 1991), such as the number of children in the household, the number of employed, the age of the head of the household, the education level of the head, the sex of the head and the head's marital and socio-economic status. Finally, the household income was added to the model equation, reflecting the effect of 'lack of resources' on deprivation poverty. The results are given in Table 3. A separate model was estimated for both the low (SDL-5.5) and high (SDL-6) deprivation standard. Because the results turn out to be very similar for both models, only the results for the SDL-5.5 model are presented. The fit of the model indicated by the pseudo R^2 value and the significance level of the parameter estimates appear to be quite good.

The exponent values in the last column represent the conditional probabilities for being in deprivation poverty. Values below 1 indicate a proportional lower probability of being in deprivation poverty compared to the reference category (indicated with the figure 0), and values above 1 indicate a proportional higher probability.

First, consider the income variable which is measured in thousands of dutch guilders. The exponent value of 0.96 for the SDL-5.5 model indicates that an increase in annual income with 1,000 dutch guilders (representing an average increase in income of 2.4 per cent) will decrease the risk of being in deprivation poverty by 4 per cent. The effect of income in this model proves to be much lower than the effect of income of a similar model estimated for the EC standard (exponent value of

Table 2 The relationship between deprivation-poverty and income-poverty in 1988 (N = 13,771)

	SDL-5.5 (in %)		*SDL-5 (in %)*	
	Deprived	*Not deprived*	*Deprived*	*Not deprived*
SPL				
Insecure	23.0	77.0	48.2	51.8
Secure	7.8	92.2	17.1	82.9
NSMI				
Insecure	27.6	72.4	50.7	49.3
Secure	8.5	91.5	18.9	81.1
ESMI				
Insecure	29.9	70.1	52.3	47.6
Secure	7.6	92.4	17.6	82.4

income is 0.66). In the EC model a Fl. 1,000 increase, which represents an average increase of income of 2.3 per cent, causes the probability of being poor to fall with 44 per cent. The conclusion is that the probability of being poor according to the SDL standard has a much lower association with income and turns out to be much more associated with other variables such as being unemployed or being divorced. The results suggest that income and consumption deprivation are rather different concepts. It seems to be justified to consider consumption-based and income-based standards as being complements instead of being mere substitutes.

To gain further insight into the relation between deprivation and income poverty let us look at the exponent values of the 'poverty status' variable. The insecure/secure category of this variable represents those people living in subsistence *insecurity* according to the NSMI standard, but who at the same time live in subsistence *security* according to the SPL. This category may be referred to as the 'subsistence insecure, subjective secure' population category. The exponent value is 4.4 which indicates that the probability of being in deprivation poverty for this 'insecure/secure' group is 4.4 times higher than the probability of being in deprivation poverty for the reference category which is the 'secure/secure' group (subsistence secure, subjective secure). In the model estimations with respect to the EC standard, the exponent values, both for this category and for the other categories of the poverty status variable, appear to be much higher.

This means that the relation between subsistence insecurity and being at risk of poverty according to the European standard turns out to be much stronger than the relationship of income insecurity with deprivation poverty, though the probability of being in deprivation poverty is still considerably lower for those *not* living in income insecurity or subjective poverty. The direct and indirect approaches turn out to be related though the relations are not at all perfect. To illustrate this further, a closer look at some of the other variables is needed. The evidence for the 'marital status' variable reveals that persons living in households with a divorced or separated head have a 7.7 times higher probability of being in deprivation poverty compared to persons living in households with a married head. Persons living in households with a disabled head or a head living at a social assistance benefit prove to have much higher risks of being in

Table 3 Estimation results of a logistic regression model of deprivation-poverty, 1988

Variables in the equation	*SDL-5.5 Parameter estimates*	*Sign-level*	*Exp.*
Poverty status			
(NSMI/SPL)			
secure/secure	0	0	0
insecure/secure	1.47	5.2*	4.4
secure/insecure	0.28	2.0*	1.3
insecure/insecure	0.05	0.3	1.1
Marital status			
married	0	0	0
divorced/separated	2.04	13.1*	7.7
widow(er)	0.69	3.6*	2.0
unmarried	0.39	2.4*	1.5
Number of children	0.44	10.3*	1.5
Number of elderly	−0.00	−0.0	1.0
Number of employed			
no employed	0	0	0
1 employed	−0.40	−2.8*	0.7
> = 2 employed	−0.39	−2.4*	0.7
Socio-economic status			
employed	0	0	0
unemployed/retired	0.70	3.5*	2.0
disabled	1.66	10.8*	5.3
social assistance	1.40	6.2*	4.0
no profession	0.69	4.2*	2.0
Education level			
primary education	0	0	0
secondary lower	−0.67	−6.4*	0.5
secondary higher	−1.03	−10.4*	0.3
tertiary	−1.53	−7.3*	0.2
university	−0.61	−3.1*	0.5
Age class			
<34 years	0	0	0
35–44	0.26	2.3*	1.3
45–54	0.67	4.8*	2.0
55–64	−0.26	−0.1	1.0
64–74	−1.19	−3.3*	0.3
> = 75	−1.03	−2.7*	0.4
Sex (dummy)	−0.11	−0.8	0.9
Household income/1000	−0.40	−9.7*	0.96

Log-likelihood = −2,393.
Pseudo R^2 = 0.301.
N = 10,969.
Npoor = 1,031.
* = significant if t-ratio (coefficient/standard error) > = 2.

deprivation poverty than persons in households with an employed head. Note that these large effects of marital status and socio-economic status occur independently of the effect of income.

Low deprivation risk, on the other hand, is characteristic for persons living in two-earner households, in households with a high educated head or an elderly head. If these results are compared to earlier results as regards the income poverty standards, it happens that the general picture is equivalent, though for some categories such as the disabled, the elderly and the students, the differences between being at risk according to the income-poverty standards and according to the deprivation-poverty standards are quite large. For the disabled category the deprivation-poverty risks appear to be much higher than the subsistence-insecurity risks. The reverse holds for the elderly and the students.

5 Trend analysis 1985–88

Panel data may be analysed as if they represent a series of repeated cross-sections. Analysing the panel as a series of cross-sections enables us to carry out trend analyses, which give further insight into the occurrence and magnitude of changes in poverty risks over time at the level of social categories.

As far as the overall picture is concerned, it appears that a slight decrease in the incidence of poverty occurred between 1985 and 1988 according to the NSMI and ESMI poverty standards, while the SPL reveals a slightly upward trend in the incidence of poverty. Applying a loglinear approach as implemented in the SPSS-Loglinear routine, the results indicate that except for the SPL the trends turn out to be not significant. The increasing trend for the SPL which became manifest in 1987 may indicate that the reform

Table 4 Poverty ratios and poverty gaps for three income poverty lines, 1985–88

Poverty standards	*1985*		*1986*		*1987*		*1988*	
	% hh	*% pers*	*% hh*	*% pers*	*% hh*	*% pers*	*% hh*	*% pers*
SPL	14.7	10.1	16.3	11.5	18.4	12.8	18.6	12.3
NSMI	8.7	7.3	7.5	6.6	8.0	6.1	7.9	6.2
ESMI	8.5	11.1	8.2	10.5	8.5	10.2	7.5	9.4
Average poverty gaps in %								
SPL	21	23	24	26	24	25	24	25
NSMI	19	21	26	28	27	29	26	26
ESMI	21	20	26	24	26	23	27	24

% hh = % per household.
% pers = % per person.

of the Dutch Social Security system as of 1 January 1987 did result in increasing feelings of subsistence insecurity. The poverty gaps turn out to be very stable over time.

6 Panel analysis

The results so far focus on the evolution of poverty at the level of population groups. Panel analysis, which is based on a continuing monitoring of the same households over time, may inform us about the changes and evolutions at an individual level. Only these kind of analysis can provide evidence on the *permanent* versus the *transitory* character of situations of poverty and insecurity of subsistence, and to which issue is of great relevance for social policies.

Mobility analyses

First, some evidence will be presented on the upward (moving out of subsistence insecurity), downward (moving into subsistence insecurity) mobility and persistent poverty (staying insecure). Therefore, in Table 5, the flows into and out of subsistence insecurity between 1985 and 1988 are presented for those persons who participated in the panel in both 1985 and 1988. That was the case for about 77.3 per cent of all persons who reported an income and participated in 1985.

In Table 5 some information is given on the transitory and permanent character of income poverty. Persistent insecurity is highest for the SPL standard. Approximately 47 per cent of the insecure in 1985 turned out to be still living in insecurity of subsistence in 1988. According to the EC standard the percentage is somewhat lower, 41.3 per cent, but the lowest estimate is derived for the NSMI standard. Only 18 per cent of all persons insecure in 1985 were still insecure in 1988. It appears that the stability for the income poverty standards is highest in the case of the SPL and the ESMI and lowest for the national social minimum income. This is confirmed by the evidence in the last column of Table 5. It gives the cross-product or odd's ratio, which represents a measure of association between income security in 1985 and in 1988. The higher the ratio is the higher relative *stability* of the poverty standard is.

In percentages of the insecure and secure population respectively, upward mobility

seems to be much higher than downward mobility. Upward mobility is highest for the NSMI standard. More than 80 per cent of the NSMI-insecure move out of subsistence insecurity in the years between, while according to the subjective standard only 53 per cent of all persons were capable of escaping from subsistence insecurity. These percentages are much higher than the percentages linked with movements *into* subsistence insecurity. Only 4 per cent of those living in security of subsistence appear to move into poverty in the years between 1985 and 1988. This may likely give rise to the assessment that in the late 1980s the Dutch situation is more accurately delineated as a situation of 'permanent wealth' than as a situation of 'permanent poverty'. One needs to be cautious, however, to draw such far-reaching conclusions on the basis of these findings only, since the transition probabilities estimated in this classical mobility table may be biased because of the occurrence of measurement error (see Hagenaars 1990, Van de Pol 1989). The estimation of a stationary mixed markov model (van de Pol 1989) for the most stable poverty line, the ESMI standard, shows that during the observation period of four years a group of 11 per cent of the population belongs to a class of 'movers'. Mobility appears to be high even after correction for unreliability[3].

Duration of poverty

From the cross-section analysis it became apparent that in each of the four years, according to the NSMI standard, some 6–7 per cent of the population had to rely on an income below the social minimum income level. Yet, the panel analysis shows that as much as 14.5 per cent of the population was in poverty during one of the four years under observation. A similar finding is found for those in subjective poverty (SPL), the annual figures show that 10–13 per cent of the population had an income below the subjective subsistence level while it appears that approximately 21 per cent of the population lived below the subjective minimum in at least one year. For the ESMI standard the percentages are 9–11 per cent and 19.4 per cent respectively. In all cases it appears that about *twice* as much people are at risk during the four-year period than at any particular year. Table 6 presents some more information on the evolution of poverty over time.

Despite the large proportions of people who are at risk for income insecurity, in general *stablity* seems to be more common than change. According to the NSMI standard more than 85 per cent remain in security of subsistence for the whole period. Table 6 also

Table 5 Upward and downward mobility and persistent subsistence insecurity between 1985 and 1988

	% Poor in		*Upward mobility*		*Downward mobility*		*Persistent insecurity*		*Relative mobility*
Poverty	*1985*	*1988*	*% all*	*% sec*	*% all*	*% insec*	*% all*	*% insec*	*(Odd's ratio)*
SPL	9.6	11.1	5.1	53.2	6.6	7.3	4.5	46.8	11.1
NSMI	6.7	5.1	5.4	82.0	3.9	4.2	1.2	18.0	5.0
ESMI	9.9	8.4	5.8	58.7	4.3	4.8	4.1	41.3	13.9

% sec = security of subsistence.
% insec = insecurity of subsistence.
% all = as a percentage of all persons.
% poor in '85 = upward mobility + persistent poverty.
% poor in '88 = downward mobility + persistent poverty.

Table 6 Evolution of poverty between 1985–1988

	SPL	*NSMI*	*ESMI*
Duration	%	%	%
Total	100.0	100.0	100.0
% not hit by poverty in any year	78.8	85.5	79.6
% hit by poverty in at least one year	21.2	14.5	19.4
Of which hit during:			
1 year	59.7	74.6	63.5
2 years	23.4	20.8	21.0
3 years	11.7	3.9	12.5
4 years	5.1	0.7	3.0
Number of poor	3,483	2,379	3,184
Total	16,405	16,411	16,431

shows us that a very high fraction of the poor remained poor for only a very short period. Almost two-thirds of those who happen to be in income insecurity during one of the years are poor for only one year. These figures would suggest that income mobility is extremely high. Apparently, poverty and insecurity of subsistence are permanent situations for only a minority of the population. Permanent poverty does not present itself as a major issue for policy makers from these figures. In the sequel, however, we will show that this conclusion underestimates the issue of permanent poverty.

The method applied here follows Duncan (1984) but has one major drawback, which is that *censoring* is not taken into account. For the poor it is not known at the start of the period in 1985 how long they were poor in the past (left censoring) and for those poor at the end of the period, 1988, it is not known how long they will remain poor in the future (right censoring). To solve this problem we need to switch to a spell approach (Bane and Ellwood 1986). A poverty spell is assumed to start if in year t a person is living in subsistence insecurity while the same person appeared to be out of poverty in year t-1. In any period of length greater than two years *multiple spells* of poverty may occur. The classical approach to deal with this kind of spell data is the standard 'life-table' approach. More advanced methods for analysing mobility are history event analysis, survival analysis techniques, duration models and failure time models (see Kalbfleisch and Prentice 1980). Because the available information is restricted to a short time period, four years, it was not feasible to apply these duration models. Instead the life table approach has to be relied on. In Table 7 the life tables for the various poverty lines are given. The information is again at an individual level. The standard errors of the survival estimates (exit rates) are not depicted but appear to be small (on average between 2–3 per cent).

Again, Table 7 provides evidence on the high mobility amongst the poor, particularly in the first year of a spell beginning. Almost 50 per cent of all spells, according to the NSMI line, terminated in the first year after a spell beginning. For the ESMI and SPL standards the percentages appear to be much lower but still show that spells tend to last less than a year. If the spell lasts longer than one year exit probabilities fall down quickly, particularly according to the NSMI standard. In the case of the NSMI the exit rate falls 16 per cent in the second year. These findings confirm our earlier conclusion that a large number of spells appear to be spells of short duration. However, compared to the evidence in Table 6, the correction for 'right censoring', turns out to lead to higher (cumulative) survival rates. According to the NSMI standard, after three years 58 per cent of all spells were terminated, 42 per cent of all persons with a spell that started in 1986 remained poor during the whole three years period. According to the SPL and ESMI standard the percentages of persons remaining insecure during the three year period are higher, 52 and 50 per cent respectively. Again

Table 7 Duration of poverty spells according to three income poverty lines, 1986 to 1988.

	SPL			*NSMI*				*ESMI*				
Spells in yrs	*Nx*	*Tx*	*Qx*	*Cum Px*	*Nx*	*Tx*	*Qx*	*Cum Px*	*Nx*	*Tx*	*Qx*	*Cum Px*
1	1378	350	0.34	0.66	1006	371	0.49	0.51	1330	332	0.32	0.68
2	329	46	0.20	0.52	129	13	0.16	0.42	399	78	0.26	0.50
3	74	0	0.20	0.52	17	0	0.16	0.42	123	0	0.26	0.50
α =	0.79 (0.08)				1.15 (0.19)				0.78 (0.03)			

Nx = number of observations at beginning of spell.
Tx = number of terminations of spells.
Qx = exit rate.
Cum Px = cumulative survival rate.
α = indicator for duration dependency.
standard errors of α between brackets.

the conclusion should be that the ESMI standard and the SPL standard should appear to be more stable than the NSMI standard.

In Table 7 information is included on the occurrence of 'duration dependency'. The existence of duration dependency is very important from a policy perspective, because if 'duration dependency' occurs, the probability of escaping poverty rises or falls with longer durations of poverty spells. In case of 'negative duration dependency' the probability to escape from poverty falls with increasing spell durations and in case of 'positive duration dependency' the probability to escape from subsistence insecurity rises[4]. In the case of negative duration dependency the indicator α will be smaller than 1 and in the case of positive duration dependency α will be larger than 1. In Table 8 the α's for the various poverty standards and the corresponding standard errors are given. Negative duration dependency occurs in the case of the SPL and the ESMI poverty line, which implies that the probability to escape from subsistence insecurity *falls* with longer durations of poverty spells. The reverse holds for the NSMI standard, for which the α proves to be larger than 1.

It turns out that on the basis of this information covering three years the issue of 'permanent poverty' seems to be of high relevance for social policies of today. Some 40–50 per cent of the poor remain poor during the whole three year period. Presumably the percentage of 'permanent poor' would have been even higher if information had been available covering more years. In the well-known article of Bane and Ellwood (1986, based on information of the PSID panel) it became clear that over a period of fifteen years the bulk of the persons-years of poverty are accounted for by the long-term poor. However, the assessment of Bane and Ellwood with regard to the length of welfare spells is not unquestionable, because Blank (1989) found shorter spells of welfare use and less evidence for duration dependence.

Determinants of poverty transitions

It is of extreme policy relevance to know which are the core determinants that condition mobility into and out of income insecurity, because policies can be targeted much more efficiently if the causes for people falling in or moving out of poverty are known. Finally, this issue is studied using the national minimum income standard (NSMI).

In analysing the impact of possible determinants three kinds of changes are accounted for: changes in household formation (childbirth, divorce/separation, (re)marriage), changes in employment status (a change in employment status of the head of household, gaining or losing a job of at least one hour, the number of employed in the household at time t + 1) and changes in the poverty line level for the household due to changes in family composition (number of children, number of adults, change in number of adults, change in number of children).

Next to that a variable is implemented indicating the 'residual income' level of the household in terms of having an income neither from labour nor from social security benefit schemes. Secondly, a variable is added indicating the income shortfall of the insecure and the income surplus of the secure at time t. This variable is called the *nsmi-ratio* and is defined as the ratio of household income and the NSMI income standard level. It is considered to be an indicator for the *level* of deprivation and the level of wealth (see also Duncan *et al.* 1991). Furthermore some background variables, such as the education level of the head of household, the socio-economic status, the marital status, the sex and the age class of the head, all measured at time t, are implemented in the model formulation. Finally, three time variables for each transition period (1985/1986, 1986/1987, 1987/1988) are implemented of which only the time variable for 1987/1988 turns out to be significant.

Results

All variables related to *changes in employment status* of the household, such as the number of employed at t + 1, the change in employment status of the head of household between t and t + 1 and the gain or loss of a job of any person in the household between t and t + 1, appear to be very significant indicators of transitions into and out of subsistence insecurity. The probability to move out of poverty is almost five times higher for persons in households of which the head found a job between t and t + 1, compared to persons in households where no change took place in the employment status of the head. The probability of moving into poverty is three times as high for persons in households of which the head became unemployed.

Changes in household formation, such as (re)marriage or separation because of divorce or death of the partner turn out to have much smaller effects than changes in labour market status. The effect of (re)marriage on movements out of poverty turn out to be just not significant, though the exponent value indicate that (re)marriage has a large positive effect on the probability of escaping from subsistence insecurity. On the other hand, the effect of separation on transitions into subsistence insecurity appears to be quite strong too. Compared to a married couple, persons belonging to a divorced or widowed household have a 50 per cent higher probability of transition into poverty. *Changes in household composition*, because of childbirth or of children leaving home, hardly influence the probability of escape from subsistence insecurity but appear to have significant effects on falling into poverty. Not only the number of children but also the number of adults turn out to have a positive impact on the probability to move into insecurity.

Finally, the results show that, with respect to the *demographic and socio-economic characteristics* of the household, particularly the age, the education level and the socio-economic status of the head of household have a strong impact on the probabilities of escape from insecurity or the move into it. The probability of escape from income insecurity increases and the probability of moving into it falls strongly with increasing age and higher education. The risk of moving out of insecurity appears to be much lower

for heads of households receiving a social assistance benefit and the risk of moving into income insecurity turns out to be much higher for persons living in households of which the head has no profession (students), receives an unemployment, disability or social assistance benefit. Finally, the effect of gender has an unanticipated negative sign. Female heads of households (at time t) have a higher chance to move out of poverty than male heads of households. The effect of belonging to a household of which the head is divorced or widowed turns out to be not significant. However, the results of the model for transitions into poverty show that persons living in single households or in households with a divorced or widowed head have a higher chance of moving *into* subsistence insecurity than persons living in a nuclear family. The exponent values show that persons living in single households have a 50 per cent higher risk of moving into subsistence insecurity, while the divorced and widowed households have a 20 per cent higher probability of moving into insecurity than those living in a nuclear family.

From these findings one is tempted to conclude that the risks of falling into poverty and the chances to escape from poverty appear to be quite unevenly spread amongst the population. There is high mobility into and out of poverty but mobility is concentrated within particular social categories, the low educated, the unemployed, the disabled, the divorced and widowed. The conclusion must be that for a high fraction of those living just below or just above the income poverty thresholds the changes in poverty status are particularly due to changes in employment and household formation processes.

7 Conclusions for social policy

It emerges that problems of subsistence insecurity, subjective poverty and relative deprivation present themselves as being widespread amongst the population. Even in the relatively wealthy Dutch society they apparently could not be prevented by the operation of an elaborate social security system. Hence, poverty is deemed to remain a core issue for social policy in the Dutch context, and even more so in the perspective of a 'Social Europe'.

In the first part of the study the issue is dealt with as to whether income-based and consumption-based poverty standards must be conceived as being complementary to each other or as being mere substitutes. From the analyses it became clear that being deprived does not necessarily mean being in income insecurity according to the income-based standards. Income and consumption deprivation obviously refer to quite distinct concepts of poverty. The conclusion must be that a multi-method approach of poverty, in which evidence is collected on both income-based and consumption-based standards, is needed to gain insight into the complex relationships that condition the multidimensional face of poverty. If social policies are not solely aimed at the provision of a 'minimum income guarantee' but also at the combat of 'social exclusion', income standards are inadequate as monitoring devices. Their information should be complemented by using a multidimensional deprivation standard that is capable of covering a broader range of living conditions or aspects of life than just income. This recommendation holds for the national level. Yet, also at the European level it should be a guiding principle for monitoring social policies at the level of the Community and its member states.

The results of the various analyses on the dynamics of income insecurity in the Netherlands reveal that mobility into and out of income poverty is quite high, but at the same time it emerges that permanent subsistence insecurity is quite high too. In the four years under observation about 40–50 per cent of those who became poor in the first

Table 8 Estimation results of a logistic regression model for transitions into and out of poverty, 1985–1988 according to the NSMI standard

	Out of poverty			*Into poverty*		
Variables in the equation	*Par. Est.*	*Sign. level*	*Exp.*	*Par. Est.*	*Sign. level*	*Exp.*
NSMI-ratio	0.9	5.1*	2.5	0.1	4.5*	1.1
Residual income	0.1	10.4*	1.1	−0.1	−13.4*	0.9
Socio-economic status						
employed	0	0	0	0	**0**	**0**
unempl/disabled	0.5	2.9*	1.6	0.8	**8.6***	**2.3**
retired	0.7	2.8*	2.0	0.3	**1.8**	**1.2**
social assistance	−0.5	−1.9	0.6	0.9	**5.3***	**2.6**
no profession	−0.8	−5.6*	0.5	1.4	**11.9***	**3.8**
Education level						
primary/sec low educ.	0	0	0	0	0	0
secondary higher	0.3	2.5*	1.3	−0.1	−2.3*	0.9
tertiary	0.7	3.1*	2.0	−0.5	−4.8*	0.6
university	1.4	4.0*	3.9	−0.4	−2.7*	0.7
Age class						
<34 years	0	0	0	0	**0**	**0**
35–44	0.5	3.1*	1.6	0.1	**1.1**	**1.1**
45–54	0.4	2.6*	1.5	0.4	**4.4***	**1.5**
55–64	0.7	4.4*	2.1	−0.6	−5.5*	0.6
65–74	0.9	3.4*	2.5	−0.8	−6.2*	0.5
> = 75	0.9	3.1*	2.5	−0.8	−5.2*	0.5
Sex (dummy)	−0.4	−3.2*	0.6	−0.1	−0.8	0.9
Marital status						
married	n.s	n.s	n.s	0	**0**	**0**
div/wid	n.s	n.s	n.s	0.2	**1.4**	**1.2**
unmarried	n.s	n.s	n.s	0.4	**3.5***	**1.5**
Number of adults	−0.2	−1.3	0.8	0.3	**2.3***	**1.3**
Number of children	0.1	0.7	1.1	0.4	**5.0***	**1.5**
Dummy change n child	n.s	n.s	n.s	0.1	**1.1**	**1.1**
Dummy change n adult	n.s	n.s	n.s	0.8	**8.5***	**2.2**
(Re)Marriage	0.4	1.7	2.3	n.s	**n.s**	**n.s**
Separation/Divorce	n.s	n.s	n.s	0.4	**2.2***	**1.5**
Jobgain	1.0	3.7*	2.6	0.2	1.1	**1.2**
Jobloss	−0.5	−1.3	0.6	1.1	9.6*	2.9
Number of employed at t + 1	0.7	11.8*	2.0	−1.1	−24.6*	0.3
Change employment stat.						
no change	0	0	0	0	**0**	0
become employed	**1.6**	6.0*	4.8	−0.7	**−3.2***	0.5
become unemployed	−0.6	−2.1*	0.5	1.1	**8.8***	3.0
Time						
1985/1986	n.s	n.s	n.s	n.s	**n.s**	**n.s**
1986/1987	n.s	n.s	n.s	n.s	**n.s**	**n.s**
1987/1988	−0.6	−6.2*	0.5	0.0	**−0.2**	**1.0**
Constant	−1.2	−4.6*	0.3	−2.1	−11.5*	0.1

Log-likelihood = −1,365 (out of poverty); −5,290 (into poverty).
Pseudo R^2 = 0.21 (out of poverty); 0.16 (into poverty).
N = 2,626 (out of poverty); 30,284 (into poverty).
Nsuccess = 1,653 (out of poverty); 1,614 (into poverty).
* significant if t ratio > = 2

year (1985–6) remained poor during the whole observation period (1986–8) and obviously, they failed to escape from income insecurity. Those who succeeded in escaping from income insecurity seem to have moved out particularly in the first year of a poverty spell. The reasons for escaping from income insecurity are, in the majority of cases, related to a change in the employment status of the household. For those who were not capable of leaving poverty in the first year the probability of leaving poverty fell very quickly in the years after. From a policy perspective it seems therefore of utmost importance to create jobs for the unemployed and the (partly) disabled in order to assure that those who become unemployed will have the opportunities to find a job in due time. The strong competition on the labour market for the limited number of available jobs will undoubtedly lead to longer durations of poverty spells for categories with unfavourable labour market conditions or for those who are incapable of work. Active social policies, including employment policies, should therefore be targeted to these 'vulnerable' categories. Multidimensional anti-poverty policies should not be dismissed as being infeasible or entirely out of scope. Their task, however, will only become, or remain, feasible to the extent that there is full commitment to the primary institutions of income security, that is to employment, social security protection and the family.

Employment opportunities and universal social security, i.e. social insurance protection, should guarantee optimal mobility out of insecurity of subsistence. If this mobility is endangered, any pronounced poverty policies may become unfeasible and ineffective. So multidimensional local action projects as promoted in the third EC poverty programme and the Dutch social renewal policies are bound to remain of limited and even discouraging societal impact if they are not surrounded by broader employment and social security policies.

Thirdly, for both the industrialized northern member states of the EC, as well as for the other member states with a less developed system of social protection, it is of utmost importance to complement the experience gained from action research at the local level by an elaborate panel research device to enable both groups of member states to monitor the evolution in the basic social institutions and to assess the impact of internal social shifts like marriage instability as well as the impact of 1992 on their economies, employment structures and social protection systems. Such a panel device in the form of a Community-wide household panel to monitor the evolution of income, social protection systems and labour market policies, could give the member states and their Community the tool needed for creating and monitoring efficient and effective policy instruments to resolve the challenges of the years ahead. 1992 should not become an alibi for social dismantling but a major opportunity to improve the social protection systems in terms of social and economic efficacy and to elaborate the correct environment for policies of social renewal and social integration at the appropriate policy level.

APPENDIX

The list of deprivation items

In the October wave of the Socio-Economic Panel of 1988 the following list of items was included (see Berghman *et al.* 1990).

1 On average, one hot meal per day
2 A meal including meat, poultry or fish at least once every two days
3 Usually, enough food at home so as not to be hungry

4 Clothing which protects against cold and rain
5 Replacement of worn-out furniture with new furniture
6 Regular buying of new clothes
7 Recreational goods such as sports equipment or a bicycle for the children
8 A washing machine
9 A refrigerator
10 A telephone
11 A car
12 Home or personal computer
13 At least one week's annual holiday away from home (not visit to family)
14 Living in a well-maintained home
15 Sufficient heating in periods of cold weather
16 A home which is free from damp
17 Enough bedrooms to give each child older than ten years its own bedroom
18 A WC of one's own in the home (not shared with other households)
19 A bath/shower of one's own in the home (not shared with other households)
20 Paying the rent or mortgage without problems
21 Paying the gas-, water- and electricity-bill without problems
22 Garden, balcony or terrace
23 Consider the quality of products rather than the price
24 Home in well-maintained area
25 Living in an area with good shopping facilities
26 Live in an area with easy access to public transport
27 Live in a safe area
28 Live in an area with nursery/day-care centre for children (creche, community centre or club-house)
29 Healthy working environment
30 Work entitling person to a good supplementary company pension
31 Steady employment
32 Completed course of education after primary school
33 Completed course of education after secondary school
34 Regular contacts with family, friends or acquaintances
35 Having acquaintances, friends or family for dinner at least once a month
36 Going out for the evening once every two weeks (without the children)
37 Contact with people in your area
38 Receive help from others when necessary
39 Membership of a social or cultural association (sport club, social/music group)
40 A life without money problems
41 Satisfaction with current life conditions
42 Live in an optimistic manner
43 In general live as yourself wish to do
44 Good health
45 Make good use of entitlement to public facilities/services

Notes

1 The model applied in this article is a slightly modified version of the model applied in Dirven and Berghman (1991). Parameter stability is still assumed, a correction for selectivity bias connected with item non-response of income has been implemented but instead of fixing the regressors for family size, age and reference group at a value for a particular year they are calculated for every year separately.
2 The poverty gap is defined here as (y-z)/z, where y represents household income and z represents the household poverty line. The poverty gap is calculated for every household in the sample. In the next step the poverty gap is assigned to each person in the household. In Table 1 the average individual poverty gaps are given.
3 A stationary three chain mixed markov model estimated with PANMARK, a programme developed by van de Pol (1989) appears to have a good fit ($p = 0.7$).
4 If it is assumed that the duration of poverty spells has a Weibull distribution, the occurrence of 'duration dependency' may be investigated. In case of Weibull the survival function is given by $S(t) = \exp(-t^{\alpha})$ and $\ln[-\ln S(t)] = \alpha \ln t$. If we plot the double log of the survival estimates with time a straight line will be found if the duration process indeed prove to be Weibull. In that case α can be estimated with regression (OLS), where the time

variable has to be weighted with the frequency of durations.

References

Alessie, R., Elderen, E. van, Kapteyn, A. (1990) *Inkomens van ouderen 1984 1987*, Tilburg, Tilburg University, Economic Institute Tilburg.

Bane, Mary Jo, and Ellwood, David (1986) Slipping into and out of poverty: the dynamics of spells, *Journal of Human Resources* **21**: 1–23.

Berghman, J., Dirven, H., Huurne, A., Muffels, R. (1990) *Report on the Dutch Feasibility Study on a European Community Household Panel (ECHP)*, Tilburg, Tilburg University, IVA, Institute for Social Research, Department of Social Security Studies.

Berghman, J., Muffels, R., Vries, A. de, Vriens, M. (1988) *Armoede, bestaansonzekerheid en relatieve deprivatie*, Rapport 1988, Tilburg, Tilburg University, Department of Social Security Studies.

Berghman, J. and Muffels, R. (1988) Armoede -en armoedeonderzoek in de EG -eerste en voorlopige resultaten voor Nederland, in W. van Oorschot (red.), *De maatschappelijke verdeling van armoede*, Social Security Studies Series, Tilburg, Tilburg University.

Blank, Rebecca M. (1989) Analyzing the length of welfare spells, *Journal of Public Economics* **39**: 245–273.

Colassanto, Diane, Kapteyn, Arie and van der Gaag, Jacques (1984) Two subjective definitions of poverty: results from the Wisconsin Basic Needs Survey, *Journal of Human Resources* **19**: 127–38.

Desai, M. and Shah, A. (1985) *An Econometric Approach to the Measurement of Poverty*, London, Welfare State Program, Suntoy Toyota International for Economics and related Disciplines, Number 2.

Dirven, H. J. and Berghman, J. (1991) *Poverty, Insecurity of Subsistence and Relative Deprivation in the Netherlands, Report 1991*, Department of Social Security Studies and IVA, Institute for Social Research.

Duncan, G. (1984) *Years of Poverty, Years of Plenty: the Changing Fortunes of American Workers and Families*, Michigan, Ann Arbor, Survey Research Centre, Institute for Social Research.

Deleeck, H., Bosch, K. van den, De Lathouwer, L. (1991) *Indicators of Poverty and Adequacy of Social Security, Methodological Considerations and Comparative Results for Seven Countries: Belgium, The Netherlands, Luxembourg, Ireland, Lorraine, Catalonia and Greece*, Final Report, Antwerp, University of Antwerp.

Duncan, Greg J., Gustaffson, Bjorn, Hauser, Richard, Hausman, Pierre, Jenkins, Stephen, Messenger, Hans, Muffels, Ruud, Nolan, Brian, Ray, Jean-Claude and Voges, Wolfgang (1991) Poverty and Social-Assistance Dynamics in the United States, Canada and Europe, Michigan, Michigan University, Institute for Social Research, paper, 1991 (forthcoming).

Goedhart, T., Halberstadt, V., Kapteyn, A., van Praag, B. M. S. (1977) The poverty line: concept and measurement, *Journal of Human Resources* **12**: 503–20.

Hagenaars, J. (1990) *Categorical Longitudinal Data: Log-Linear Panel, Trend, and Cohort Analysis*. Newbury Park, CA (ect.), Sage publications.

Kalbfleisch, John D., and Prentice, Ross L. (1980) *The Statistical Analysis of Failure Time Data*, New York, John Wiley & Sons, Inc.

Kapteyn, Arie (1977) A Theory of Preference Formation, Leiden University (ac. thesis).

Kapteyn, A. and Melenberg, B. (1990) *Technische bijlage bij inkomens en bestedingen van ouderen*, Tilburg, Economic Institute Tilburg.

Kapteyn, A., Kooreman, P., Willemse, R. (1988) Some methodological issues in the implementation of subjective poverty definitions, *Journal of Human Resources* **23**: 222–242.

Kapteyn, Arie (1985) Utility and Economics, *The Economist* **133**: 1.

Muffels, R., Kapteyn, A., Berghman, J. (1990) *Poverty in the Netherlands: Report on the Dutch Contribution to an International Comparative Study on Poverty and the Financial Efficacy of the Social Security System*, Brussels, The Hague, VUGA.

Muffels, R., Vriens, M. (1991) The elaboration of a deprivation scale and the definition of a subjective deprivation poverty line, paper presented at the Annual Meeting of the European Society for Population Economics, Tilburg University, 6–8 June 1991.

O'Higgins and Jenkins, S. (1989) *Poverty in Europe: Estimates for the Numbers in Poverty in 1975, 1980, 1985*, Bath, University of Bath, European Programme to combat poverty, animation and dissemination service, evaluation unit, Centre for Analysis of Social Policy.

Oorschot, W. van (1991) Non-take-up of Social Security Benefits in Europe, *Journal of European Social Policy* **1**(1): 15–30.

Pol, F. van de (1989) *Issues of Design and Analysis of Panels*, Amsterdam, Sociometric Research Foundation.

Ringen, S. (1990) Direct and indirect measures of poverty, *Journal for Social Policy* **17**: 351–65.

Runciman, W. G. (1966) *Relative Deprivation and Social Justice*, London, Routledge and Kegan Paul.